

2 Conclusions

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Introduction

2.1. This reference was made by the DG on 18 September 1996 under Article 15 of the Electricity Order. It resulted from NIE's rejection of the DG's proposals for the price controls to be applied to NIE's T&D and Supply Businesses from April 1997. Those proposals, published on 31 July 1996, followed an 18-month review of the present price controls on NIE's three core businesses, namely the PPB, T&D and Supply. NIE accepted the proposals for the PPB but rejected those for T&D and Supply. Under the Electricity Order the DG is able to modify provisions of NIE's licence with the agreement of NIE or, if NIE disagrees with the DG's proposed modifications, following a reference to the MMC.

2.2. Our inquiry concerns the provisions in Schedule 4 to NIE's licence¹ which restrict NIE's T&D charges and the provisions in Schedule 6 which restrict its Supply charges. The texts of Schedules 4 and 6 are set out in Appendices 2.1 and 2.2 respectively.

2.3. Our terms of reference, which are set out in full in Appendix 1.1, require us to investigate and report on whether the continuation without modification or the disapplication of the provisions of each Schedule, in either or both cases, operates or may be expected to operate against the public interest; and if so, whether the effects adverse to the public interest could be remedied or prevented by modification of the conditions in NIE's licence.

Background

Northern Ireland Electricity plc

2.4. NIE is the PES for Northern Ireland. It has some 650,000 customers, about the same as Scottish Hydro-Electric plc (SHE), but its annual sales of electricity (around 6,800 GWh) are well below SHE's. On either measure it is much smaller than any of the other 13 PESs in Great Britain. It has the second-lowest customer density, whether measured by customers per square km or per km of overhead line, behind SHE.

2.5. Table 2.1 sets out NIE's relative position (in respect of a number of criteria) compared with the average for the Great Britain PESs and with those individual PESs with which it is most comparable.

2.6. NIE in its present form was established in 1992. In accordance with proposals set out in a White Paper of March 1991,² the Government sold the four power stations of the former state-owned electricity supply authority in Northern Ireland to three private sector companies (see paragraph 2.14). The remainder of the industry was vested in NIE on 1 April 1992. In June 1993 NIE was privatized by a public offering of shares (flotation) and listed on the London Stock Exchange.

2.7. NIE has three main regulated businesses:

- (a) *PPB*. All licensed generators in Northern Ireland are required to sell all of their capacity and output to the PPB, and all licensed suppliers of electricity in the province are required to buy all of their electricity from the PPB. In operating the PPB, NIE is responsible for deciding in which order particular generating plant is used, and for controlling the transmission system, in order to meet demand for electricity on a day-to-day basis. It is also responsible for ensuring that sufficient generation capacity is available to meet future demand.
- (b) *T&D*. The T&D Business is responsible for the planning, development, construction, operation and maintenance of the T&D system which conveys electricity from the power stations to customers' premises.

¹We use this term to mean the single composite document which contains both the transmission and PES licences granted to NIE on 31 March 1992 under Article 10 of the Electricity Order: see paragraph 4.11.

²*Privatisation of Northern Ireland Electricity*, Cm 1469, March 1991.

TABLE 2.1 Characteristics of NIE compared with PESs in Great Britain

	<i>Area sq km</i>	<i>Customers '000</i>	<i>Customers per sq km</i>	<i>GWh distributed</i>	<i>Overhead line length km</i>	<i>Customers per km of overhead line</i>	<i>Transformers</i>	<i>Customers per transformer</i>
NIE	14,122	640	46	6,530	29,372	22	62,951	10
SHE	54,390	640	12	11,250	34,281	19	46,252	14
Manweb	12,200	1,350	110	18,490	21,284	63	40,635	33
SWALEC	11,800	960	81	11,160	18,630	52	38,697	25
SWEB	14,400	1,290	90	12,980	29,069	44	48,309	27
Average for Great Britain								
PESs (exc London)	17,297	1,736	123	18,810	23,982	81	42,120	44
NIE rank (out of 15)	8	= 14	14	15	3	14	1	15

Source: NIE, based on 1994/95 data published by OFFER and the Electricity Association.

- (c) *Supply*. The Supply Business comprises the acquisition of electricity from the PPB, and 'Use of System' from the T&D Business, in order to supply customers, and the billing and collection of customers' accounts.

2.8. In addition to these core electricity businesses NIE is engaged in the following further activities:

- (a) *Appliance retailing*. NIE's Retail Business operates a chain of 34 stores which sell a range of electrical goods and act as a point of contact for the domestic and small commercial customers of the Supply Business (for example, for the payment of bills).
- (b) *Profit centres*. These centres (telecommunications, information systems, training and conference facilities, transport, civil projects and warehousing) were established from former service departments of the core electricity businesses, from which they now obtain most of their revenue through charges for services rendered.
- (c) *Landbank*. NIE is required by the DG to maintain a landbank of property (including the existing power stations, which are leased to their private operators) to safeguard the supply of electricity in Northern Ireland.
- (d) *Interconnectors*. NIE and Scottish Power plc (ScottishPower) plan to build an interconnector between Northern Ireland and Scotland to link their respective transmission systems (see paragraph 2.19). The planning and-if it proceeds-financing, construction and operation of this project are the responsibility of a separate business within NIE. This business is also responsible for the running of an existing interconnector with the Republic of Ireland: see paragraph 2.18.

Of these, the landbank and interconnector activities are regulated by the DG; the other activities are unregulated.

2.9. In its last completed financial year before the submission of our report (the year to 31 March 1996) NIE's total turnover was £525 million, of which 90 per cent (£475 million) was from the three core electricity businesses, 5 per cent from appliance retailing and 5 per cent from the other activities. Operating profit totalled £106 million, all but £3 million coming from the core businesses.

2.10. Fuller descriptions of NIE's activities and financial results are in Chapters 3 and 5.

The electricity supply industry in Northern Ireland

2.11. The electricity supply industry in Northern Ireland is regulated principally by the Electricity Order, by further regulations made pursuant to it, and by licences granted under it. The principal regulators are the Department of Economic Development (DED) and the DG (who is appointed by the DED). The primary and other duties of the DED and the DG are set out in paragraph 2.34.

2.12. The Electricity Order provides for four types of licence: generation, transmission, PES and second-tier supply. The licences regulate the economic behaviour of licensees and set the framework for the operation of the industry, including provision for the introduction of competition. NIE holds the only transmission and PES licences.

2.13. The following paragraphs briefly describe the structure and characteristics of the electricity supply industry in Northern Ireland from generation through to supply.

2.14. At present Northern Ireland is almost totally reliant on the four power stations which were sold to the private sector in 1992. By far the largest of them, Ballylumford, is owned by a subsidiary of BG plc (BG). BG recently constructed a natural gas pipeline from the mainland to Northern Ireland (previously the province had no natural gas supply) and has converted the power station from oil-fired to gas-fired. The second- and fourth-largest stations, Kilroot and Belfast West, are owned by Nigen Limited (Nigen), a joint venture between AES Corporation (USA) and Tractebel SA (Belgium), while the third-largest, Coolkeeragh-the only one located in the west of the province-is majority-owned by its management and employees.

2.15. Long-term power purchase agreements (PPAs) were put in place by the Government between NIE and the three generating companies when the power stations were sold off in 1992. They determine the level of payments which NIE (through the conduct of the PPB) must make to the generators for the availability of their capacity and for electricity produced. The contracts have expiry dates between 1997 and 2024. The DG may require them to be cancelled early-at dates ranging from 1996 to 2010-but only if certain conditions are fulfilled: the main condition being the introduction of more competitive arrangements into the market, for example through the introduction of a Wholesale Electricity Trading System (WETS).

2.16. The DG has not proceeded with the introduction of a WETS to date. He told us that he considered that the PPAs were causing electricity prices in Northern Ireland to be higher than was justifiable, and that he was discussing possible changes to current arrangements with the generators. If these discussions did not lead to what he regarded as a sufficient reduction in electricity prices, he would consider referring the generating sector to the MMC under the monopoly provisions of the Fair Trading Act 1973. It was not necessary for us to comment on costs, prices and other aspects of the generating sector in this report, although several parties which gave evidence to us drew attention to what they saw as the excessive charges being made by the generators (see Chapter 12).

2.17. In support of the Government's policy to promote renewable energy sources, NIE is obliged under two Non-Fossil Fuel Obligation (NFFO) Orders to contract for a certain amount of renewable generation capacity (currently about 1 per cent of total capacity). NIE also purchases a very small amount of electricity from companies with their own generating capacity whose output exceeds their own requirements.

2.18. In addition to the generating capacity within Northern Ireland, interconnection with other electricity networks is relevant in this context. There is a long-standing interconnector between Northern Ireland and the Republic of Ireland which was taken out of use after being damaged by terrorist action in the 1970s but restored to service in spring 1995. Although this has a capacity (300 MW) which is substantial in relation to peak demand in Northern Ireland (around 1,500 MW), NIE told us that the interconnector was intended only to provide mutual support in the event of shortfalls and that, in any event, the Republic of Ireland Electricity Supply Board (ESB) had no spare capacity to supply the province at present.

2.19. As mentioned in paragraph 2.8, NIE and ScottishPower intend-subject to receiving planning permission-to build a 250 MW interconnector between their two networks. Under the agreement between them ScottishPower would supply NIE at prices based on those of the wholesale electricity Pool in England and Wales for a period of at least 15 years, and NIE would be committed to pay ScottishPower for 1,250 GWh a year (about 20 per cent of NIE's current demand) over that period whether or not it took that amount (although at a reduced rate for power not taken).

2.20. NIE's PPB has a statutory monopoly in both the purchasing and sale of wholesale electricity in Northern Ireland.¹ It sells electricity to all authorized suppliers, including NIE's Supply Business, at standard rates which are laid down in the Bulk Supply Tariff.

2.21. The transmission and distribution of electricity are also statutory monopolies held by NIE. Use of the T&D system is available to all authorized suppliers, including NIE, for the conveyance of electricity to their customers on payment of Use of System charges.

2.22. As regards supply, NIE is required under the Electricity Order to supply electricity upon request from the owners or occupiers of premises in its authorized area (that is, Northern Ireland). It has to offer a tariff (a standard scale of charges) to customers with a maximum demand up to 1 MW and contract terms to customers with higher demand. While NIE has an obligation to supply, it has no supply franchise, that is, it does not have a monopoly over the right to supply customers at any level of demand. Other parties may apply for second-tier supply licences, which enable them to compete for customers against NIE. Currently three companies, all of them regional electricity companies (RECs) in England and Wales (Eastern Electricity, Manweb and Northern Electric), hold such licences, although their combined market share to date is very small (less than 0.5 per cent). Their few customers tend to be the Northern Ireland operations of companies which are also their customers in Great Britain. In addition customers with demand exceeding 1 MW may choose to purchase electricity direct from NIE's PPB and Use of System direct from NIE's T&D Business, bypassing NIE's Supply Business and other suppliers, although none has yet done so. At present the DG requires that customers buying electricity from anyone other than NIE's Supply Business should have half-hour meters in order to determine the pattern of their consumption and hence their charges. The DG told us that he was currently considering the feasibility of 'load profiling', that is the use of average patterns of consumption, to determine charges for such customers.

2.23. The structure of the electricity supply industry in Northern Ireland differs from that in England and Wales, where transmission is handled by one company, the National Grid Group plc (NGG), which is separate from the PESs which handle distribution and supply (that is, the RECs). It also differs from the structure in Scotland, where the two PESs (ScottishPower and SHE) are fully integrated vertically from generation right through to supply.

2.24. Other important differences in Northern Ireland compared with Great Britain are as follows:

- (a) Generation is almost entirely in the hands of three companies, whereas a substantial and growing number of operators are active in the generation sector in Great Britain.
- (b) NIE itself is not permitted to own generating capacity (other than that using non-fossil fuels) whereas the RECs may own up to 15 per cent of their own generating requirements.
- (c) There is no wholesale trading system for electricity (such as the Pool in England and Wales) nor are suppliers permitted to contract direct with generators for electricity (as they are throughout Great Britain).
- (d) NIE, unlike any Great Britain PES, is obliged to purchase power from generators under long-term contracts.
- (e) The Great Britain PESs had a statutory monopoly over the supply of electricity to customers in their authorized areas with demand up to 1 MW until April 1994 and will continue to have

¹The DG has, however, made proposals which would allow large customers to contract directly with generators in certain circumstances (see paragraph 3.29).

such a monopoly in relation to customers with demand up to 100 kW until April 1998. The NIE Supply Business, as noted above, has not had a statutory monopoly in relation to any class of customer since its establishment in 1992.

Prices

2.25. Most of the revenues of NIE's regulated businesses are subject to price controls. Separate price control formulae applying to each of the PPB, T&D and Supply Businesses lay down the maximum revenue which NIE is permitted to raise each year from regulated activities. They relate the permitted increase from one year to the next to the general movement in retail prices, as measured by the retail price index (RPI), by means of an $RPI \pm X$ term.

2.26. The present T&D and Supply Business price control formulae are described in Chapter 4. Particular points to note are:

- (a) The T&D Business formula is a combination of a revenue control, which fixes allowed revenue irrespective of the units of electricity conveyed, and a price control, which sets the maximum allowable average charge per unit. The fixed element has a weighting of 0.75 and a permitted annual change of $RPI + 3.5$ percentage points, while the variable (unit-linked) element has a weight of 0.25 and a permitted annual change of $RPI + 1$ percentage point. The result of this is that if the growth in unit sales is 2.5 per cent, the increase in both elements of the formula is effectively the same. (Growth in the last five years has actually been around 2.9 per cent.) The weighting factors were intended to approximate to the cost structure of the T&D Business and thus to remove most of the incentive for the business to sell more units (since costs rise broadly in line with revenues if it does so).
- (b) The Supply Business formula allows the business to pass through to customers all its costs incurred in buying electricity from the PPB at the Bulk Supply Tariff, and all its conveyance costs incurred via Use of System charges by the T&D Business, since they represent costs which have already been regulated. The term which covers the Supply Business's own costs is allowed to increase at the same rate as the RPI, that is, X is zero. The formula covers charges to all sizes of customer.

2.27. There is a history of electricity prices in Northern Ireland being subsidized (see paragraphs 3.63 to 3.66). This is partly because of high generation costs, although NIE argued that, in addition, the physical characteristics of the T&D system were such that it was more costly to operate than the equivalent networks in Great Britain (see Appendix 8.3).

2.28. Table 3.10 compares domestic prices in Northern Ireland and Great Britain over the period 1990/91 to 1996/97. The table shows that, whereas average prices in Great Britain fell by nearly 12 per cent in real terms over this period, NIE's prices rose by 2 per cent. Whereas NIE's price was 5 per cent above the Great Britain average in 1990/91, the gap increased to 21 per cent in 1996/97.

2.29. A breakdown of 1996/97 final prices into their component elements shows that the generation element of the domestic price in Northern Ireland is 33 per cent above the Great Britain average, T&D 44 per cent above and supply 18 per cent above: see Table 3.12. (The differential in final prices is reduced by levy and subsidy elements favouring Northern Ireland.) If a comparison is made with the average prices of the three RECs which NIE said faced conditions most like those in Northern Ireland (Manweb, SWALEC and SWEB), the T&D element of NIE's domestic price is 19 per cent higher and the supply element 12 per cent higher.

Origin of the reference

2.30. In 1995 the DG initiated a review of the price controls on NIE's three main regulated businesses with a view to deciding what regime should apply from April 1997. He appointed consultants to advise him on specific issues-London Economics (LE) in relation to cost of capital and asset valuation,¹ Pannell Kerr Forster (PKF) in relation to operating costs and Rust Kennedy & Donkin (RKD) in relation to capital expenditure-and used questionnaires and other means to collect information from NIE. Following a lengthy process which involved public consultation and many private meetings with NIE, on 31 July 1996 the DG published his proposals for new price controls to take effect from April 1997.

2.31. On 30 August 1996 NIE rejected the proposals for new price controls on the T&D and Supply Businesses while accepting those for the PPB. NIE submitted that the proposals would provide it with insufficient revenues from its regulated activities to finance those activities, and that by the end of the next five-year period NIE's financial condition would necessitate a significant increase in electricity prices to provide it with sufficient funds.

