TRANSMISSION and DISTRIBUTION PRICE CONTROL REVIEW

For

NORTHERN IRELAND ELECTRICITY

A consultation paper by

The Director General of Electricity Supply for Northern Ireland

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EXECUTIVE SUMMARY

1. This paper is the sixth in the consultation process to establish a new price control for Northern Ireland Electricity plc's Transmission and Distribution (T&D) business for the period commencing 2002. It presents the issues that Ofreg will have to consider in formulating the new price control.

2. The paper is set out in six chapters. The first chapter or introduction sets the scene for the current review of NIE's activities.

3. The principal theme of this consultation paper is that of systemic divergence. Ofreg's concern is not about the existence of a cost gap between NIE and the average price in GB. It is that the gap has widened from 17% to 44% in a very short space of time. Therefore, it is the cause or causes of divergence, which is the central issue to be addressed in this price review.

4. The divergence, which has opened up over the last seven years, is easy to explain – NIE was allowed more revenue than other companies. The question, which we must address, is how much of this can be justified. NIE has sought to justify the divergence in three ways:

   - The starting point in 1992/93 is wrong. The "natural" price gap between NIE and GB is higher than the gap revealed by NIE's privatisation in 1992/93.
   - There was an infrastructure deficit at privatisation and it was inevitable that prices would rise while the deficit was being made good.
   - Maximum demand growth is higher in NI than GB resulting in increased costs.

5. Ofreg has considered these arguments and is not satisfied that any provides a credible justification for the systemic divergence, which has been observed.

6. Chapter Two considers the potential impact of the T&D business on the wider strategic policy issues viz. global warming and climate change, the development of competitive markets, energy efficiency, and the further development and use of renewable technologies.

7. Chapter Three looks at NIE's proposed level of Operating Costs (Opex) for the next regulatory period. Operating costs cover the day to day costs of running the network and include inter alia repairs and maintenance, planning, business rates and overheads. Prior to reviewing NIE's proposals for the next period a detailed review of NIE's past projections against actual was carried out. This revealed that actual operating costs over the period 96/97 to 99/00 were some £13.5m lower than projections submitted to the MMC without including the profits of unregulated affiliates.

8. The forecasting record of NIE as highlighted above suggests that a detailed assessment of NIE's T&D operating costs is required. Ofreg has appointed Pannell Kerr Forster (PKF) as consultants to assist with the analysis of operating costs.

9. Chapter Four – Capital Expenditure (Capex). Capex covers spending on long life assets which would be expected to last a number of years, such as transformers, switchgear and overhead lines. It forms a significant part of the costs of operating a Transmission and Distribution system and therefore impacts on the price customers pay for their electricity supply. As with Opex NIE's past performance in forecasting Capex requirements is

compared with actual performance in terms of total spend, areas of spend and system improvements achieved as a result of expenditure.

10. While the total spend on Capex during the current regulatory is projected to be very close to the amount allowed by the MMC there have been significant adjustments to where the money was spent compared to the original plan. Load Related Expenditure will be £32.1m or 18.3% less than allowed by the MMC while Non Load Related Expenditure is £26.8m or 15.3% higher. Ofreg has appointed WS Atkins to review NIE's past investment programme and Capex proposals for RP3.

11. Chapter Five focuses on the financial Issues associated with the price review. The starting point is that it is a primary duty of regulation to ensure that the regulated company is able to finance its activities. That said it is incumbent on the Regulator to ensure that this obligation is met in a manner equitable between and fair to both investors (shareholders and creditors) and customers.

12. The key financial issues considered in this section are; a) the cost of capital, b) the size and constitution of the asset base and c) the depreciation policy applied to new and existing assets.

13. The level of return that is required by the financial markets is called the cost of capital. It is usually calculated as the weighted average of the cost of debt and equity finance. The generally accepted methodology in estimating the relevant cost of capital is explained. This is followed by a detailed review, of the issues relevant to NIE, together with a comparison of recent determinations for other regulated industries. Based on current information and analysis the appropriate range for NIE's pre tax weighted average cost of capital is seen as 3.84% to 6.65%. The lower figure is based on a gearing of 90% whereas the higher figure is based on 50% gearing. NIE's actual gearing is not proven but the Viridian group's gearing is 73%.