2.32. In response to NIE's rejection of his proposals the DG made the present reference to the MMC in respect of the price controls to be applied to the T&D and Supply Businesses.

The public interest

2.33. We have first to determine whether the continuation without modification, or the disapplication, of the present price control provisions in Schedules 4 and 6 to NIE's licence in either case operates or may be expected to operate against the public interest.

2.34. Article 15(7) of the Electricity Order requires us, in determining this question, to have regard to the matters as respects which duties are imposed on the DED and the DG by Articles 4 and 6 of the Order. These are set out in full in Appendix 2.3 but, in summary, they impose a duty on the DED and the DG to exercise their functions in the manner which they consider is best calculated-

- (2) (a) to secure that all reasonable demands for electricity are satisfied;
- (b) to secure that licence-holders are able to finance the carrying on of their licensed activities; and
- (c) subject to (3) below, to promote competition in generation and supply;
- (3) (a) to secure that the prices charged to tariff customers in NIE's area do not distinguish between different parts of the area; and
- (b) to secure that NIE is not as a result disadvantaged in competing with other authorised suppliers; and
- (4) subject to (2) and (3) above-
- (a) to protect the interests of consumers in respect of prices charged and other terms of supply, continuity of supply and quality of service;

¹In addition, PKF commissioned LE to carry out a comparative analysis of NIE's operating efficiency (see paragraph 8.100).

- (b) to promote efficiency and economy on the part of holders of licences to supply or transmit electricity, and the efficient use of electricity supplied to consumers;
- (c) to promote research into, and the development and use of, new techniques by or on behalf of persons authorised by a licence to generate, transmit or supply electricity;
- (d) to protect the public from dangers arising from the generation, transmission or supply of electricity; and
- (e) to secure the establishment and maintenance of machinery for promoting the health and safety of persons employed in the generation, transmission or supply of electricity.

2.35. In exercising their functions the DED and the DG also have a duty to take into account the effect on the physical environment of activities connected with the generation, transmission and supply of electricity. In respect of prices charged and other terms of supply they must take into account in particular the protection of the interests of consumers in rural areas and, in respect of quality of service, the interests of those who are disabled or of pensionable age.

2.36. The DG told us that he considered that the continuation without modification of the licence provisions restricting the charges of NIE's T&D and Supply Businesses would be clearly contrary to the public interest because there would, as a result, be a continuing real increase in prices for which there was no economic justification. NIE said it accepted that the price controls should be modified in order to pass on to customers the continuing benefit of the efficiency gains which the company had made in the first price control period. Its disagreement with the DG concerned the extent of the modifications. Neither the DG nor NIE argued for the disapplication of the controls, except in relation to the Supply controls as they affect large customers (see paragraph 2.174).

2.37. In the following sections we consider in turn the price controls for the T&D Business and the Supply Business in relation to the criteria in Articles 4 and 6 of the Electricity Order to determine whether their continuation without modification, or their disapplication, operates or may be expected to operate against the public interest. We should record that our investigations in pursuance of this obligation were complicated by the lack of comparability in significant parts of the evidence which we received from NIE and the DG concerning capital and operating expenditure. Dialogue between them had not been such as to produce an agreed factual basis for decisions about the future price control and, where necessary, we therefore had to carry out our own investigations.

Transmission & Distribution Business price controls

2.38. The T&D Business is a monopoly activity. There is no prospect of anyone building a second network in Northern Ireland and no prospect, therefore, of competition developing in this part of the electricity supply industry. In the absence of competitive constraints, regulatory controls are necessary to restrict the charges which NIE can make to suppliers and customers. We conclude that the disapplication of the restriction of T&D charges contained in Schedule 4 to NIE's licence may be expected to operate against the public interest because it would remove the necessary protection for the interests of consumers in respect of prices. The question then becomes whether the continuation without modification of the existing controls would be against the public interest.

2.39. As described in paragraph 2.26(a), the existing provisions are a combination of a revenue control and a price control. Movements in both elements are linked to the RPI. The broad effect is

that if NIE is able to reduce costs, compared with the levels assumed when the controls were set, it can increase its profits. It thus has an incentive to find ways of running the business at lower cost. In this respect the controls follow the pattern of those which have been applied to the other utility companies which have been privatized over the past decade or so, and which are generally known as RPI-X type controls.

2.40. We have considered whether the controls to apply from 1997 onwards should take the same form. There is continuing public debate on this subject. Some commentators take the view that RPI-X controls have frequently proved too generous to companies and shareholders. One proposal which has gained some support is that the principal RPI-X control should be supplemented by some form of profit-sharing, that is that the benefit of any profits above a specified level should be divided between shareholders and customers.

2.41. Regulators have not, to date, taken up the idea that profits made in the course of a given price control period should be shared with customers. RPI-X controls are seen as having desirable incentive properties, rewarding companies for making efficiency gains. They provide benefits to customers because lower ongoing costs are reflected in lower prices during the next regulatory period.

2.42. We have considered the appropriateness of introducing profit-sharing into the RPI-X formula which applies to NIE. Neither the DG nor NIE argued in favour of such a change, although one other party did so when we raised the question with it (see paragraph 12.88). We take the view that a change of this nature should not be introduced in this case. Such a change would in principle be relevant to all regulated industries and would in our view be better dealt with by considering it in a wider context than is possible with an inquiry into a single company. We believe that the controls to be applied to NIE over the next period should take broadly the same form as those which have applied hitherto. We also believe that the controls should run for five years, a period used for many regulated utilities, since that strikes a reasonable balance between the company's desire for a stable planning framework and the need to ensure that the benefits of future efficiency gains are passed on to consumers without undue delay.

2.43. In order to reach a view on the appropriate level of price control over the T&D Business using the RPI-X formula we have had to consider and/or make estimates on the following aspects:

- (a) NIE's cost of capital in relation to the T&D Business, that is the rate of return which NIE needs to earn in order to raise capital in future;
- (b) the valuation of the capital base of the T&D Business, to which the appropriate cost of capital should be applied (we refer to this as the regulatory asset base (RAB));
- (c) the way in which depreciation of fixed assets should be calculated;
- (d) the capital expenditure requirements of the business over the five-year period; and
- (e) the operating expenditure requirements of the business over that period.

Cost of capital

2.44. One of the primary duties imposed on the DED and the DG by Article 4 of the Electricity Order, and to which we must have regard, is to secure that NIE is able to finance the carrying on of its licensed activities (see paragraph 2.34(2)(b)). Thus NIE should be allowed to charge prices which not only cover its costs but also provide a sufficient return for it to be able to attract any new capital which is required to carry on its licensed activities.

2.45. The setting of the cost of capital requires the exercise of judgment. We have had regard to the consideration of this issue by the MMC in previous cases and have looked at the capital asset pricing model (CAPM) in some detail since that was the main method used by the DG and NIE in making their submissions to us.

2.46. Paragraphs 9.2 to 9.40 discuss the various elements which need to be addressed in determining the appropriate real, pre-tax rate of return-equal to the pre-tax weighted average cost of capital (WACC)-which NIE will require if it is to be able to raise new capital. We address each of the elements in turn before reaching an overall judgment.

2.47. There is broad agreement on the size of the risk-free rate, the estimates put to us all falling in the range 3.5 to 3.9 per cent. They are based on the real redemption yields on five-year index-linked gilts using a range of inflation assumptions. Dr Jenkinson of Oxford University, who advised the DG on cost of capital, pointed out that the appropriate inflation rate could be determined by reference to the Bank of England's estimates of the yield curve for both conventional and index-linked securities. The latest estimates suggested a value for the risk-free rate of 3.66 per cent. This is consistent with the mid-point of a range of 3.5 to 3.8 per cent, the range adopted by the MMC in the 1995 report on SHE's price controls¹ and in the most recent completed review of a privatized company's price controls, namely that dealing with the three London airports of BAA plc.²

2.48. There are greater differences in the estimates of the equity risk premium. The lowest, by Dr Jenkinson, was 3.0 to 5.0 per cent and the highest, by Barclays de Zoete Wedd (BZW) (which was commissioned by NIE), 5.0 to 8.0 per cent. The higher estimates result from comparisons of ex-post returns on equities and gilts over a long period and the use of arithmetic rather than geometric means. We consider that the use of a combination of ex-post, ex-ante and semi-ex-ante returns is likely to give a sounder estimate. Moreover the use of ex-post returns alone, over a period much longer than ten years, is likely to produce excessively high estimates of the equity risk premium. This is because there have been significant periods when returns on gilts have been low or even negative, probably reflecting unanticipated inflation: with the liberalization of financial markets and the introduction of new financial instruments (such as index-linked gilts) errors in the estimate of the equity risk premium for this reason are less likely to recur.

2.49. The question of whether to use arithmetic or geometric means remains one of debate, mainly reflecting different views as to how best to characterize the process assumed to generate returns over time. In the short term it is conventional to assume that annual returns are statistically independent which would suggest using arithmetic means. But it has been argued that this assumption is implausible over the longer term, and the alternative view has been employed to justify the use of geometric means. We see no reason, in the light of the present state of this debate, to depart from the use of geometric means, noting that this gives an overall range of the WACC consistent with that which has been used elsewhere, in particular for the Great Britain PESs which appear to have had no difficulty in continuing to finance their operations. Overall, there can be no certainty on the level of the equity risk premium since new information continues to appear, and it must therefore remain a matter of judgment. Taking account of the various relevant factors we consider that the range of 3.5 to 5.0 per cent is appropriate. This may be compared with ranges of 3.5 to 4.5 in the SHE report and 4.0 to 5.0 in the BAA report.

2.50. The next component to be addressed is the equity beta, which measures the riskiness of investments in a particular company's shares-compared with the average for all equities-as indicated by the volatility of the share price. The estimates of NIE's beta given to us by the DG and NIE were the same (0.6 to 0.7), but NIE also submitted higher estimates by BZW and Professor Ashton

¹ *Scottish Hydro-Electric plc: a report on a reference under section 12 of the Electricity Act 1989*, HMSO, May 1995.

² *BAA plc: a report on the economic regulation of the London airport companies (Heathrow Airport Ltd, Gatwick Airport Ltd and Stansted Airport Ltd)*, CAA, July 1996.

of Bristol University. In our view BZW's estimate is based on too few observations for us to rely on. Professor Ashton's estimate is forward-looking and assumes that the intended higher level of gearing (40 per cent as opposed to the current level of 8 per cent) would result in a higher beta of 1.07 to 1.25. This view assumes that the lower cost of debt is offset by a higher cost of equity as gearing increases. Whether or not this is a sound assumption, we note that combinations of (a) forward-looking and (b) historical estimates of gearing and beta produce similar estimates of NIE's pre-tax WACC. We have taken a historical range of 0.6 to 0.75 based on estimates using daily and weekly data on NIE's share price movements.

2.51. In order to estimate the required pre-tax return on equity an assumption has to be made about the effective rate of tax. The tax adjustment of 16.25 per cent used in the tables in Chapter 9 (Tables 9.1 to 9.3, 9.5 and 9.6) is based on the conventional assumption, used in previous MMC regulatory inquiries, that the company pays corporation tax at the full rate and that all profits are distributed as dividends.

2.52. NIE told us that the proposed change, announced in the November 1996 Budget,¹ in capital allowances on assets with a life of more than 25 years would increase the amount of tax which it would have to pay in the next regulatory period by about £34 million (at out-turn prices) and would increase its cost of capital by 0.5 percentage points. The DG, however, put the effect at 0.1 percentage points and argued that even this level of effect would only be approached gradually over a number of years.

2.53. In addressing this argument we note, first, that the change will apply only to new investment and it will therefore take time for the full effect to feed through. Secondly, and more fundamentally, the conventional assumption referred to in paragraph 2.51 is generous to the company because it assumes that NIE pays corporation tax at the current rate (33 per cent). In fact NIE's average effective tax rate over the four years 1992/93 to 1995/96 was 29 per cent in current cost accounting (CCA) terms. In the last of these years it was 23 per cent. Thus the effect of the tax change, if implemented, will be to reduce and possibly remove the element of generosity in the conventional assumption. We therefore consider that it is not appropriate for us to change the CAPM calculation on this account.

2.54. The DG's estimate of the debt premium for NIE, that is the interest rate premium over the risk-free rate which it would have to pay when borrowing, was a range of 0.5 to 0.8 per cent while NIE produced estimates in the range 0.8 to 1.0. NIE argued that SWALEC, the smallest of the RECs, had issued debt at 0.8 per cent over the relevant gilt and that this set the lower bound for its own debt premium since NIE was a much smaller company. NIE also told us that its estimate was supported by three quotations which it had obtained from banks. The DG submitted examples of actual debt premia for other utilities, including a number of electricity companies, nearly all of which were in the range 0.2 to 0.8. We do not accept that NIE, which has virtually no borrowings at present, should lie above this range. (Although the quotations which it had received from banks were higher, it is likely that NIE would have sought to negotiate finer terms if it had actually wished to take up any of the offers. We note that, in its August 1996 corporate plan, NIE assumed that it would pay a rate of [*] per cent over base on its future borrowings: see paragraph 9.118.) In the light of these considerations we have adopted a range of 0.3 to 0.8, slightly wider than the range adopted for SHE in the MMC's report into that company's distribution price control.

2.55. NIE argued that the CAPM method could only produce a range of figures within which the true cost of capital would fall. It was necessary to look at other factors in determining where within

¹Subsequently implemented in the Finance Act of March 1997.

*Figure omitted. See note on page iv.

the range the required rate of return lay. These factors included the particular risks faced by NIE, including those arising from the political situation in Northern Ireland.

2.56. We consider that no separate allowance should be made for the risk factors to which NIE drew attention. To the extent that the risks are specific to NIE they are diversifiable, that is an investor can diversify risks by acquiring a portfolio of different shares, and therefore should not be reflected in the cost of capital. This includes risks arising from the political situation in Northern Ireland. To the extent that the risks are not diversifiable, that is they apply to the whole equity market but may affect NIE more (or less), they are reflected in the estimated value of beta.

2.57. The DG and NIE each claimed that their estimates of the cost of capital were supported by their results from using the dividend growth model (DGM) (see paragraph 9.29). The DG's final estimate from the DGM was 7 to 7.5 per cent which was based on annual real dividend growth for NIE of 2.5 to 3 per cent, a dividend of 19p and a share price of 420p. In an earlier estimate he used an annual real dividend growth for NIE of 5 per cent but subsequently rejected this assumption as it was higher than the likely real long-term growth in the UK economy. NIE said that, assuming a share price of 450p and real dividend growth of 4 per cent, the DGM gave a cost of capital of 9 per cent. It told us that 450p was the correct share price to use since it was the price derived by adding back the discount which represented the appropriation of shareholder value implicit in the DG's price control proposals.

2.58. As with all financial models, the findings from the DGM depend crucially on the assumptions used. Since NIE's share price has been heavily influenced by expectations as to the outcome of the current price review, its use in pointing to the appropriate level for the cost of capital could become a circular exercise. As to the appropriate annual rate of real dividend growth for NIE, we find the DG's argument persuasive, namely that NIE's real long-term dividend growth should be consistent with that expected for the economy as a whole. Taking these factors into account, we believe that the indications given by the DGM do not contradict our findings on the cost of capital.

2.59. For the reasons set out in paragraphs 2.47 to 2.58, we believe that the ranges of figures in Table 9.6 are the appropriate levels. The table gives a range for the pre-tax WACC itself of 6.46 to 8.66 per cent.

2.60. The question of where within this range the actual cost of capital lies is again a matter of judgment. The T&D Business must be regarded as low risk since its monopoly is unchallenged and its revenues will not be greatly affected by any changes which may result from the DG's attempts to promote competition in the Northern Ireland electricity sector. We note that the average rates of return over the six years to 1995 for all UK companies, and for companies other than those with oil and gas operations on the UK continental shelf, are 8.38 per cent and 8.02 per cent respectively (see Table 9.7). Whilst aggregated national data should not be used alone to estimate the returns of an individual company, when used in association with other methods, for example the CAPM and the DGM, these data provide an indication of the consistency of the various estimates. The Office of National Statistics average of 8.38 per cent for all companies is towards the bottom end of the illustrative range of the WACC after adjustment for the use of an equity beta of 1.0 to represent the market as a whole (7.99 to 10.03 per cent). The position of the average company within our range together with our view that NIE's T&D Business is low risk suggests that the cost of capital for this business should be towards the bottom of our range.

2.61. It has been argued that the action of regulators may give rise to regulatory risks not accounted for in estimates of beta. Against this, it is also possible that, when applied to regulated companies, the CAPM might overstate the true cost of capital. This could be the case if fluctuations in returns which might occur in the future in an unregulated business were viewed as much more unlikely in a regulated one as a result of a regulator's duty to secure that licence-holders are able to

finance the carrying on of their licensed activities and the objective of eliminating excess profitability. We do not feel able to take a firm view on these arguments and since they pull in opposite directions we do not see them as having a material effect on our analysis.

2.62. We also note that a cost of capital of 7 per cent has been assumed for the transmission and distribution businesses of regulated electricity companies in Great Britain, including in the MMC report on SHE. There is no sign that those companies are having difficulty in financing their licensed activities, and they have attracted substantial take-over activity. We are not persuaded that the buyers must all have overpaid. NIE argued that those companies might actually be financing themselves at a higher rate of return, having cut costs more than the regulator had assumed. For this argument to be valid, however, there would have to be two offsetting errors in the regulatory regime, namely an inadequate cost of capital and an excessive allowance for capital and operating expenditure, and we do not find it very plausible that such a combination of errors would have occurred in every case.

2.63. Having taken all these factors into account we consider that a figure towards the lower end of our range for the pre-tax WACC is justifiable and in our view the appropriate figure for use in our calculations is 7 per cent.

Valuation of the asset base

2.64. In order to determine the level of revenues which NIE should be able to raise from the T&D Business in the next regulatory period it is necessary to put a value on the existing assets of the business (that is, the RAB). This value, as well as the net increase in the capital base over the regulatory period (which we deal with in the following section), should then be remunerated at the determined cost of capital.

2.65. The value implied by NIE's current share price is not in our view usable for this purpose because the price is likely to be heavily influenced by expectations about the outcome of our review.

Views of the DG and NIE

2.66. The DG based his proposals on NIE's initial market value (IMV). He argued that the revealed views of investors were a sounder basis for determining the company's value than either the book value of the assets or the value which the Government placed on the company at flotation. He set the IMV at the level indicated by the share price at the end of the first day's trading, which represented an increase of 12 per cent on the fully-paid purchase price (flotation price) of the shares. This, he argued, took account of any deliberate under-pricing of the shares designed to ensure the success of the flotation. He saw no case for a further uplift on this value-which he calculated as £373 million-because he believed that investors should be remunerated on the basis of what they had actually paid. In his view the subsequent increase in NIE's share price reflected, wholly or partly, an increasing perception of the laxity of the initial price controls: it would be perverse to perpetuate the effect of that laxity by building it into the price controls for the next regulatory period.

2.67. NIE submitted that if its asset base was to be valued by reference to the IMV a substantial increase on the value at the close of first-day trading should be made. First, a period longer than the first day was necessary to reflect deliberate under-pricing of the shares at flotation. Secondly, and more fundamentally, the early trading price incorporated a discount reflecting uncertainty as to whether NIE would be able to achieve projected returns. The share price rose in the months following the flotation as these risks unwound. NIE said that it was not possible to settle on a

precise figure which would fully add back the discount but pointed to three values-£510 million, £641 million and £631 million-which, it said, reflected the value of its share price 100, 129 and 200 trading days respectively after the flotation. Day 129 was the day of the Downing Street declaration on Northern Ireland and came shortly after the publication of NIE's first set of financial results after privatization, the interim results for 1993/94. NIE commented that it was significant that its share price rose on the publication of these results despite the fact that they were in line with analysts' expectations. This showed that the increase was due to the unwinding of risks and not to out-performance by NIE compared with expectations at flotation (which NIE accepted should not be reflected in the value of the asset base for the forthcoming period). NIE submitted that, if these risks were not taken into account in the assessment of its cost of capital, they should be dealt with in the valuation of the asset base.

2.68. NIE also argued that previous regulatory reviews of the prices of privatized utilities had allowed substantial uplifts in companies' valuation compared with close-of-first-day-trading prices. In particular there was no basis for adopting an uplift less than the 15 per cent which had been used in the second (1995) review of the RECs' distribution businesses.

2.69. NIE said that its preferred approach to determining its asset value was to adopt the value used in the financial models which it said underlay the initial price controls on NIE. These models had used a CCA book value for the T&D Business's assets of £458 million at 31 March 1993.¹ Although this figure had not been published, the information available at the time of the flotation would have led investors to expect future returns to be based on this value. NIE submitted that this approach, which it called the initial price control value (IPCV), was the correct one. If the new price control reflected an asset valuation which was set, retrospectively, below the IPCV, that would amount to a breach of faith with investors who, in the months following the flotation, had paid a price for NIE shares which reflected the full CCA value of the T&D assets.

2.70. The DG responded that his sole duty to investors was to set prices that enabled NIE to finance its licensed activities. His duties were forward-looking and he was under no specific obligation to satisfy the expectations of investors in 1993. He believed it was incumbent upon him to allow investors an appropriate return on what they initially invested since this would have a bearing on investor confidence in being allowed an adequate return on future assets, but there was no direct and necessary link between the rolled forward 1997 IMV and 1993 investor expectations. In his view his proposals fully satisfied his obligations while representing a proper balance between the interests of consumers and shareholders.

2.71. A fuller account of NIE's arguments, and the comments of the DG on them, is set out in paragraphs 9.49 to 9.86. We have given careful consideration to these views and our own judgments are set out in the following paragraphs. We first set out our approach and our assessment of the IMV based on the share price at close of first-day trading. We then consider the case for an uplift on that value.

¹NIE also used a figure of £429 million: see paragraph 9.148.

Our approach

2.72. First, while it is right to take account of the full range of relevant factors, we believe the IMV approach should be the principal guide to valuing NIE's asset base. We are not persuaded that investors would have been able to discern the CCA book value of the T&D Business, or the value implicit in the initial price controls, with sufficient certainty to base their decisions to buy NIE shares solely on that knowledge. In any event, to the extent that it is relevant to consider what investors' expectations might have been at the time of flotation, it is reasonable to postulate that investors should have based their decisions primarily on information in the prospectus which was issued for the purposes of the flotation. The prospectus gave only total CCA figures for NIE as a whole and made no reference to £458 million being the basis for the initial price controls over the T&D Business. It showed a CCA net asset value for the company as a whole, after excluding cash and borrowings, of £440 million. In order to attribute a value of £458 million to the T&D Business alone, therefore, investors would have had to attribute a negative value to the rest of the company's operations. Given the prospects for the Supply Business (see paragraph 2.90), that appears unlikely.

2.73. Secondly, we agree that it is necessary to allow for a degree of deliberate under-pricing of the flotation. We note the Northern Ireland Audit Office's (NIAO's) observation (see paragraph 9.50) that the Government's target was for a premium of 5 to 10 per cent in the immediate after-market. The actual rise (on the fully-paid price) was 12 per cent at the end of the first day and the price then stabilized for some days before beginning to rise further (see Figure 9.1). This pattern does not appear to support NIE's argument that the close of the first day is too early to calculate the underpricing effect, and our assessment is that the 12 per cent increase adequately takes account of this factor.

2.74. In a calculation based on close-of-first-day-trading price, certain adjustments need to be made in order to determine the value attributable to NIE's regulated businesses-which is what should be remunerated under the price controls-as opposed to the company as a whole. In particular, the value of cash and short-term investments held by NIE at flotation should be deducted and the value of any borrowings added.

2.75. The value of cash and short-term investments held by NIE at 31 March 1993, the last balance sheet date before the flotation, was some £85 million. However, amounts totalling slightly more than this (around £87 million) were paid to the DED in the weeks just before and after the flotation, namely a dividend of £16.5 million and a debenture of £70 million. We consider that both these amounts should be deducted from the cash and short-term investments balances held by NIE. On the other hand NIE had nearly three months of trading between the 31 March 1993 balance sheet date and the flotation on 21 June. NIE confirmed that it accumulated further cash balances, from profits earned in that period, of some £15 million. The net amount to be deducted from the IMV to take account of these elements is some £13 million, as shown in Table 2.2.

2.76. One further difference, compared with the DG's calculation, is that we have used a discount rate of just under 6 per cent, reflecting the one-year LIBOR rate at the time, to calculate the June 1993 value of the second instalment on the shares (which was due about one year later), compared with a 10 per cent rate used by the DG (see paragraph 9.48).

TABLE 2.2 Estimate of NIE's IMV based on the share price at the close of first-day trading

	<i>£m</i>
Equity	
1st instalment	208.2
2nd Instalment*	<u>186.5</u>
Total (a)	394.7
Less:	
Investments†	68.3
Cash‡	<u>15.9</u>
Total (b)	84.2
Plus:	
Government debenture§	70.3
Short-term borrowing	0.3
Long-term borrowing	<u>0.2</u>
Total (c)	70.8
Day 1 market value (a)-(b)+ (c)	381.3

Source: MMC calculations based on data provided by NIE and the DG.

*A discount rate of 5.937 per cent (one-year LIBOR rate at 21 June 1993) has been applied to the second instalment price.

†Investments of £84.8 million less NIE's dividend of £16.5 million paid on 1 June 1993.

‡Cash of £0.9 million plus an estimate of cash generated by NIE in the three months to June 1993 (31 March to 21 June), say one-quarter of the 1993/94 post-tax profits of £60 million (£15 million).

§£0.3 million is interest on the debenture.

2.77. Taking account of the factors mentioned in paragraphs 2.75 and 2.76, we calculate the IMV of NIE's business, based on the share price at the close of first-day trading, at £381 million.

The case for an uplift

2.78. Turning to NIE's arguments in favour of a further uplift for the purpose of calculating the IMV, the increase in NIE's share price in the months following flotation is likely to have been influenced by various factors and it is not possible to attribute cause and effect with any certainty. As regards a discount for risk, we believe there is force in the DG's argument that NIE would not have been seen as a particularly risky investment at flotation, particularly in view of the extent to which investors were by then familiar with the privatization of utility companies in general and electricity companies in particular. We note that for the most part NIE's share price in the months following the flotation followed the same trend as the RECs. Figure 9.1, which compares these share price movements, shows that NIE's share price followed the sector closely, rising only slightly ahead of it (compared with the close of first-day price) until December 1993 when NIE's interim results for 1993/94 were published. Its share price then rose relative to the sector and at that stage had grown by 13 per cent more than the UK PES average.

2.79. On the subject of the increase in share price on publication of these interim results, three leading firms of brokers told us that the results were ahead of expectations-although in one case this was attributed to a timing difference (see paragraph 9.56)-contrary to NIE's assertion (see paragraph 2.67). A *Financial Times* article also indicated a view that the results were ahead of expectations (paragraph 9.55). Even though other brokers said that the results were no surprise, the fact that some influential firms changed their expectations of NIE's future performance would in our view have been enough to account for an increase in the share price. There is in any event an

inherent implausibility in NIE's argument (see paragraph 2.67) that brokers recognized there were special risks attaching to NIE but had not reduced their profit forecasts on that account. We therefore do not regard this movement as necessarily justifying an uplift in our valuation of the asset base.

2.80. Reverting in this context to NIE's argument about investor expectations, the flotation prospectus recorded the directors' view that the T&D Business would provide a stable and secure revenue stream over the medium term and that NIE would achieve reductions in real unit costs through improvements in productivity and efficiency. The directors said that they expected these policies to increase the profitability of the T&D Business in the medium term and that in the longer term NIE would continue to earn a satisfactory rate of return on its asset base (see Appendix 5.3). The prospectus recorded a statement by the DG that in the first price control review (that is, the one we are concerned with) he would have regard to the rate of return that the market would then require. There was no assurance that returns in the second price control period would be based on full CCA asset value, only an expectation that the price controls then set would be consistent with a movement towards prices being based on full CCA value. Indeed the NIAO report, published in October 1994, recorded that the Government's intention at privatization had been that prices would not be based on full CCA values until 2012/13 (see paragraph 9.85). This would be achieved by adding to the RAB the full CCA value of new investments made after privatization, a principle which we fully endorse (see paragraph 2.105).

2.81. NIE's arguments regarding the cost of capital and the regulatory valuation of fixed assets depend significantly on what the considerations of investors and brokers must have been, hypothesized primarily from share prices and movements therein. In our view this imputes an unjustified level of precision and inevitability to investor expectations, demands and calculations. Such factors are in many cases unknown, but it is generally acknowledged that they vary among investors. We accept modelling of this type as evidence of what investors *might* have thought, but regard it as much less persuasive (both in general and in this instance) as evidence of what they *must* have thought. It is possible in this instance to develop alternative hypotheses which explain the share performance that occurred. Different assumptions lead to different possible outcomes, ranging from just above the £381 million which we have calculated based on the share price at close of first-day trading (see paragraph 2.77) to £456 million (see Appendix 2.4 which sets out the results of illustrative calculations which we performed as part of our assessment of NIE's arguments). A hypothetical approach of this type is in our view unlikely to lead to definitive conclusions, although developing, examining and comparing competing hypotheses can play a valuable part in the assessment process. In so far as the hypotheses examined in Appendix 2.4 are relevant, they might suggest that it is appropriate to consider a small uplift.

2.82. We have also considered NIE's argument that a further uplift is justified by reference to comparisons with other privatized utilities where a value for the initial assets has been adopted in price control reviews by regulators. We consider that such comparisons can only be used as an external check on the decision to be made, which must be based on factors of direct relevance as set out above. In this context we note that:

- (a) the uplifts in previous cases, if expressed as percentage increases on flotation values, have varied widely, ranging from 3 per cent in the case of ScottishPower to perhaps 37 per cent in the case of British Gas depending on the precise calculation made (we discount the first review of the RECs' distribution businesses, which was overridden by the second review);
- (b) while, in most cases, regulators have given a further uplift in value (beyond that based on close of first-day trading) it is relevant to note that:

- increases in share prices on the first day of trading were much lower in the privatizations which followed those of National Power and PowerGen in March 1991: among privatizations since then NIE stands out as having a relatively high increase; and
- while the second review of the RECs' distribution businesses in 1995 incorporated an uplift of 15 per cent on the close-of-first-day price, the review of the two Scottish companies in 1994/95 (including the MMC's report on SHE) incorporated a *fall* in asset value compared with the first-day value, and the review of the water and sewerage companies, also in 1994/95, an average uplift of around 5 per cent.

The data underlying these comments are in Tables 9.10 and 9.11 and paragraph 9.72.

2.83. In summary, an uplift on the close of first-day trading value has been adopted in nearly all previous cases where price reviews have been carried out, ranging from 26 per cent in the case of British Gas to single figures for the water and sewerage companies. The exception was the adoption of a negative 3 per cent for the two Scottish electricity companies (see Table 9.11). The general trend has been downwards. These previous cases might be taken to constitute a reason for adopting an uplift in the present case on grounds of regulatory consistency: this could be relevant to the DG's duties for the reason he gave (paragraph 2.70), namely that allowing investors an appropriate return on their initial investment may affect investor confidence and hence NIE's ability to finance the carrying on of its licensed activities. Given the range and trends of uplifts seen, the argument is by no means decisive. We have taken into account this factor, and the evidence of a declining level of uplifts over time, in reaching our decision.

2.84. In conclusion, we agree with the DG that the principal consideration in imputing an initial value to the business of NIE is what investors paid at flotation. In our view the IMV approach is therefore the most useful. Since the company was floated at a discount to the CCA book value of the assets—that is, the market-to-asset ratio (MAR) is less than one—and taking account of the factors mentioned in paragraph 2.72, we believe it is not appropriate to adopt an opening value based on full CCA book value. The arguments for an uplift above the value based on the share price at close of first-day trading are inevitably a matter for judgment rather than precise calculation. Taking account of the various considerations which we have set out above, we have adopted an uplift of 7.5 per cent for the purpose of this price review. This represents an increase of almost 20 per cent on the flotation price, giving an initial value of £410 million (a 7.5 per cent increase on £381 million) and a MAR of 0.93 by reference to the CCA net asset value at flotation of £440 million after excluding cash and borrowings.