14. While the cost of capital is a key determinant in the final out-turn cost of operating the T&D system the size of the asset base to which it is applied is also important. The cost of capital if properly set rewards shareholders and finance providers in proportion to the risks they face whereas the size of the asset base only impacts on the return to shareholders.

15. This chapter also re-examines the valuation of assets acquired by shareholders at privatisation and their treatment at the last review including whether, in light of subsequent information, the allocation of the initial market value between regulated and non- regulated parts of the business properly reflected the real contribution of each entity to the company's value at privatisation.

16. In reviewing the change in depreciation policy adopted at the last review it is evident that customers paid £25m more in depreciation between 1997 and 2002 than they should have done even under the RP2's depreciation schedule.

17. Any overstatement in asset value or depreciation in relation to the regulated business leads to higher prices for customers and added value for shareholders. The analysis undertaken in this section only seeks to arrive at a just and equitable settlement for both shareholder and customer allowing each part of the business to move forward from an agreed datum.

18. The sixth and final section formally invites responses to the paper and draws together all the questions and issues raised in the previous chapters. At this stage no detailed proposals for

the price control are published. These will be the subject of the next paper once the responses to this consultation document have been received and considered.

19. Finally I have to acknowledge that this review is taking longer than it should and the timetable has slipped. This will make no difference to the final outcome. Prices for RP3 will be what they should be with effect from 1 April 2002 and since it will be possible if necessary to backdate any changes to 1 April 2002 my principal concern has been to be as meticulous as possible in ensuring that every point put to me by NIE was carefully examined. If this price control is not properly constructed customers could be paying too much for 40 years. This time we have to get it right and end once and for all the conflict of interest between the industry's stakeholders.

1. Review of NIE's T&D Business

1.1 NIE's Transmission and Distribution Business (T&D) is subject to periodic reviews to determine its allowed revenue and thus the amount of money it will be allowed to collect from customers. The present Price Control Regulation Period (RP2) lasts until the end of March 2002. Consequently a new price control (RP3) will be required for the period from 1 April 2002.

1.2 The aim of RP3 will be to allow NIE to raise sufficient revenue to be able to provide a safe and efficient network, cover its costs and make a reasonable return for its shareholders commensurate with the risks they face.

1.3 The T&D business is a natural monopoly. Everyone who uses electricity in Northern Ireland or who wants to take electricity through Northern Ireland has to use NIE's wires unless they either produce their own electricity on site or buy it from another generator and bring it to their site using private wires. Even these auto producers tend to rely on NIE's wires for emergencies and to meet their own peak demand. While T&D's own input costs may be subject to competition the business as a whole cannot be. For that reason it has to be subject to regulation. Regulation must seek – though it will never fully succeed - to provide the outcome which would have resulted if the T&D business were forced in a perfectly competitive market to strive to be at the very outermost frontier of industry efficiency. Any evidence of monopoly profits is therefore evidence that regulators have not been doing their job effectively.

In order to carry out its functions Ofreg has to:

- investigate fully the costs which the T&D business faces;
- investigate the history and pathology of the business to see how closely its past behaviour and its culture are indicative of a business geared to producing competitive outcomes;
- understand the industry's potential by reference to the achievements of similar businesses in other countries and other regions;
- form a judgement on what the T&D business needs to do in Regulatory Period 3 (RP3) to fulfil its licence obligations and satisfy commitments to customers; and
- ensure that the T&D business is able to finance at least cost any non operational social, economic, environmental or safety duties and obligations imposed on it by statute, regulation, directive or Government or EU policy.

1.4 This task is time consuming. It requires considerable iteration between Ofreg, its consultants and advisers and the T&D business. Given the great importance of energy costs in the Northern Ireland economy it is vital that the public is fully consulted at each stage of the process.

1.5 To date Ofreg has published five consultation papers. The first T&D Price Control paper was published in April 2000. It set out the issues in very general terms. A second paper was published in November 2000 dealing with the size and evolution of the T&D asset

base. In May 2001 a third paper was published setting out NIE's response to the Business Efficiency Questionnaire. This in effect formed NIE's proposals for RP3. In June 2001 a fourth paper was published entitled "Greening Transmission and Distribution" and later in June 2001 a fifth consultation paper was published. Its subject was "Connection Charging Policy".