Allocation to the T&D Business

2.85. Having assessed the opening asset value of the business of NIE as a whole we need to decide how much of that value should be allocated to the T&D Business. This is to some extent a theoretical exercise because investors would have been concerned with the value of the company as a whole and had no need to allocate value to the constituent parts. We have therefore looked at various possible approaches to the task, accepting that none of them on its own will give a definitive answer, namely:

- (a) allocation pro rata to CCA values;
- (b) valuation of the businesses other than T&D by reference to likely future cash flows, with T&D valued as the residual;
- (c) valuation of T&D alone by reference to likely future cash flows; and

(d) valuation of all the businesses by reference to likely future cash flows, with a pro rata reduction to bring the combined value to £410 million.

2.86. The simplest approach ((a) above) would be to allocate values pro rata to the CCA net asset values for the various businesses, applying the MAR in each case (we refer to this as the unfocused approach). This gives figures of £375 million for T&D, £42 million for Supply, -£11 million for the PPB, £12 million for the Retail Business and -£11 million for the remainder of NIE's activities. The problem with this approach is that it produces some results which are implausible: in particular the value of £12 million for Retail, which incurred a loss of £5 million (after exceptional items) in the year before flotation, but a negative value for the PPB which was profitable and expected to remain so. Furthermore we note that the CCA valuations at flotation were changed in the regulatory accounts for 1993/94, compared with the 1992/93 accounts.

2.87. The DG adopted a variant of this unfocused approach. Noting that, leaving aside NIE's three main regulated businesses, the rest of the company had a negative CCA net asset value of £27.5 million, he dealt with this by giving a zero value to the non-regulated businesses, adopting a value of £1 million for the PPB and apportioning the remainder of the IMV between the T&D and Supply Businesses pro rata to their CCA values (see Table 9.12). This led him to allocate values of £332 million to T&D and £40 million to Supply (plus £1 million for the PPB) within his total IMV of £373 million.

2.88. A more focused approach ((b) above) is to assess the value of the businesses other than T&D by reference to the future cash flows which investors might have expected, based on information in the prospectus, and to assume that the residual figure needed to make up the total for NIE is the value of T&D. NIE argued that this approach was irrational because the T&D Business was the main element in what investors had bought. In our view the fact that the T&D Business accounts for the bulk of NIE's value provides a good reason to use this approach.

2.89. The DG attributed a value of £1 million to the PPB and it is this value which has been built into the price control for the PPB over the next five years, which NIE has accepted. We note, however, that the PPB earned over £2 million in profits in 1992/93, as stated in the prospectus.¹ The prospectus commented that the initial price control for the business had been set with the expectation that, over a number of years, the PPB would make a small contribution to NIE's profitability. (In the event the business has made HCA operating profits of £3 million, £6 million and £9 million respectively in the three completed years since the flotation.) On the basis of the information in the prospectus, and making due allowance for the risks arising from the novelty of the PPB as an activity and the prospect of its being affected by moves towards a competitive generation market, we consider that £5 million is a reasonable, indeed cautious, estimate of the business's value at flotation. (We consider below the implications of this decision for the PPB price control: see paragraph 2.210.)

2.90. The Supply Business made profits of nearly £8 million in 1992/93. While the business was in principle vulnerable to competition, information in the prospectus suggested that the risk was relatively small (see Appendix 5.3). (This has been borne out by subsequent events. The Supply Business has made profits rising each year to reach £13 million in 1995/96. Competing suppliers have made very little inroad into NIE's customer base and according to its corporate plan NIE expects that situation to continue.) Investors could reasonably have expected profits to continue at around the pre-flotation level during the first price control period but then to be cut back in the second period. On this basis, after applying a discount for risk, we estimate that investors could reasonably have valued the business at some £35 million. NIE argued that for us to adopt such a valuation was inconsistent with the view which the MMC had taken in the report into SHE's price

¹The profit figures in the prospectus refer to pre-interest profits on ordinary activities in historical cost accounting (HCA) terms.

controls, when SHE's supply operation had been accorded a value of zero. In fact the issue was not explicitly addressed in that inquiry but we note that the SHE prospectus contained no out-turn figures for the profitability of the company's supply business before flotation and that the business did no better than break even in the years leading up to the inquiry.¹

2.91. As regards NIE's other main activity, the Retail Business, NIE argued that, based on the experience of the equivalent operations of the RECs, investors would have expected the business to make losses and to have a negative worth based on the prospect of closure. It assessed this at £[*] and said that this was enough to offset the positive values of the PPB and Supply.

2.92. We accept that investors might have considered the possible consequences of the complete closure of the Retail Business. In that situation they would have set the possible closure costs-which NIE put at £[*]-against the net asset value of the business at the time (£[*] after excluding cash, which we have excluded from the asset valuation as a whole). Thus on a worst-case scenario the business had a negative value of £[*]. In fact, however, no closure provision was made before flotation, and since NIE's advisers are likely to have pressed it on this point in order to ensure that the information in the prospectus could be relied on, investors could reasonably have viewed the closure of the business in the near future as unlikely. Other information given in the prospectus, about efforts in the run-up to privatization to improve the business and its importance in providing points of contact for the customers of NIE's Supply Business, supported this view. (It may be noted in passing that in the four years since flotation the Retail Business has not in fact been closed and has, broadly, broken even in its financial results.) The central valuation of the Retail Business would therefore certainly have been better than -£[*], quite possibly zero or even more. We conclude that it is not unreasonable to take zero as the value for the purpose at hand.

2.93. The combined effect of the partly focused approach described in paragraphs 2.88 to 2.92 is to ascribe a value of £40 million to the PPB, Supply and Retail Businesses together, leaving £370 million as the value to be ascribed to the T&D Business.

2.94. A further approach ((c) above) would be to try to value T&D directly. We carried out simulations to assess what value investors might have placed on the business under a set of plausible assumptions about the likely levels of profits both in the first price control period and beyond.² Applying a discount rate of 7 per cent, which we have adopted as the cost of capital, to the projected cash flows gives a value of £390 million. NIE argued for a higher cost of capital and we note that with a discount rate of 9 per cent the implied value of the business is some £310 million.

2.95. A fourth approach ((d) above) would be to apportion the opening value of £410 million by reference to the income streams of each business in the first year of private ownership. The T&D Business accounted for £40 million of NIE's pre-tax profit of £49 million, or 82 per cent. Applying this percentage to £410 million gives a figure of £336 million.

2.96. As noted in paragraph 2.69, NIE's approach was to adopt the IPCV for the T&D Business which it said was £458 million. It also performed a cash-flow calculation which produced figures of

¹Op cit, Table 4.15.

²We used the model described in Appendix 2.4 to determine the profit stream from the T&D Business to 2001/02. In constant 1993 prices, this produced profits before tax starting at £40 million in 1993/94 and rising to £54 million in 1996/97, then falling to £35 million for 1997/98 and rising to £41 million by 2001/02. Thereafter we assumed the level of profit would remain at £41 million a year. Discounting this stream of revenues after tax (assumed at 33 per cent) produced a valuation of £390 million at 7 per cent and £309 million at 9 per cent.

*Figures omitted. See note on page iv.

the same order as the IPCV. As with all such calculations, however, the results depend on the assumptions made. As noted above, our own estimates based on cash-flow projections yield much lower figures than NIE's and we do not regard NIE's projections as providing independent support for the IPCV route.

2.97. It is noteworthy that the various approaches outlined above give values for the T&D Business within the range £310 million to £390 million (or £330 million to £390 million if estimates based on a 9 per cent discount rate are ignored) except for NIE's IPCV approach which gives a significantly higher figure but which we do not regard as robust. Taking account of the indications given by the different methods, we have adopted £370 million as the initial value of the RAB for the T&D Business for the purpose of our review.

Depreciation

2.98. The initial value of the RAB for the T&D Business has to be rolled forward to 1 April 1997, the start of the forthcoming price control period. This involves the addition of new assets acquired since flotation, the calculation of depreciation and an allowance for inflation. There are two elements to the calculation of depreciation, concerning the treatment of pre-flotation and post-flotation assets respectively.

2.99. Under CCA accounting, depreciation would normally be applied at the appropriate rate to the full CCA value of the assets concerned. However, we have valued the pre-flotation assets for regulatory purposes at a 7 per cent discount to the full CCA value, giving an MAR of 0.93. It is therefore appropriate in our view to apply depreciation to the MAR-adjusted CCA value of the pre-flotation assets, thus in effect providing for the amortization of the investment which we deem investors to have made. The DG accepted this approach, as did NIE in principle, though it argued that this would only be appropriate if the initial value of the RAB were itself, in NIE's view, a justifiable figure.

2.100. The DG agreed with NIE that it was reasonable to assume that the average remaining life of the pre-flotation fixed assets was 18.5 years at the time of flotation. This is consistent with the fact that, under NIE's depreciation policy, most of the T&D assets are depreciated over 40 years, that is it was assumed that, on average, the pre-flotation assets were just over halfway through their useful lives. The DG proposed that the remaining CCA value of these assets, after adjusting for the MAR, should be depreciated in equal amounts over 18.5 years, that is at a rate of just over 5 per cent a year on the written-down value at the start of the period.

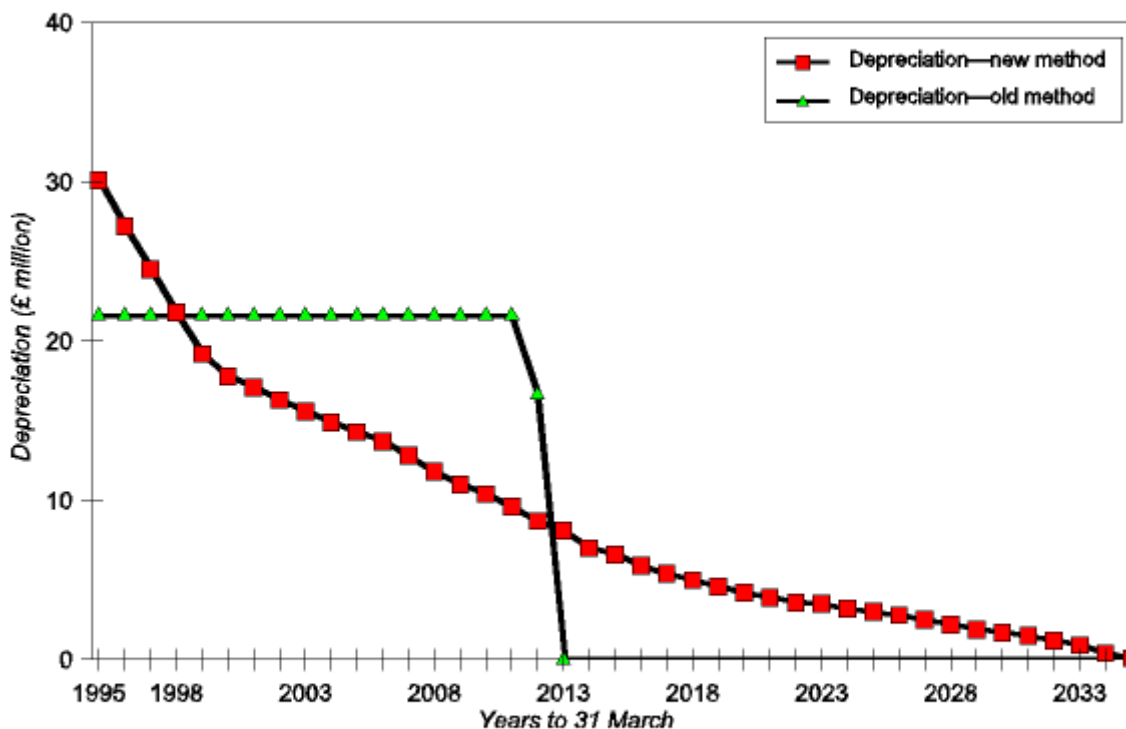
2.101. This method, however, would entail a sudden fall in depreciation at the end of that period, when all those assets simultaneously drop out of the asset base. The implication is that customers in the first 18.5 years after flotation would be charged prices reflecting the full remaining value-subject only to the MAR adjustment-of assets some of which would continue to be used for up to 20 years afterwards. An alternative would be to depreciate the gross (undepreciated) but MAR-adjusted value of these assets over the full length of their actual remaining lives. Thus the oldest assets would be fully depreciated after one year and would drop out of the asset base at that point, while the newest assets, with a remaining life of nearly 40 years, would continue to be depreciated over the whole of this period. Figure 2.1 shows the different patterns of depreciation resulting from the application of these two methods.

2.102. The second method appears to us to be economically sound and more equitable in distributing the cost of using up these assets as between customers in the first 18.5 years from flotation and the next 20 years. It would also be simple to apply because the same rate of depreciation could be applied to the MAR-adjusted pre-flotation assets as to post-flotation assets

(see below). This would also be consistent with the depreciation rate used by NIE in its accounts and would give a smooth depreciation profile through the 18.5-year point.

FIGURE 2.1

Effect of different depreciation methods affecting pre-flotation assets



Source: MMC, based on information from NIE.

Note: The graph shows the annual amounts of depreciation chargeable on NIE's pre-flotation RAB on the old method, described in paragraph 2.100, and the new method proposed by the MMC, described in paragraph 2.101. The graph begins with 1994/95, the first full year after the flotation.

2.103. NIE argued that customers in the first 18.5 years would not in practice pay the full depreciation cost of pre-flotation assets because of the MAR reduction. In addition, given that NIE foresaw a rising rate of capital expenditure, the impact of the drop in depreciation on pre-flotation assets after 18.5 years would be masked by rising depreciation on new assets. In our view neither of these arguments undermines the case for adopting the second method.

2.104. Figure 2.1 shows that, compared with this revised and, in our view, more correct method, the amount of depreciation actually charged on pre-flotation assets in the first price control period has been too low. This is because the pattern of the remaining lives of those assets is skewed towards newer assets with the result that relatively few assets become fully depreciated in the first five years. The extent of the shortfall is about £25 million. Since this represents cash which, on our method, NIE should have received during the first price control period, we think it is right to make up the shortfall in the next period rather than spreading it evenly over the whole of the remaining lives of the assets concerned. The effect of our proposals is set out in detail in Appendix 2.5.

2.105. We endorse the DG's view that depreciation on post-flotation assets should be charged on the full CCA value in line with the objective that electricity prices should in due course fully reflect the costs involved. NIE's policy is to depreciate the bulk of T&D assets over 40 years but at a rate of 3 per cent a year for the first 20 years and 2 per cent for the next 20 years rather than a straight-line rate of 2.5 per cent. This 'kinked 40-year' policy is commonly used in the distribution sector

of the electricity supply industry and we do not propose that it should be altered in the particular case of NIE. Table 2 of Appendix 2.6 shows the additions to fixed assets since flotation, the amounts of depreciation charged and the net effect on the RAB. Taken together with the remaining value of the pre-flotation assets, they give a value for the RAB at the beginning of the new price control period of £475 million.

Capital expenditure

Experience in the first price control period

2.106. Before addressing NIE's capital expenditure requirements for the forthcoming period we consider it necessary to assess the implications of what has happened in the first price control period, covering the period April 1992 to March 1997.

2.107. The level of capital expenditure forecast for the five years from April 1992 for the T&D Business was £339 million gross and £301 million after deducting expected customer contributions (notably for connections to new properties). The £301 million figure was built into the formula for the initial price controls. In the event NIE spent £243 million gross and £204 million net of customer contributions (taking NIE's forecast out-turn for 1996/97). At the net level this represents an underspend of £97 million, that is about one-third. The extent of the underspend was much higher in transmission, where NIE spent only one-quarter of the amount forecast, than in distribution (see Table 7.1). The underspend was greatest in 1993/94 and 1994/95. Indeed the overall level of underspend peaked in 1993/94 and has fallen in each subsequent year.

2.108. The DG said that the underspend was not solely due to efficiencies achieved by NIE. He pointed out that NIE itself had explained, in reply to the DG's questionnaire, that the underspend in 1992/93 and 1993/94 had been due partly to the time needed for the company to review the policies and organizational structure which it had inherited from the days of public ownership. The DG said that some of the capital expenditure which had not been undertaken in the first price control period, but for which revenues had been allowed, would have to be undertaken in future and it would not be reasonable for customers to pay again for the financing of such expenditure. He therefore proposed to reduce the allowance for capital expenditure in the next period to avoid such 'refinancing'. After taking account of representations from NIE he set the reduction at half the underspend in 1993/94 and 1994/95 on the grounds that some of the underspend could be attributed to efficiency gains, the benefit of which NIE should retain. Half the underspend in those two years amounted to £32 million but the DG calculated the effect on the NPV of projected revenues for the next price control period as some £7 million. The out-turn in 1995/96 and 1996/97 was not known at the time of the DG's review and he decided that any underspend in those years could be considered at the next review. He disregarded the underspend in 1992/93 on the grounds that it predated the flotation and would in principle have been reflected in what investors paid for the company.