This paper is the sixth consultation paper. In regulatory parlance it is known as the "Issues Paper". Its purpose is to:

- review the business's performance to date;
- consult on the issues which the Ofreg will have to consider before coming to a judgement on the details of the next price control and the options open to it.

1.6 Following the conclusion of consideration of the responses to this paper and the other consultation papers already issued Ofreg will publish its initial proposals for RP3.

All Ofreg's consultation papers are published on its website http://ofreg.nics.gov.uk/

The context of RP3

1.7 Although privatisation is often talked about as if it were an end in itself it is in reality only a means to an end. The end or objective of privatisation was to create industries which would be efficient and by driving out inefficiencies both deliver lower or, at least, cost reflective prices to customers and free up resources which would have the further effect of making the whole economy more competitive. Privatisation inaugurated a dynamic for change and development and all the industries privatised over the last fifteen years look very different to the way they looked the day after the ownership revolution was completed. Successes came faster with some than with others. This continuous process of change has been driven by the industries' managers, by regulators, ministers and Parliament - and in Great Britain the continued heavy involvement of Parliament and Ministers is indicative of the extent to which even successful privatised industries are still to a very considerable extent the creatures of and dependant on public policy to set their agendas and create the context within which they operate.

1.8 While by no stretch of the imagination could the privatization of the Northern Ireland Electricity supply industry be placed in the same category of disaster as the British Rail privatization it may be regarded as the one which – given privatisation's objectives - has been the least happy in terms of outcomes. In electricity cost terms Northern Ireland is less competitive now than it was before privatisation. Unlike British Rail where shareholders as well as customers now feel pain the purchasers of the Northern Ireland electricity supply industry have enjoyed substantial rewards. Customers who had been used to prices which - except in periods of oil price spikes - had been close to GB levels - found themselves having to grow accustomed to steady price divergence not just from GB but also from RoI and the rest of Europe.

1.9 There are two principal components of the price divergence - generation and T&D. The former is not the subject of this paper. The latter is. Of the two, generation price divergence has a greater effect on final prices; T&D divergence has however been more pronounced and less amenable so far to remedy. It threatens to be aggravated by time. It is in fact systemic.

1.10 In preparing for RP3 Ofreg is acutely aware that this may be the last chance Northern Ireland customers will have of ensuring that T&D costs cease to be systemically divergent from those of all our European neighbours and competitors.

1.11 RP3 also provides an opportunity to correct for the mistakes of the past. This should enable us to set out in a clear manner the facts surrounding NIEs T&D business. This should provide the basis upon which NIE's T&D business should move forward into the future.

Systemic Divergence

1.12 The principal theme of this consultation paper is that of systemic divergence. Electricity prices in Northern Ireland are lower in real terms than they were at privatisation - that is not in dispute though some might argue that they would have been lower with or without privatisation. It is true that in real terms the cost of T&D per unit is 27% lower than it was at privatisation. However the locally controllable cost of generation – i.e. excluding fuel costs - has also fallen by 25% but without the help of any price controls. Systemic divergence is not however concerned with whether electricity prices are rising or falling. It is about how they are performing in comparison with prices elsewhere. NIE's reduction of 27% in T&D real prices compares with a 41% fall in GB in the same period; the gap has widened as a consequence.

1.13 The difference between the 41% in GB and the 27% reduction in Northern Ireland over simplifies the degree of divergence. But the headline figures do indicate that divergence is taking place. In 1992/93 it cost 17% more to move a unit of electricity through the NIE network than through the GB networks; it now costs 44% more. It is essential that this price control review identifies the extent and cause of price divergence and through the public debate which NIE and Ofreg have carried out by means of consultation papers we have been exploring this issue. In more detailed discussions we have come to a better understanding of the extent to which there is divergence and the possible causes.

1.14 Systemic divergence is a failure of the regulatory system in its entirety and cannot be blamed exclusively on NIE though the views of NIE, their comportment and the actions they have taken have all contributed.