2.109. NIE submitted that it had achieved substantial efficiencies in the form of reduced costs in carrying out capital projects and through the use of load management techniques to defer the need for some investments. It said that these efficiencies accounted for most of the underspend. Even if part of the underspend was not due to efficiencies it would be wrong to make any reduction in the allowance for the next period. Some of the shortfall in capital expenditure was likely to be balanced by a need for higher operating expenditure in the form of additional repairs and maintenance (R&M). At a more fundamental level, it regarded the DG's proposal as a form of clawback, which it said was contrary to the principles of incentive regulation. Such clawback would introduce an asymmetric risk in that NIE would be subject to penalties for underspending but would not be granted additional funds if it overspent. There had been no reference to such a risk when NIE had

been privatized. If the principle of clawback became established, regulated companies would have an incentive to 'gold-plate' investment projects and to carry out work before it was needed in order to spend their allowance. The right course was for the DG-and now the MMC-to scrutinize closely NIE's capital programme for the forthcoming price control period, with the help of consultants, in order to ensure that the future programme was well founded.

2.110. We recognize that there is some force in NIE's arguments and we have looked hard to see if there is a satisfactory alternative to making an adjustment on the lines of the DG's proposal.

2.111. In principle one approach is for the regulator to set the outputs which the company should achieve in a given period; to provide for the amount of capital spending which is judged necessary to achieve them; and then in retrospect to focus on whether the outputs have been achieved, by whatever means, and not on whether the envisaged inputs in terms of capital expenditure have been spent. The sort of outputs we have in mind here are measures of network performance, such as the average number of power interruptions experienced by customers in a year (interruptions per customer, or IPC) and the average length of time for which customers are left without power in a year (customer minutes lost, or CML). We recognize that some capital expenditure is not closely related to such output measures but we nevertheless regard this as an appropriate way in principle of dealing with the problem of underspends. No targets were in practice set for this kind of measure, however, in NIE's first price control period (although the DG is currently consulting on measures which might be set for the period beginning April 1998).

2.112. As regards NIE's argument that it was the DG's task to ensure that the capital programme was not inflated in the first place, in practice this is difficult for a regulator to achieve because of the problem of asymmetry of information. The degree of intrusive scrutiny necessary to validate fully a five-year capital expenditure programme would effectively turn over responsibility for capital budgeting to the regulator.

2.113. In the present case the scale of the underspend in the first period is difficult to ignore, and we note that NIE itself has acknowledged that not all of it has been due to efficiencies. Several projects which were included in the capital programme for the past five years, particularly in transmission, appear to have been included again in the programme for the forthcoming period. This applies, notably, to most of the transmission projects listed in Appendix 7.1. Customers have already been paying for the assumed financing and depreciation of these investments and it is arguably unreasonable that they should be asked to pay again through the price levels to be set for the next five years. (NIE told us that, while it had deliberately incurred under-recoveries-that is, raised less revenue than it was permitted to by the price controls-in two years in the first period in order to give customers some of the benefit of its reduced outgoings, it had subsequently made good those under-recoveries and had not forgone income permanently.)

2.114. In practice we see only two ways in which we might deal with the problem of past underspend in the present case. The first would be to take account of past experience in assessing the amount of capital expenditure for the next price control period. Thus, for example, having scrutinized the components of NIE's programme and arrived at an estimate of what would appear a reasonable level of expenditure looking forward, we might then make a percentage reduction in that figure in order to reflect a record of past over-estimation by the company of the amount of work which could be achieved or in order to anticipate future efficiency savings (or both). The second would be to make an adjustment on the lines of the DG's proposal.

2.115. It is in this context that the question of incentives needs to be considered. We have noted NIE's argument about the potentially harmful effect on incentives of making an adjustment for past underspend, but there is another aspect. If regulated utilities could be sure that underspends would never be taken into consideration by the regulator when determining future provision for capital expenditure, they would have an incentive to inflate their investment plans before each regulatory

period and to defer ideas for making efficiency savings designed to reduce expenditure until the new price controls had been set. This aspect has to be set against any disincentive to seek efficiency gains arising from an underspend adjustment. Moreover, while offsetting the full amount of any underspend against future provision would undoubtedly remove the incentive to find savings within a given price control period, a lower level of offset would not.

2.116. We are not persuaded that some adjustment for past capital expenditure underspend is inconsistent with incentive regulation, as NIE argued. With regard to capital expenditure which is postponed from one period to the next, if there is no adjustment for underspend then consumers pay for the depreciation and return on the capital expenditure when it occurs, as they should, and they pay for it in the previous period when the expenditure did not occur. The only offset is that consumers benefit from not having to pay for the depreciation and the return from the end of the first period until the capital expenditure is actually carried out. There is a trade-off therefore between any disincentive effects of such an adjustment and passing any substantial benefit on to consumers. If the capital expenditure is never incurred then, without an adjustment, the gains from higher expected financing and depreciation costs go to the company in the quinquennium and never reach the consumer. In these circumstances it is not obvious that weight should only be given to the incentive effects. We do not believe it is inconsistent with incentive regulation to take account of the trade-offs involved.

2.117. There are advantages and disadvantages to either of the courses outlined in paragraph 2.114. Taking account of the various considerations mentioned in paragraphs 2.110 to 2.116 we have decided, in the circumstances of this particular price determination, that it is appropriate to make an adjustment to the future level of provision for capital expenditure because of the level and nature of the past underspend. On the one hand, it is clear that substantial expenditure, particularly on the transmission system, which has been postponed from the first price control period will need to be undertaken in the second. We do not consider it appropriate that all such expenditure should be refinanced under the new price control. On the other hand we think that NIE should carry out a programme of capital expenditure at the level proposed in the next section. It would not, therefore, be satisfactory simply to reduce the level of that programme. Our decision to some extent reflects the absence of output measures for the period concerned which would have permitted a considered judgment to be made of the justification for the underspend.

2.118. In determining the amount of the adjustment we have disregarded the underspends in 1992/93 (since that in principle would have been reflected in the price paid for the company at flotation) and in 1996/97 (final figures for that year are not available yet but the underspend appears likely to be small). We have noted the DG's proposal to set the adjustment on the basis of half the underspend in 1993/94 and 1994/95 and to consider the effects of any underspend in the two following years at the next review in five years' time. We are in a position to deal with the matter in the knowledge of the extent and nature of the underspend throughout virtually the whole period. Bearing in mind the incentives aspect, and in view of the fact that the present situation is less than ideal because of the absence of established output measures, we consider that the adjustment should be based on one-third of the value of the total underspend in the three middle years of the first period, a level of £25 million. We believe that an adjustment at this level would not significantly reduce the incentive on NIE to look for ways of reducing expenditure in future, nor do we consider that it would affect NIE's ability to finance the carrying on of its licensed activities, including a capital expenditure budget of the size we judge appropriate. The effect will be to reduce the NPV of the revenues we project for the forthcoming period by £7.2 million (the calculation is shown in Appendix 2.7).

Future plans

2.119. NIE originally submitted proposals to the DG for a capital expenditure programme totalling £404 million, or £345 million after deducting customer contributions. It was this set of proposals which was scrutinized by RKD, the DG's adviser on capital expenditure. There were subsequent changes in some aspects of NIE's proposals but the expenditure implications of these largely cancelled each other out and NIE's eventual proposal to us was for a programme costed at £384 million (£344 million net of customer contributions). This is £45 million gross (13 per cent) more than was provided for in the first period and £141 million gross (58 per cent) more than NIE spent. The DG, acting partly on RKD's advice, proposed to allow a total of £276 million net, 20 per cent below the amount which NIE requested (see paragraphs 7.9 to 7.26 and, in particular, Table 7.6).

2.120. The DG had not made RKD's report available to NIE. Indeed NIE had not been aware of RKD's involvement before our inquiry. The DG had initially used the Office of Electricity Regulation in Great Britain (OFFER) as his consultant on capital expenditure. OFFER collected data from NIE and held meetings with the company but had to withdraw before it was able to complete the job. The DG asked RKD to step in but to produce a report using the material assembled by OFFER. RKD had no meetings with NIE and did not visit Northern Ireland. Although RKD sought permission to contact NIE, the DG considered that that would delay matters. He was also concerned that NIE would seek to steer the consultants towards conclusions which justified a higher level of capital expenditure.

2.121. While we note the DG's reasons for not letting RKD contact NIE, the lack of dialogue undoubtedly made it harder for us to compare information from the DG and the company, who had not even reached agreement on how the various items of expenditure should be categorized. We studied the report with the help of our own consultants, Electrowatt Engineering (UK) Ltd (Electrowatt), and took account of the comments NIE made when we sent it the report, as well as holding discussions with NIE, the Office for the Regulation of Electricity and Gas in Northern Ireland (OFREG), RKD and NIE's consultants Merz & McLellan (M&M). Given the circumstances in which RKD's report was produced and our own findings from studying it, which are described in Chapter 7, we consider that conclusions drawn directly from the report are not sufficiently robust in themselves to form a basis on which we can reach appropriate price control decisions. We have accordingly sought to reach an independent view of the merits of NIE's proposals, while taking due account of the views of the parties and their consultants.

2.122. We consider in turn the appropriate expenditure on transmission and then the issues arising under various headings of distribution expenditure. We would emphasize that our aim is to arrive at a suitable figure for capital expenditure to be used in setting the price control, not to prescribe what work NIE should do.

Transmission

2.123. Transmission is the area where the percentage underspend in the first price control period has been by far the biggest. NIE proposed to increase expenditure from a forecast out-turn of £18 million in the five years to March 1997 to £67 million in the next five years. It argued that it had been able to defer the need for substantial investment on the transmission system by successful load management, reducing the rate of growth in peak demand, but that as a result much of the work originally envisaged for the first five years now needed to be carried out in the second. The DG agreed and proposed to allow the whole programme.

2.124. We questioned the case for reinforcement of the transmission network in the north-west of the province, which is related to the possible closure of the Coolkeeragh power station, but having heard NIE's justification we are not minded to omit provision for that expenditure. Nor do

we see any other reason for taking a different view from NIE and the DG on the appropriate level of the transmission programme.

Distribution: new business and load-related work

2.125. NIE's proposed programme under these headings was £114.5 million, costed by reference to specific schemes for the first three years and the long-run marginal costs of reinforcement for the remaining two years. The DG used a model, based on long-run marginal costing, which had been developed by the electricity supply industry in the 1980s. NIE argued that this model was not intended to derive costs associated with new connections, nor did it take account of electricity losses and the cost of adding new capacity. RKD agreed that the model did not include connections but said that it gave a figure about one-third higher than the true cost and that was enough to cover connections (see paragraphs 7.37 to 7.40 for further details of these exchanges). It appears to us that the model used by RKD is not well suited to the purpose to which it was put and that the broad-brush assumption made by RKD is not robust. We were not therefore persuaded by the DG's specific arguments in favour of an expenditure level significantly below that proposed by NIE. Bearing in mind that work resulting from new business connections is effectively obligatory on NIE, we consider that it would be prudent to allow an amount close to NIE's figure, subject only to a reduction to allow for a reasonable level of cost savings. We consider that a figure of £110 million is adequate.

Distribution: asset replacement

2.126. NIE's programme for asset replacement was costed at £87 million. A major element is NIE's plans for the refurbishment of the 11 kV overhead lines. This refurbishment work is relevant to NIE's objective of improving the performance of its network, as measured by average CML a year. As described in Chapter 6, no standard has hitherto been set for this measure but NIE itself has proposed a target of 107 CML by 2002/03, compared with an expected out-turn of around 190 CML in 1996/97. Customers in the more rural parts of Northern Ireland, who tend to be served from long stretches of 11 kV overhead wire, experience a much higher level of CML than customers in urban areas. By concentrating its efforts on refurbishing the worst-performing circuits, NIE can achieve a significant improvement in overall average CML as well as delivering a better service to customers who at present experience a relatively high level of interruptions.

2.127. NIE argued that its present performance in terms of CML was below the average of the Great Britain PESs but was comparable to the performance of those which faced the most similar conditions (SHE, SWALEC and SWEB). Its aim was to maintain a similar level of performance to these comparators during the forthcoming price control period, given that these companies were themselves planning to achieve an improved quality of supply. The DG said that there was no case for NIE to improve its relative level of service, though he did expect it to maintain its present position relative to the Great Britain PESs. He drew our attention to the results of surveys which he had carried out which, he said, showed that consumers were not willing to pay higher prices for an improvement in the quality of service.

2.128. For the forthcoming period NIE has proposed to refurbish or replace [*] km of line a year at a cost of some £[*] per km, making a total cost of £46 million.

2.129. In our view NIE's target for improvements in CML, while laudable in itself, is more ambitious than can be justified in the particular circumstances of Northern Ireland, with its

*Figures omitted. See note on page iv.

acknowledged problem of high relative electricity prices. Our own assessment is based on an amount of expenditure which would be consistent with a CML figure in the range 120 to 140 by the end of the price control period, an improvement of about one-third compared with the present level. While there is no linear relationship between the CML target and the amount of 11 kV line refurbishment to be done-because several other forms of capital expenditure also have an influence on network performance-we consider that it would be consistent with this less ambitious target for NIE to refurbish at the rate of 1,500 km a year rather than [*] km.

2.130. NIE's estimate of the cost per km is higher than the actual level experienced to date. NIE said that its monitoring programme had shown that many lines were in worse condition than first thought and consequently the original specification did not fully reflect the work required. We note, however, that since NIE has, reasonably, concentrated first on dealing with a backlog of very old lines, the future work content per line should fall as it removes the backlog. There should also be scope for efficiencies as NIE gains more experience. Various figures were quoted to us, on differing bases, for the costs of this kind of work (see paragraphs 7.44 to 7.54). On the basis of these estimates, and after discussion with our consultants, Electrowatt, we consider that an appropriate figure for us to use in our calculations is £4,400 per km, equivalent to the estimated out-turn cost in 1996/97. The combination of the reduced amount of work and the reduced unit cost gives an overall cost estimate of £33 million, £13 million less than NIE's figure.

2.131. Taking account of advice from our consultants and the views of the DG and NIE, we consider that the rest of NIE's asset replacement programme-which comprises refurbishment and replacement work on other circuits and expenditure on transformers, switchgear and connections (services and meters)-is well founded. We therefore propose to adopt a figure of £74 million for asset replacement against NIE's proposal of a little over £87 million.

Distribution: system development and performance-related work

2.132. This heading covers various items specifically concerned with improving the performance of the distribution system (11 kV rural protection, 11 kV automation, 33 kV to 11 kV changeover and system development) and with environmental and safety improvements. NIE's bid was for a total of £61 million in these areas but the DG proposed only £36 million. Brief details of the work and the arguments advanced by the two sides are summarized in paragraphs 7.55 to 7.77.

2.133. We see greater merit in NIE's proposals in some respects than did the DG. In particular we consider that:

- (a) NIE's proposals for the undergrounding of overhead wiring are justified and that it would not be acceptable, on safety or environmental grounds, to replace such wiring on a like-for-like basis;
- (b) NIE's programme for undergrounding overhead lines in urban areas, which envisages the replacement of 760 km over 20 years, is also justified although we see scope for a reduction in the cost per km; and
- (c) a programme of £8 million on system development to reconfigure 11 kV circuits to new design standards should be provided for.

2.134. Taking these points into account, we propose to adopt a figure of £52 million under this heading in calculating the price control.

Distribution: other items

2.135. The other items in NIE's proposed programme were metering development, expenditure on the Distribution Control Centre (DCC) and Supervisory Control and Data Acquisition (SCADA) system and miscellaneous building work (see paragraphs 7.78 to 7.80). Initially, NIE proposed £31 million for these items, including £22 million on metering development. It subsequently reduced the latter figure to £12.5 million but increased its proposed spend on DCC and SCADA to give a total of £25 million. The DG proposed to allow the whole amount initially requested for DCC/SCADA and buildings and £15 million for metering development, which also totalled £25 million.

2.136. We adopted a total of £21 million, broadly in line with NIE's final proposal for metering development and the original figures, as agreed by the DG, for the other items.

On-costs

2.137. NIE proposed that £29 million should be allowed for on-costs, which largely comprise the employment costs of those staff, such as design engineers and surveyors, whose work is concerned with capital projects but who are not directly engaged on the construction of the assets. NIE told us that its on-costs as a percentage of gross capital expenditure had fallen from 16 per cent in 1992/93 to an estimated 11 per cent in 1996/97 and that it was projecting a further significant fall.

2.138. The DG, however, was advised by RKD that the individual project costs were high enough to include on-costs and in his price determination made no allowance for this item.

2.139. We were advised by our consultants, Electrowatt, that NIE's costings generally appeared to be at a level which did not include on-costs. RKD itself advised that NIE's projected costs per km of the refurbishment work were too low. We were advised that the typical level of consultants' charges for the design, engineering and supervision of major projects would be in the range 5 to 10 per cent of gross value. While these figures are not entirely comparable with the basis of NIE's on-costs, we are satisfied that an estimate of 8 per cent of gross project costs is a reasonable amount to add, giving a figure of £26 million.

Customer contributions

2.140. For customers other than those with demand over 1 MW, NIE's present policy on connection charges is to charge 60 per cent of the capitalized cost of the assets required for connection, the balance being recovered through Use of System charges. (There is a fixed charge for housing estates, however.) For larger customers the charge is 100 per cent of the relevant costs.

2.141. NIE estimated customer contributions at £40 million over the five years. The DG's final estimate was a little higher at £43 million but NIE said that this must be based in part on a higher average charge from Great Britain experience. Given the small difference between these estimates we have adopted NIE's figure. NIE has made a proposal to the DG to change its policy on connection charges, in order that a higher proportion of costs would be recovered direct from the customers concerned, and asked that we deal with this matter in our report. In our view, however, it is for the DG to settle the matter direct with NIE and to make whatever adjustment may be necessary in the new price controls if a policy change is effected.

Indicative capital expenditure total

2.142. Summarizing the decisions set out in paragraphs 2.123 to 2.141, we propose that the amounts of capital expenditure shown in Table 2.3 should be adopted as budgetary assumptions in setting the price control to run from 1997/98 to 2001/02.

TABLE 2.3 **Indicative capital expenditure estimates for the five years 1997/98 to 2001/02**

	<i>£ million, 1996/97 prices</i>
Transmission	67
Distribution:	
New business and load-related	110
Asset replacement	74
System development and performance-related	52
Other items	<u>21</u>
Sub-total for distribution	257
On-costs	26
Gross total	<u>350</u>
Customer contributions	40
Total net of contributions	<u>310</u>

Source: MMC.

Note: These figures include an amount of £4 million for non-operational capital expenditure: see paragraph 9.134.

2.143. The gross total, £350 million, is 44 per cent higher than NIE's actual expenditure of £243 million in the five years to March 1997 but 9 per cent less than the total of £384 million which NIE itself proposed to us. NIE has increased its level of activity in recent years and has been spending at a rate of £50 million a year on distribution alone in the last two years. We believe that it should now have the organization and systems needed to implement effectively a programme of work of the size we envisage. Indeed NIE itself envisaged a larger programme. There may therefore be competing demands on its capital budget. It will be for NIE to determine its priorities among those demands.

2.144. We would emphasize that the above process of reasoning has been for the purpose of determining the amounts to be included in setting the price control, not to prescribe an investment programme. We can only make our best estimates based on the information and techniques currently available. It is for NIE to decide on the level and pattern of capital expenditure over the next five years, taking account of developments in technology and best practice, which are most appropriate to achieve the objectives set between itself and the regulator. In this context we would urge the DG to seek to reach agreement with NIE on the appropriate target outputs, for example in terms of a reduction in CML, which the company should seek to achieve over the period of the price control, taking account of the views we have expressed (see paragraph 2.129). We were concerned that at the end of February 1997, at a late stage in our inquiry, we learnt from NIE that the DG had put forward proposals for revised standards which in some respects bear on network performance (see paragraph 6.10). We believe that, in finalizing his proposals, the DG should take full account of the capital expenditure figures which we have adopted.

Operating expenditure

2.145. In considering what level of operating expenditure should be built into his price control proposals, the DG took a 'bottom-up' approach—that is, he based his assessment on a detailed examination of NIE's actual and forecast expenditure—although his consultants, PKF, also commissioned work from LE which sought to compare NIE's efficiency with the Great Britain PESs. He used a Business Plan and Efficiency Questionnaire (BEQ) to collect information from NIE during 1995 and employed PKF to advise him on the acceptability of NIE's forecast expenditure. PKF made certain adjustments to NIE's figures for 1994/95, the base year (being the last year for which out-turn data were available), in order to establish what it regarded as an acceptable set of base costs. It then projected these costs through the forthcoming price control period either by rolling them forward, generally at a rate of 1.5 per cent a year below the rate of inflation or, for some items, by making specific year-by-year adjustments to NIE's figures. With one exception the DG adopted PKF's recommendations in formulating his proposed price controls.

2.146. At the time of the BEQ NIE had just embarked on a major programme of change to the operation of the main businesses. In August 1996 it produced a corporate plan which took into account the expected effects of the programme of change. This plan was the main basis of NIE's submissions to us. We appreciate that nine months had elapsed between NIE's response to the BEQ and the production of the corporate plan but we were surprised at the extent of the differences between the figures in the two documents. There were in fact continuing changes in some of the data provided by NIE, both major and minor, throughout our inquiry which complicated our assessment.

2.147. Table 2.4 sets out the CCA operating expenditure (at nominal prices), before CSC194 transfers and after deducting excluded services (see paragraphs 8.6 to 8.11), of the T&D Business in the first four years following NIE's establishment in its present form (1992/93 to 1995/96).

TABLE 2.4 Operating expenditure of the T&D Business, 1992/93 to 1995/96

£ million, nominal prices

	<i>1992/93</i>	<i>1993/94</i>	<i>1994/95</i>	<i>1995/96</i>
CCA cash costs	80.4	77.9	76.4	69.8

Source: Table 8.1.

2.148. Table 2.5 compares the expenditure projections in NIE's corporate plan with the DG's projection for the five years of the next price control period (in 1996/97 prices).

TABLE 2.5 NIE's and the DG's projected operating expenditure for the T&D Business, 1997/98 to 2001/02

£ million, 1996/97 prices

	<i>1996/97</i>	<i>1997/98</i>	<i>1998/99</i>	<i>1999/2000</i>	<i>2000/01</i>	<i>2001/02</i>
CCA cash costs: NIE	73.7*	72.8	73.7	69.1	68.3	69.4
CCA cash costs: the DG		62.2	61.6	60.3	59.7	58.0
Difference		10.6	12.1	8.8	8.6	11.4

Source: Tables 8.3 and 8.7.

*Forecast out-turn.

2.149. Although the DG had described the findings of PKF's report in putting his proposals to NIE, he had not made the report itself available to the company. When we did so, NIE submitted evidence on what it regarded as errors, inconsistencies and unreasonable assumptions in the report. Having studied the report ourselves (with the help of Electrowatt in respect of R&M), and having taken account of comments by NIE, the DG and PKF, we believe the conclusions are not sufficiently robust in themselves to form the basis for the future price control. We have accordingly sought to reach our own assessment, bearing in mind the full range of evidence received, on what would constitute a reasonable level of operating expenditure. As with capital expenditure, while the method chosen involves building up to a total figure by assessing the constituent items, we are in no way seeking to prescribe what NIE should actually be spending under particular headings.

2.150. Like PKF we have sought to establish an acceptable set of figures for expenditure in the base year, 1994/95, but in our projections we have for the most part rolled the figures through the price control period on the basis of specified assumptions rather than considering individual items year by year. The procedures and assumptions which we followed are set out in Appendix 2.8 and the more important points are summarized in the following paragraphs.

2.151. Our adjustments to the 1994/95 actuals result in a base year total of £64.3 million at out-turn prices (£68.2 million at 1996/97 prices). This may be compared with PKF's total of £57.6 million at out-turn prices. The main differences between PKF's and our figures are that we have allowed higher amounts for R&M, work done by NIE's profit centres for the T&D Business and several smaller items bundled together under the heading 'other HCA costs', although we have adopted a lower figure for staff costs which takes account of the progress already made by NIE under its change programme.

2.152. In looking ahead we have noted that NIE has been able to cut its operating costs by an average of over 3 per cent a year in nominal terms since 1992/93 (see Table 2.4). In the light of the progress which NIE (in common with other privatized utilities) has made, and making allowance for the likelihood that cost reductions will be harder to achieve in future, we judge that for the generality of the T&D Business it is reasonable to expect efficiency gains averaging 3 per cent a year in real terms in the use of both manpower and materials. This judgment takes account of expected growth in the T&D network: in other words if annual network growth is about 1 per cent as NIE expects, unit costs on this assessment will fall by 4 per cent a year.

2.153. There is one major category of work, R&M, where a different assessment is necessary because the volume of work is much more closely related to the growth of the system. The relationship has a time-lag, in that the growth in R&M reflects the growth in circuit length in the recent past, in NIE's case a growth rate of 2 per cent. We have therefore used our normal efficiency factor of 3 per cent a year but offset by 2 per cent for volume growth, giving an annual reduction in expenditure of 1 per cent in real terms. NIE's projections for R&M envisaged that expenditure would rise in line with both the RPI and the past growth in circuit length.

2.154. Table 2.6 shows our projected manpower numbers compared with those proposed by PKF and with NIE's own figures from the corporate plan.

TABLE 2.6 Manpower projections for T&D, 1997/98 to 2001/02

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02
PKF	[
NIE corporate plan						
MMC]

Figures omitted. See note on page iv.

Source: PKF report, NIE, MMC.

It will be noted that, apart from timing differences, our figures are not significantly out of line with NIE's own projections.

2.155. As regards the costs of reducing manpower, NIE has assumed that all leavers will qualify for Voluntary Selective Severance (VSS) payments. By contrast we consider that, given the rate at which NIE would be shedding labour and on the basis of past evidence, it is reasonable to assume that one-half of the reduction could be achieved by natural wastage. This would represent a natural wastage rate of about 1.5 per cent a year, or about 20 people.

2.156. On the question of pay, evidence presented by the DG and NIE suggested that NIE's average level of wages and salaries is slightly higher than the average for the RECs. It is also significantly above the average for Northern Ireland, but we agree with NIE that its pay levels should be judged against those of other large employers in the province in comparable areas of activity. The evidence presented leads us to the view that NIE's current remuneration package is on average a little above market rates. We have therefore assumed a [*] per cent reduction in real wages in each year of the price control period. We accept NIE's submission, however, that this will be offset by a [*] per cent annual increase for 'incremental drift' (due to staff moving up pay scales): in present circumstances, with NIE having achieved substantial reductions in manpower in the last few years largely through early retirement and early severance, we do not think it is realistic for NIE to prevent this drift by management action. [

Details omitted. See note on page iv.

]

2.157. The more important of the individual expenditure categories-apart from R&M which we have referred to above-are as follows:

(a) *Profit centres.* These are former service departments of NIE's core businesses which were set up as separate profit centres in the period 1991 to 1994 (see paragraph 2.8(b)). The capital employed in these centres is not included in the asset base of the T&D Business. NIE told us that it was planning to increase the work done by these centres-particularly the Information Systems Department-on behalf of the T&D Business as part of its programme of efficiency improvements. It provided information to show that the efficiency of the centres themselves had been tested against external comparators.

We understand that NIE's aim in establishing these functions as separate profit centres was to increase their commercial awareness and we would not wish to interfere in what is properly a matter for managerial decision. There seems no reason in principle, however, why the functions should not exist as profit centres while still forming part of the regulated T&D Business. We have a concern that their existence outside T&D may reduce transparency and make the process of regulation harder. We suggest that the DG should keep the matter under review: if the bulk of the profit centres' operations continues to be attributable to NIE's regulated electricity businesses, he might consider whether the centres should be brought fully within the T&D Business.

For the purpose of the current review we have accepted NIE's argument that the volume of work performed by the profit centres for T&D is likely to increase. We took note of the information which NIE provided on the centres' efficiency but considered that our normal allowance of 3 per cent a year for future efficiency gains should be superimposed on the volume increases proposed by NIE. We also restricted the provision for profits to a return of 7.5 per cent on CCA net assets, marginally higher than for the T&D Business itself to reflect higher risk. We therefore included a total of £59 million for the five-year period,

*Figures omitted. See note on page iv.

£17 million less than NIE's projection in the corporate plan. (This is the biggest single difference between our projections and NIE's.)

- (b) *Business services.* These are services, such as the human resources and purchasing functions, which are provided centrally by NIE in order to achieve economies of scale. We applied the same reduction of 3 per cent a year for efficiency and arrived at a total of £31 million for the five years, marginally below NIE's figure.
- (c) *Rates.* We consider that rates are essentially an uncontrollable cost. There has recently been a rate revaluation in Northern Ireland. This is due to take effect from 1 April 1997 but the new charges are not yet known for certain. While, therefore, we have included a five-year total of £23 million based on the existing level of rates, we consider that the DG should provide for the new level at the full amount when finalizing the price control.
- (d) *Corporate costs.* These are the costs which NIE incurs centrally in the corporate control and strategic management of the company (for example, the costs of the Board and Company Secretary; financial control, treasury and taxation functions). We adopted the substantial saving which NIE itself proposed, giving a total of £15 million over five years.
- (e) *Wayleaves.* We see this as another largely uncontrollable item. We accepted the DG's decision that £1 million a year should be added to the present level of costs to reflect new agreements under negotiation and assumed that this cost would remain constant in real terms for the price control period. This method gave a five-year total of £14.5 million.
- (f) *Other HCA costs.* This heading includes a number of disparate items. The largest component is insurance, where we have reduced NIE's provisions for self-insurance in the light of past experience. We included a five-year total for other HCA costs of £35.5 million, only a little below NIE's projection.

2.158. Our overall assessment of NIE's operating expenditure leads to a projection for the price control period which is shown in Table 2.7.

TABLE 2.7 MMC projection of operating expenditure for T&D, 1997/98 to 2001/02

	<i>£ million, 1996/97 prices</i>						
	<i>1996/97</i>	<i>1997/98</i>	<i>1998/99</i>	<i>1999/2000</i>	<i>2000/01</i>	<i>2001/02</i>	<i>Five-year total</i>
Total cash costs	73.7*	65.7	65.0	63.8	63.1	62.3	319.8

Source: MMC.

*Forecast out-turn: see Table 8.3.

In addition, we propose to allow the CSC194 transfer of about £1.7 million a year from Supply (see paragraph 8.6), giving a five-year total operating expenditure of £328.1 million.

2.159. We examined the modelling work done by LE for the DG, and also the results of regression analyses carried out by NERA for NIE. It appears to us that the application of econometric and other techniques in the present circumstances has not been capable of producing useful results. There is disagreement on the most relevant cost-drivers and the appropriate scale factor (to allow for economies of scale). Moreover the data are difficult to handle because of the wide variety of circumstances faced by the companies in the sample (see Appendix 8.4). It is also difficult to draw robust conclusions about the performance of NIE because it is at the extreme end

of the range in respect of some key variables, such as number of customers and density of population. We are not surprised, therefore, that NIE and the DG, and their respective consultants, were unable to reach agreement on the conclusions to be drawn from the exercises that were carried out. We for our part have not found the results useful in producing reliable indications as to the relative efficiency of NIE compared with the Great Britain PESs. If techniques can be developed to the point where robust results are generated, such work would undoubtedly be a useful tool for future price reviews. We would encourage NIE and the DG to seek to agree on a methodology for the future.

2.160. The DG submitted some more basic comparisons between NIE's costs and those of the Great Britain PESs, pointing out in particular that NIE's overall manning levels in relation to numbers of distribution customers in 1994/95 were much higher than the RECs', albeit they had fallen quite sharply in the previous two years. It would require further analysis, however, to show to what extent the differences were due on the one hand to relative efficiency and on the other hand to economies of scale or other factors.