Price Difference and Price Divergence

1.15 Throughout the prolonged public debate about the price gap between the average price in GB and the price in Northern Ireland NIE has patiently sought to explain the reasons for the gap. I have been concerned lest the debate might focus on the gap because the reasons why there might be a gap are not in dispute. They may be summarised as geography and history. The cost of an electricity network will be influenced by factors

such as population density and the terrain across which the supply has to be delivered. Factors more directly within the control of the company also affect costs but to-day's managers inherit for better or for worse the consequences of decisions made by their predecessors. These would include technology choices, financing and depreciation policies and standards on quality of supply. In their papers NIE highlight those factors which they allege push costs higher in Northern Ireland - from smaller fields to the cost of flying to meetings in London - and ignore the possibility that some costs are either lower in Northern Ireland or should be for a well managed company. But the general proposition that T&D costs will be higher in some regions than in others is not in dispute. According to NIE there are significant variations within GB from 44% above the average to 25% below the average. It might also be expected that Northern Ireland's geographical and demographic characteristics would - all else being equal - result in higher T&D costs here than the GB average. This is common ground between NIE and Ofreg.

1.16 Ofreg's sole concern is not about the existence of a price gap; it is that the gap has widened from 17% to 44% in a very short space of time. It is the causes of divergence rather than the existence and size of the gap which are the central issues which need to be addressed in this price control review.

Price Divergence - an isolated phenomenon?

1.17 NIE has tended to focus on the price gap rather than the divergent trend. They have observed that the latter is not unique to Northern Ireland and that the trend in GB is towards increasing divergence and that some companies have changed their relative position.

1.18 However the changes in GB are due to grouping the two Scottish companies with the English and Welsh RECs. The latter have all moved together and have converged; this is a fact which is indisputable. The two Scottish companies have a different privatisation history. They started with lower prices than England and Wales despite having much larger asset bases in proportion to the amount of electricity on their systems. The issue with the Scottish companies is not why they moved to being above average but why they were ever below average price. Scotland had about a quarter of GB's T&D assets but only about a tenth of its electricity to transmit and distribute.

1.19 NIE on the other hand started with above average prices but prices which were below the prices of the most similar English and Welsh companies - SWEB, Manweb and Swalec. But it is now dearer than any of them. How did this happen and why?

Price Divergence in Northern Ireland

The tables below show the history of price movements in Northern Ireland and GB from 1992/93 when NIE was privatised.

Table 1*

Year	GB p per kW/h	NIE p per kW/h	NIE as % of GB
1992/93	1.93	2.26	117.10
1993/94	1.97	2.32	117.77
1994/95	2.02	2.36	116.83
1995/96	1.89	2.38	125.93
1996/97	1.79	2.53	141.34
1997/98	1.73	2.18	126.01
1998/99	1.75	2.15	122.86
1999/00	1.71	2.08	121.64
2000/01	1.43	2.03	141.96
2001/02	1.43	2.06	144.06

NIE is compared with the three English and Welsh comparators in Table 2 below:

Table 2*

Year	Comp. p per kW/h	NIE p per kW/h	NIE as % of comps
1992/93	2.34	2.26	96.58
1993/94	2.32	2.32	100.00
1994/95	2.51	2.36	94.02
1995/96	2.29	2.38	103.93
1996/97	2.17	2.53	116.59
1997/98	2.01	2.18	108.46
1998/99	2.06	2.15	104.37
1999/00	1.99	2.08	104.52
2000/01	1.66	2.03	122.29
2001/02	1.65	2.06	124.85

* These figures are estimates and are based on information provided to Ofreg by NIE.

In the case of the comparators NIE has moved in the space of ten years from being 3.5% lower cost to being 25% dearer - a swing of 29.3%. In respect of the GB average NIE has moved from being 17% dearer to being 44% dearer - a swing of 23%.

The ten years which are under review break down into four distinct periods.

1.20 Period 1 - from 1992/93 to 1994/95 (3 years) during which both NIE and the GB companies were operating under their privatisation price controls.

1.21 Period 2 - from 1995/96 to 1996/97 (2 years) during which the prices in GB were reduced by the first price control while NIE continued to operate under its privatisation price control.

1.22 Period 3 - from 1997/98 to 1999/00 (3 years) during which both NIE and the GB companies were subject to their first post privatisation price control.

1.23 Period 4 - from 2000/01 to 2001/02 (2 years) during which NIE continues to be under its first post privatisation price control but the GB companies are under their second post privatisation price control.

1.24 Throughout this decade Transmission price controls in GB have not coincided with Distribution price controls. This has some effect on year to year comparisons but does not affect the general trend.