2.161. Given the difficulties referred to above we did not think that any of this evidence could be used as a cross-check on our projections derived from a detailed scrutiny of NIE's operating expenditure and we did not take it into account in our assessment. We have accordingly adopted the figures in Table 2.7 and paragraph 2.158 in assessing the appropriate level for the price control on the T&D Business.

Modelling of costs and revenues

2.162. In order to model the revenues which NIE will require over the next five years we have taken:

- (a) the value of the opening asset base determined in the manner described in the sections on 'Valuation of the asset base' (paragraphs 2.64 to 2.97) and 'Depreciation' (paragraphs 2.98 to 2.105);
- (b) an amount of £310 million for capital expenditure (see Table 2.3): we have spread this evenly over the five years of the price control period because the projection is only indicative and a more refined phasing would imply a spurious degree of precision;
- (c) a reduction of £7.2 million in NPV to take account of the underspend in the previous period (see paragraphs 2.106 to 2.118);
- (d) an amount of £328 million for operating expenditure spread over the period as shown in Table 2.7 and paragraph 2.158; and
- (e) the value of the closing asset base arrived at by adding the projected capital expenditure, less the projected depreciation, over the period (see Appendix 2.6).

We used a discount rate of 7 per cent, the figure we regard as the appropriate cost of capital for the T&D Business of NIE (see paragraph 2.63), to calculate the NPV of the cash flows forecast over

the period and the NPV of the difference between the opening and closing values of the asset base. The results are shown in Table 2.8.

TABLE 2.8 NPV of indicative expenditure for T&D, 1997/98 to 2001/02

	<i>£ million, 1996/97 prices</i>					
	<i>1997/98</i>	<i>1998/99</i>	<i>1999/2000</i>	<i>2000/01</i>	<i>2001/02</i>	<i>Total in NPV terms*</i>
Capital expenditure	61.2	61.1	61.2	61.2	61.2	
Non-operational capital expenditure†	0.8	0.9	0.8	0.8	0.8	
Operating expenditure	<u>67.4</u>	<u>66.7</u>	<u>65.5</u>	<u>64.7</u>	<u>63.9</u>	
Total	<u>129.4</u>	<u>128.7</u>	<u>127.5</u>	<u>126.7</u>	<u>125.9</u>	
NPV at 7% discount	125.2	116.3	107.7	100.0	92.8	542.0
NPV of opening and closing asset values	475.0‡				(434.8)‡	<u>40.2</u>
NPV of revenue						<u>582.2</u>
Less adjustment for past underspend						<u>(7.2)§</u>
NPV of allowed costs						<u>575.0</u>

Source: MMC.

*Discounted as 7 per cent.

†See paragraph 9.134.

‡See Appendix 2.6, Table 3. £434.8 million is the NPV of £609.8 million.

§See Appendix 2.7.

2.163. It emerges from Table 2.8 that £575 million is the NPV of the revenue that must be raised if NIE is to cover the cash flows we have judged necessary and earn a 7 per cent return on its asset value. This amount is therefore sufficient to enable NIE to finance the carrying on of its T&D Business, including the increased capital expenditure which we consider justified in order to improve continuity of supply. Revenue in excess of this figure would give NIE more than it needs to finance the carrying on of the business at the expense of higher prices to consumers and would blunt the incentive on NIE to strive for increased efficiency. We estimate that, if the present restriction on NIE's T&D charges were to continue in force without modification, NIE would generate revenues with an NPV totalling around £830 million when discounted at 7 per cent.

2.164. In the light of our analysis-and subject to the conclusion in paragraph 2.170-we conclude that the continuation without modification of the restriction on T&D charges contained in Schedule 4 to NIE's licence may be expected to operate against the public interest because it would allow NIE to raise revenues greater than the £575 million which is necessary to finance the carrying on of its T&D business. The specific adverse effects are that such continuation would not adequately protect the interests of consumers in respect of prices charged and would not promote efficiency and economy on the part of NIE in the conduct of the T&D Business.

Energy efficiency

2.165. There are two respects in which the price controls on the T&D Business relate to energy efficiency.

2.166. First, the present restriction on T&D charges contained in Schedule 4 to NIE's licence includes a provision on electrical losses (the losses term). These losses are defined as the difference between the amount of electricity entering the T&D network from the generating stations and the

amount which reaches the customer. They arise when electricity is dissipated as heat as it travels through the conductors and when it is transformed from one voltage to another. Such losses cannot be eliminated but they can be reduced by the use of better equipment.

2.167. The present price formula in Schedule 4 gives NIE an incentive to reduce losses by allowing it to keep the revenue benefit if losses are reduced below 10.5 per cent in any year and by obliging it to meet the extra cost if losses exceed that figure. The DG proposed to reduce the figure to 10 per cent, the average level of losses experienced in the first regulatory period. The DG argued that NIE should be able to sustain and improve on that level in the second period.

2.168. NIE submitted that losses were likely to increase because of a higher level of utilization of the system and for other reasons. We noted, however, that one of the assumptions in NIE's corporate plan is that losses will be the equivalent of 10 per cent in each of the next five years. This indicates that NIE considers such a level to be attainable (see paragraph 4.33).

2.169. In the light of this, we consider that a figure of 10 per cent should be included in the losses term of the formula. We therefore conclude that the continuation without modification of the losses term in the restriction of T&D charges contained in Schedule 4 may be expected to operate against the public interest with the specific adverse effect that it would lead to higher prices to consumers than is necessary in order to give NIE an incentive to increase its efficiency in the transmission of electricity.

2.170. Secondly, the question arises whether the price formula gives NIE an incentive to sell more electricity and might therefore lead to the inefficient use of electricity supplied to customers. As noted in paragraph 2.26(a), the fixed and variable weightings in the formula are intended to remove the incentive for NIE to sell more units of electricity. NIE told us that the weightings did indeed broadly reflect its cost structure, so that the revenue gain from an increase in units sold was matched by increased costs. Therefore there are no grounds for us to conclude that the formula in this respect operates against the public interest.

Supply Business price controls

2.171. In addressing the Supply price controls we consider first whether the disapplication of the controls may be expected to operate against the public interest. Secondly, we consider the form which future price controls should take. We then consider whether the continuation without modification of the existing price controls contained in Schedule 6 to NIE's licence may be expected to operate against the public interest, and in this context we consider the operating costs of the Supply Business and the appropriate allowance for profit.

2.172. NIE emphasized that, since its Supply Business had no monopoly franchise, it was vulnerable to competition from second-tier suppliers. We have noted the very small extent to which the three existing second-tier suppliers have won business from NIE (see paragraph 2.22). NIE, while drawing our attention to reasons for believing that competition would increase, did not argue for the immediate disapplication of price controls across the board. Both NIE and the DG, however, considered that price controls should no longer apply in the case of sales to customers with a maximum demand exceeding 1 MW.

2.173. The scope for new suppliers to win business in competition with NIE is greatly constrained by the fact that all licensed suppliers have to buy electricity from NIE's PPB at the Bulk Supply Tariff and Use of System from NIE's T&D Business at standard charges. Thus the only scope for them to better NIE's costs is in relation to the supply element itself, which constitutes around 8 per cent of the final price of electricity in Northern Ireland. This appears to be the principal reason why competition has been very slow to develop so far. Evidence we received from the Great Britain PESs does not suggest that they will target the Northern Ireland market on

any substantial scale while the structure of the market remains as it is (see paragraphs 3.46 and 3.47), nor in these circumstances would we expect other parties (such as gas suppliers or multiple retailers) to make major inroads in the short to medium term. With an entrenched position and over 99 per cent of the market, NIE's Supply Business would have considerable scope to increase prices if it were not constrained from doing so by regulatory means. We therefore conclude that the disapplication of the provisions in Schedule 6 to NIE's licence which control NIE's Supply charges may be expected to operate against the public interest because it would remove a necessary protection for the interests of consumers in respect of prices.

2.174. This evidence does not apply to the large customers referred to in the last sentence of paragraph 2.172. They have other options which are open to them, namely the possibilities of contracting direct with NIE's PPB and T&D Business and the possibility of own-generation (for example, via combined heat and power (CHP) schemes using natural gas), as well as the option of turning to a second-tier supplier. In addition the DG proposes to allow future uncontracted generators to sell electricity direct to customers in this category. No large customers made representations to us in favour of the continuation of price controls on NIE's Supply Business in respect of such customers. The removal of price controls on these customers would help foster the emergence of competition in this part of the market. We therefore conclude that the continuation without modification of the restriction on the charges of NIE's Supply Business contained in Schedule 6 to NIE's licence may be expected to operate against the public interest because it would not promote competition in supply to customers with a maximum demand exceeding 1 MW.

2.175. For the reasons we have set out in relation to the T&D Business (see paragraphs 2.40 to 2.42), we consider that the price controls to be applied to the Supply Business for the next period should take the form of RPI-X, as hitherto.

2.176. The DG originally proposed to NIE that the next regulatory period for Supply should run for five years. NIE pressed for a period of three years on the grounds that the growth of competition might make the continuation of the control beyond that time unnecessary. The DG in his published proposals took a period of four years. In view of the evidence we received about the prospects for competition we believe it is preferable for the new control to run for five years as in the case of T&D. This is partly for the same reason as applies to T&D (see the last sentence of paragraph 2.42) and partly because the next review of the Supply price control would then fall due at the same time as the controls on the PPB and T&D, enabling the interaction between the three businesses to be addressed conveniently. If the DG were to introduce changes which affected the monopsony position of the PPB in relation to the wholesale purchase of electricity, thus enabling competition in supply to develop at a faster rate, we would expect the DG at that stage to reopen the price review on NIE's Supply Business.

Operating expenditure

2.177. Since the Supply Business requires relatively little in the way of capital equipment, the key element affecting its need for finance is operating expenditure. (NIE has projected capital expenditure for the business of only £0.2 million a year over the next five years.)

2.178. In examining the operating expenditure of the Supply Business the DG and his consultants, PKF, followed a similar procedure to that described above for T&D. In this case, however, the DG departed from PKF's recommendations in several respects as regards the expenditure which should be disallowed in establishing an efficient level of expenditure in 1994/95, the base year.

2.179. Table 2.9 sets out the total operating expenditure (at nominal prices) of the Supply Business in the four years 1992/93 to 1995/96. The table shows that, after the fluctuating monetary

working capital adjustment (MWCA) item is stripped out, expenditure has been falling in nominal terms since 1993/94.

TABLE 2.9 **Operating expenditure of the Supply Business, 1992/93 to 1995/96**

	<i>£ million, nominal prices</i>			
	<i>1992/93</i>	<i>1993/94</i>	<i>1994/95</i>	<i>1995/96</i>
Total operating expenditure	27.8	22.2	28.5	18.9
Total excluding MWCA	23.9	24.3	22.8	22.0

Source: Table 8.2.

2.180. Table 2.10 compares the projections in NIE's corporate plan with the DG's projection, in 1996/97 prices, for the next five years. A projection of £1.0 million each year for MWCA has been included in these figures.

TABLE 2.10 **NIE's and the DG's projected operating expenditure for the Supply Business, 1997/98 to 2001/02**
£ million, 1996/97 prices

	<i>1996/97</i>	<i>1997/98</i>	<i>1998/99</i>	<i>1999/2000</i>	<i>2000/01</i>	<i>2001/02</i>
Total operating expenditure:						
NIE	22.9*	[
Total excluding MWCA	21.7*					
Total operating expenditure:						
the DG						
Difference]
				<i>Figures omitted. See note on page iv.</i>		

Source: Tables 8.4 and 8.10.

*Forecast out-turn.

2.181. The DG's proposals for the next period were 7 to 9 per cent below NIE's figures.

2.182. As with T&D we have made our own assessment of NIE's expenditure while paying due regard to NIE's evidence, PKF's work and the DG's proposals. The procedures and assumptions which we adopted are set out in Appendix 2.8 and the more important points are summarized below.

2.183. Our adjustments to the 1994/95 actuals result in a base year total of £21.2 million at out-turn prices (£22.5 million at 1996/97 prices). This compares with PKF's total, as amended by the DG, of £17.4 million. The main difference is that we have allowed a higher figure for inter-business transfers, which primarily represents a charge from the Retail Business for the provision of customer services and cash collection.

2.184. In our projections we have assumed efficiency savings of 1.5 per cent a year in manpower because our assessment was that there was less scope for efficiency gains than in the T&D Business (where we projected savings of 3 per cent a year). Table 2.11 shows the manpower numbers we have projected compared with those proposed by PKF and those in NIE's corporate plan.

TABLE 2.11 **Manpower projections for Supply, 1997/98 to 2001/02**

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02
PKF	[
NIE corporate plan			<i>Figures omitted. See note on page iv.</i>			
MMC]

Source: PFK report, NIE, MMC.

As with T&D we have assumed that natural wastage will account for half of the reduction (about 1½ people a year on average) [*Details omitted. See note on page iv.*].

2.185. The following are among the more important individual items:

- (a) *Third party revenue collection.* This comprises payments to other parties in connection with the settlement of customers' electricity bills. We have included £16 million over the five years, virtually the same as NIE and the DG in their projections.
- (b) *Profit centres.* We have described our approach to this item in connection with the T&D Business (see paragraph 2.157(a)). For Supply our approach leads us to allocate some £13 million for profit centre work, £3 million less than NIE proposed.
- (c) *Inter-business transfers.* This covers payments to NIE's Retail Business for the provision of customer services and cash collection from the settlement of bills. NIE recognized that more cost-effective methods of receiving bill payments would need to be developed, and provided in its corporate plan for a substantial fall in expenditure under this heading spread over the period to 1999/2000. We have adopted this profile, which yields a total of £9.5 million over the five years, rather than the immediate reduction envisaged by the DG (who departed from PFK's recommendation on this point).
- (d) *Bad debts.* NIE's level of bad debts is already low relative to the Great Britain PESs but we consider there is scope for a small further reduction from the increased use of prepayment meters and have adopted a total of £7 million over the period, in line with the DG.

2.186. Our assessment leads to the projection of expenditure for the price control period which is shown in Table 2.12.

TABLE 2.12 **MMC projection of operating expenditure for Supply**

	<i>£ million, 1996/97 prices</i>						
	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	<i>Five-year total</i>
Total operating costs	22.9*	20.8	20.4	19.7	19.2	19.0	99.1

Source: MMC.

*Forecast out-turn: see Table 8.4.

As noted in paragraph 2.158, we also propose to allow the CSC194 transfer of about £1.7 million a year (£8.4 million in total) from Supply to T&D. We then propose to allocate 99.33 per cent of the remaining cost to the below 1 MW market, giving a five-year total of £90.1 million.

Profit allowance

2.187. The DG considered that, since the Supply Business has a low fixed asset base, it was appropriate to set a profit allowance by reference to turnover rather than as a return on assets. Bearing in mind that the turnover is very high in relation to the business's own costs—because of the pass-through of generation, transmission and distribution costs—he considered that 0.5 per cent of turnover would give NIE an adequate level of profit (the same level as the MMC had recommended for SHE), subject to the turnover figure being abated by 20 per cent because of the high generation costs in Northern Ireland.

2.188. NIE's own proposals were based on a profit requirement of £5 million a year, about 1 per cent of turnover, which it argued was the minimum which was consistent with the risks faced by the business and with the development of competition in supply. It said that the DG had misinterpreted the MMC's report on SHE, which had related the profit allowance for SHE to a return on assets as well as a percentage of turnover. NIE also objected to the DG's proposal to abate the turnover figure by 20 per cent, commenting that certain of its financing costs, including bad debt provision, were directly related to the actual level of turnover. With the setting of a tight level for operating expenditure, NIE faced the risk that a slight change in circumstances, such as an increase in bad debts, could erode or eliminate its profit.

2.189. On the last point, we have made what we regard as a full allowance for NIE's relevant expenditure: the question is whether the profit allowance should be based on the full or abated turnover figure. NIE's need for additional working capital is offset by the MWCA, and as noted above, NIE is well placed to keep tight control of bad debts through the use of prepayment meters. We agree, however, that in setting the profit allowance it is appropriate to have regard to the rate of return on net assets and we note that a profit based on 0.5 per cent of abated turnover would yield a return of around 6 per cent on CCA net assets (which are some £30 million). While we do not accept that the Supply Business faces a high level of risk from the development of competition (see paragraph 2.173), we recognize that a 0.5 per cent margin on abated turnover would make NIE vulnerable to fluctuations in costs. We therefore consider that the profit element in the formula should be set at 0.5 per cent of the full value of turnover, equivalent to about 7.5 per cent on CCA net assets. We estimate that this would produce an average profit of about £2.3 million a year, or £11.5 million over the full period.

2.190. Allowing for the DG's proposal that NIE should be given provision of around £0.6 million a year for additional expenditure to promote energy efficiency (see paragraphs 2.193 and 2.194), the figures we have adopted for expenditure and profits for the Supply Business would lead to a revenue stream totalling some £105 million over the five years, net of the pass-through of generation and T&D costs.

2.191. If the present formula for control of the Supply Business's profits were to continue without modification, we estimate that it would enable NIE to raise some £160 million in revenue, also net of the pass-through of generation and T&D costs.

Conclusion on Supply price controls

2.192. In the light of our analysis we conclude that the continuation without modification of the restriction of Supply charges contained in Schedule 6 to NIE's licence may be expected to operate against the public interest because it would allow NIE to raise revenues greater than the £105 million which is necessary to finance the carrying on of the Supply Business. The specific adverse effects are that such continuation would not adequately protect the interests of consumers in

respect of prices charged and would not promote efficiency and economy on the part of NIE in the conduct of the Supply Business.

Energy efficiency and environmental factors

2.193. The DG proposed to promote the efficient use of energy by allowing NIE additional revenue of £1 per customer per year for the purpose of stimulating the market for energy efficiency goods and services. NIE argued that this component should be included in the T&D price control, rather than the Supply control, in order to avoid distortion to competition between its Supply Business and second-tier suppliers. The DG said that the inclusion of the component in the Supply control would enable second-tier suppliers to offer competing energy efficiency products and services on equal terms with NIE (see paragraphs 4.38 and 4.40).

2.194. We consider that the energy efficiency component belongs with the Supply Business, which has the direct contact with consumers, and that no distortion to competition will arise if all suppliers are treated equally in its application.

2.195. The DG further proposed to provide an incentive to NIE to develop a market for electricity from renewable sources through an administrative allowance of 0.35p per kWh for every unit it sold under a special environmental or 'green' tariff. He estimated that such sales would rise from 5 GWh at the beginning of the next price control period by 5 GWh each year, reaching 20 GWh in 2000/01. Moreover he believed the potential existed for NIE to exceed these estimates and thereby earn greater revenues whilst stimulating demand for 'green' electricity. NIE rejected this view and also told us that considerable care would be required to ensure that promotion of 'green' electricity did not result in unnecessarily high prices in Northern Ireland. We note, however, that NIE has agreed to introduce an environmental tariff as part of the interim price changes which it is to make, following consultation with the DG, with effect from 1 April 1997.

2.196. Like the T&D price formula (see paragraph 2.170), the Supply formula is structured in such a way as to minimize the incentive for NIE to sell more units of electricity. NIE confirmed that the weighting given in the formula to the charge per unit broadly reflected the extent to which its costs varied with unit sales, so that increased revenue from higher unit sales was offset by increased costs. There is therefore no basis for us to conclude that this particular aspect of the structure of the present formula operates against the public interest.

Summary of conclusions on the public interest

2.197. As regards the T&D Business, we have concluded that the continuation without modification of the restriction of T&D charges contained in Schedule 4 to NIE's licence may be expected to operate against the public interest with the specific adverse effects that:

- (a) it would not adequately protect the interests of consumers in respect of prices charged (paragraph 2.164);
- (b) it would not promote efficiency and economy on the part of NIE in the conduct of the T&D Business (paragraph 2.164); and
- (c) it would lead to the inefficient distribution of electricity (paragraph 2.169).

We have also concluded that the disapplication of the restriction of T&D charges contained in Schedule 4 may be expected to operate against the public interest because it would remove a necessary protection for the interests of consumers in respect of prices (paragraph 2.38).

2.198. As regards the Supply Business, we have concluded that the continuation without modification of the restriction of Supply charges in Schedule 6 may be expected to operate against the public interest with the specific adverse effects that:

- (a) it would not adequately protect the interests of consumers in respect of prices charged (paragraph 2.192); and
- (b) it would not promote efficiency and economy on the part of NIE in the conduct of the Supply Business (paragraph 2.192).

We have also concluded that the disapplication of the restriction of Supply charges in Schedule 6 may be expected to operate against the public interest because it would remove a necessary protection for the interests of consumers in respect of prices (paragraph 2.173).

Modifications

Transmission & Distribution price controls

2.199. We consider that the adverse effects specified in paragraph 2.197(a) and (b) could be remedied or prevented by modifying the formula in Schedule 4 to NIE's licence so that revenue in 1997/98 is reduced by 25 per cent (the P_0 drop) compared with the maximum revenue allowed by the formula for 1996/97, and so that revenue is allowed to rise by no more than RPI-2 per cent in each of the four years 1998/99 to 2001/02. The P_0 drop would remove the excess profits which NIE is currently making on the T&D Business, reducing revenues in 1997/98 to the minimum level consistent with securing that NIE is able to finance the carrying on of its licensed activities and protecting the interests of consumers in respect of continuity of supply and quality of service. The X factor will lead to NIE's revenue falling at a rate broadly in line with the operating expenditure of the business which we have judged to be achievable.

2.200. We agree with the DG that the fixed component in the formula should be changed from a set monetary amount to an amount per customer but with customer numbers represented by NIE's forecast of the numbers for each year of the price control period, not the actual numbers (see paragraph 4.29). This component should continue to have a weight of 0.75 and the amount per unit a weight of 0.25.

2.201. Taking:

- (a) NIE's forecast of customer numbers and units for conveyance through the T&D network for each year of the period;¹
- (b) the indicative amounts of capital and operating expenditure set out in Table 2.8 and phased as shown in that table; and
- (c) the projected difference between the opening and closing values of the RAB shown in that table,

¹Forecast customer numbers rise from some 662,000 in 1997/98 to 689,000 in 2001/02. Forecast units for conveyance rise from 7,060 GWh in 1997/98 to 7,600 GWh in 2001/02.

the formula should be set so as to give revenues over the five years with an NPV of £575 million when discounted at 7 per cent a year. Accordingly for 1997/98 the following values should be given to the two components in the formula (see paragraphs 4.23 to 4.25 and 4.29):

Amount per customer (£)	207.85
Amount per unit (p/kWh)	1.949

We estimate that the effect of this proposal on the profitability of NIE's T&D Business would be as shown in simplified form in Table 2.13.

TABLE 2.13 Accounting effect of MMC's proposed modifications in the T&D price control

	<i>£ million, 1996/97 prices</i>				
	<i>1997/98</i>	<i>1998/99</i>	<i>1999/2000</i>	<i>2000/01</i>	<i>2001/02</i>
T&D revenue	138	137	135	134	133
Operating expenditure	-67	-67	-66	-65	-64
Depreciation	<u>-29</u>	<u>-28</u>	<u>-28</u>	<u>-30</u>	<u>-31</u>
Profit before tax	42	42	41	39	38
					<i>per cent</i>
Profit margin	30	30	30	29	29
Return on average fixed assets (RAB)	8.4	8.0	7.5	6.9	6.4
					<i>£ million, 1996/97 prices</i>
Fixed assets at year end (RAB)	503	532	560	587	613

Source: MMC.

The declining trend in return on fixed assets is largely due to the increase in the RAB because of the high level of capital expenditure which we have provided for.

2.202. We consider that the adverse effect specified in paragraph 2.197(c) could be remedied or prevented by changing the losses term in the formula from 10.5 to 10 per cent.

2.203. We believe that it would be preferable for the measure of RPI which is used in the formula to be changed from the forecast rate to the historical rate since that would reduce uncertainty and remove one cause of under- and over-recoveries. This would bring NIE's price controls in line with those of the Great Britain electricity companies in this respect. We also believe that it would be preferable to use the underlying, rather than the all-items, rate since the former is less volatile than the latter. We have not, however, reached a conclusion that the present formula is against the public interest in this respect, and we regard both matters as falling to be decided by the DG and NIE after taking account of our views.

2.204. Schedule 4 to NIE's licence, as it currently stands, allows NIE to request disapplication of the T&D price control but specifies that a disapplication shall not take effect-unless the DG agrees otherwise-before 31 March 1997. We consider that the adverse effect which would result from disapplication of Schedule 4 (paragraph 2.197, last sentence) could be remedied or prevented by specifying that an application by NIE for disapplication of the provisions could not take effect before 31 March 2002, the end of the forthcoming five-year price control period.

Supply price controls

2.205. We consider that the adverse effects specified in paragraph 2.198(a) and (b) could be remedied or prevented by modifying the formula in Schedule 6 so that revenue in 1997/98 is reduced by 42 per cent (the P_0 drop) compared with the maximum revenue allowed by the formula for 1996/97, and so that revenue is allowed to rise by no more than RPI-2 per cent in each of the four years 1998/99 to 2001/02. As with our proposals for the T&D Business the P_0 drop is intended to remove excess profits straight away, reducing revenues in 1997/98 to the minimum consistent with securing that NIE can finance the carrying on of its licensed activities and protecting the interests of consumers in respect of quality of service. The X factor will lead to NIE's revenue falling at a rate broadly in line with the operating expenditure of the business which we have judged to be achievable.

2.206. Taking NIE's forecasts of the number of customers and the number of units to be sold, the formula should be set so as to give revenues over each of the five years as shown in Table 2.14. Accordingly, for 1997/98 the following values should be given to the three components which the DG has proposed for the revised formula (see paragraph 4.38):

Constant (£m)	8.1006
Cost per customer (£)	12.8313
Allowance per unit (p/kWh)	0.0748

If operating expenditure is as we have projected, profits averaging £2.3 million a year would be generated. The P_0 drop is in fact about one percentage point greater than necessary to provide a profit of £2.3 million in 1997/98. However, if we adjusted P_0 for this difference in 1997/98, we would also have to make an adjustment to X which would create a bigger distortion to the profit figures in later years, and hence a less appropriate profile. The overall effect on NIE's profits of adopting the profile shown, as compared with £2.3 million a year, is negligible.

TABLE 2.14 **Projection of revenues for Supply, 1997/98 to 2001/02**

	<i>£ million, 1996/97 prices</i>					
	<i>1997/98</i>	<i>1998/99</i>	<i>1999/2000</i>	<i>2000/01</i>	<i>2001/02</i>	<i>Total</i>
Total revenues	21.5	21.2	21.0	20.7	20.4	104.8
Operating expenditure	19.0	18.5	17.9	17.4	17.3	90.1
Energy efficiency estimated expenditure	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>3.2</u>
Profits	1.8	2.1	2.4	2.7	2.5	11.5

Source: MMC.

2.207. We make the same observations about the form of the RPI which we consider preferable for use in the price control formula as in the case of T&D (see paragraph 2.203).

2.208. We consider that the DG's proposals for an energy efficiency allowance and an environmental tariff to be included in revised price controls on the Supply Business should be implemented (see paragraphs 2.193 to 2.195).

2.209. Schedule 6 to NIE's licence contains a disapplication provision similar to that in Schedule 4 and, as in that case, specifies that a disapplication shall not take effect before 31 March 1997 unless the DG agrees otherwise. We consider that the adverse effect which would result from disapplication of Schedule 6 (paragraph 2.198, last sentence) could be remedied or prevented by specifying that an application from NIE for disapplication of the provisions could not take effect

before 31 March 2002. We propose a further modification, however, that the price control should be disappplied in respect of customers with a maximum demand exceeding 1 MW: see paragraph 2.174.

Power Procurement Business price controls

2.210. As stated in paragraph 2.89, the DG's proposed price control for the PPB, which NIE accepted, is based on an asset value for the business of £1 million at flotation, rolled forward to the start of the new price control period. We, however, have attributed a value of £5 million to the business at flotation. As things stand, the difference of £4 million between these valuations will not be taken into account in any of the price control formulae. In principle the matter could be dealt with either by the DG reopening the PPB price control to accommodate the higher asset valuation or by making an allowance in the T&D price control. The former would appear preferable but we regard this as for the DG and NIE to decide.

Effect of the proposed modifications

2.211. We estimate that the effect of our proposals will be to reduce domestic electricity prices in Northern Ireland by about 14 per cent in real terms between 1996/97 and 1997/98.¹ This is before taking account of changes in the generation component of electricity prices, and the deployment of the further sum which the Government has provided to reduce prices in Northern Ireland (see paragraph 3.66), neither of which is affected by our inquiry. Nor does the calculation allow for the expected increase in NIE's rates bill. Table 2.14 shows our calculation of the effect of our proposals in the first year (that is, after P₀).

TABLE 2.14 **Estimated effect of MMC proposals on domestic electricity prices in Northern Ireland**

<i>Component</i>	<i>Average annual bill</i> <i>(£, 1996/97 prices)</i>		<i>Change</i> <i>%</i>
	<i>1996/97</i>	<i>1997/98</i>	
Generation	170.0	170.0	-
T&D	141.0	105.8	-25
Supply	<u>29.0</u>	<u>16.8</u>	<u>-42</u>
Total	340.0	292.6	-14
T&D and Supply	170.0	122.6	-28

Source: MMC and NIE.

Note: It has been assumed for the purpose of illustration that the price of the generation component remains constant between the two years. In addition, no account has been taken, in either year, of the current Government subsidy for electricity prices in Northern Ireland (see paragraph 3.66).

The T&D and Supply components of the bill will fall by a further 2 per cent a year in real terms over the following four years. The effect of the DG's proposals, calculated on the same basis, would have been to reduce domestic electricity prices by about 16 per cent in real terms between 1996/97 and 1997/98.

¹We are aware that NIE has already agreed with the DG on price reductions to take effect from 1 April 1997, in effect implementing part of the reduction flowing from our proposals on an interim basis.

2.212. Table 3.13 shows NIE's estimates of the average domestic bill at out-turn prices in Great Britain and for what it considers to be the three comparable RECs-Manweb, SWALEC and SWEB. For 1996/97 NIE estimated the T&D and supply components for the three comparable RECs at £144. For 1997/98 it estimated a figure of £140 at out-turn prices which equates to just over £135 at 1996/97 prices using its inflation assumption. There is obviously some uncertainty attached to NIE's estimates for the PESs due to it having to allocate the bills to the various energy components. We note that the DG has not verified these numbers. Such uncertainty means that any comparisons between NIE's bills and its estimates of those of the PESs should be treated as illustrative. However, it is noticeable that as a result of our proposals, NIE's average bill (for T&D and Supply) will move from being substantially higher than the average for the three comparable RECs in 1996/97 to being lower in 1997/98.

2.213. We also estimate that the effect of our proposals for large industrial users in Northern Ireland will be to reduce the average bill by about 5 per cent in the first year, compared with 6 per cent for the DG's proposals. The effect is less than for domestic consumers because generation accounts for a much higher proportion of the price of electricity to industrial users (around 80 per cent, compared with 50 per cent for domestic users). This calculation should be regarded as purely illustrative given the variety of terms and conditions applying to industrial customers and the consequent difficulty of estimating average prices.

2.214. The increased amounts of capital and operating expenditure provided for in our proposals, compared with the DG's, will enable NIE to achieve a faster improvement in network performance and to achieve environmental and safety benefits, for example from a more rapid rate of undergrounding of lines in built-up areas.

2.215. If NIE performs as we have assumed, we calculate that it will earn profits before tax and interest from the T&D Business at a broadly constant level of around £40 million a year in CCA terms and at constant 1996/97 prices (see Table 2.13) compared with £59 million in 1995/96 (at out-turn prices). This level of profit includes an amount of £5 million a year to compensate NIE for the shortfall in income in the period 1993/94 to 1996/97 arising from the method used to calculate depreciation on its assets at flotation (see paragraph 2.104). We have also projected an average level of £2.3 million in profits for the Supply Business expressed on the same basis. If NIE is able to achieve greater efficiency savings than those built into our assessments, which we regard as challenging but achievable, it will of course be able to earn higher profits. In those circumstances we would expect the recurring cost savings to be reflected in lower prices in the next period in the usual way.

2.216. We have also looked at the implications of our proposals for NIE's financial position in balance sheet terms and are confident that NIE would be able to finance the carrying on of its licensed activities.