1.25 The division of the decade into four periods arising from the differences in the regulatory cycles explains why the price gap might be expected to vary from year to year - to widen after a GB price control and close again after an NIE price control and this indeed is what has happened. The critical question is not the year to year variations but whether there is a long term trend to ever wider divergence.

1.26 Taking Table 2 which looks at the Comparator RECs, i.e. those which are most similar to NIE in their characteristics, we can see the following trends. During Period 1 NIE's average price was equivalent to 96% of the price of the Comparator RECs; put another way we can say that NIE was around 4% cheaper. Period 2 saw NIE's advantage disappear and NIE's price became 16.5% dearer than the Comparator RECs. Following the NIE price control in period 3 the NIE price did not revert to its period 1 position but averaged 105% of the Comparator RECs level. In the fourth period after the second GB price control the gap has widened further to around 123.5% of the Comparator RECs level.

1.27 In Period 1 the changes in relativities were too small to enable firm conclusions to be made about divergence in this period. In a previous paper Ofreg has argued that divergence was built into the privatisation price control. NIE has argued that on the contrary the privatisation price control was slightly convergent in its effect. If this argument is correct it means that the divergence which we are seeking to understand is a more recent phenomenon and dates from the first GB post privatisation price control and the relationship between that price control and the 1997 price control of NIE.

1.28 There are factors which have arisen since 1996/97 onwards which would indisputably have had the effect of widening the price gap. These include the allocation of costs to T&D in Northern Ireland which either did not or no longer apply to T&D in GB. These

would include the £2 per customer energy efficiency levy and customers' contributions to connection charges which now weigh more heavily on DUoS charges in Northern Ireland than they do in GB. Also some costs were allocated from distribution to Supply earlier in Northern Ireland than in GB. The difference in the timing of the changes would have the effect of making the gap look narrower earlier and greater later thus giving an appearance of growing divergence. Other factors in GB may have the opposite effect and serve to reduce the price gap.

1.29 The other major difference between NIE and the GB companies is the NIE price control proposed by Ofreg and built on by the MMC. The allowed revenue for NIE was as a consequence about £10m per annum larger than it would have been if NIE had accepted the Ofreg proposal. What is clear is that Ofreg's first attempt at a Distribution price control, just like OFFER's in GB, erred on the side of laxness – as indeed might be expected in a new field of public administration where there was no earlier experience to go on.

Justifying Divergence

1.30 The divergence which has opened up over the last seven years is easy to explain - NIE was allowed more revenue than other companies. The question which we must address is how much of this can be justified.

1.31 NIE has sought to justify it in three ways. The first is to say that the starting point in 1992/93 is wrong. In comparison to the RECs NIE's price was too low or - to put it the other way round - the RECs prices in relation to NIE were too high. The "natural" price gap between NIE and GB is higher than the gap accidentally revealed by NIE's privatisation in 1992/93.

1.32 The second line of argument is that NIE had an infrastructure deficit to make up so that it was inevitable that prices in Northern Ireland would rise in relative terms while the deficit was being made good.

1.33 The third line of argument is that divergence is being driven by a faster growth in maximum demand in Northern Ireland than is occurring in GB. NIE produced for us a model which purported to show that the faster the system peak demand grew the younger the average age of the asset base would be and therefore the greater the value of the asset base per unit distributed.

1.34 Ofreg has considered these arguments and is not satisfied that any provides a credible justification for the systemic divergence which has been observed.

1.35 The first relies heavily on the lower market to asset ratio (MAR) of the English and Welsh companies at privatisation. NIE was given a MAR of 90% by the MMC compared to around 60% in the case, on average, of the RECs. The MAR only became explicit after the first post privatisation price control. The lower the MAR the greater the scope for a price reduction as the smaller is the size of the asset base which has to be financed henceforth by customers. It is certainly true that part of the higher relative prices imposed

on NIE's customers by the MMC arose from its decision to uplift the first day trading value of the company to give a higher MAR than Ofreg was proposing.

1.36 However this effect would only have accounted for a one off widening of the price gap which would thereafter diminish as the pre privatisation assets were progressively depreciated out of the asset base. Once the pre privatisation assets are completely depreciated any MAR effect would disappear. Any distortion of the natural gap would then be removed. As it happens the GB companies are depreciating their pre-privatisation assets faster than NIE and will have no pre-privatisation assets in their RABs by 2005. The faster depreciation policy has the effect of raising GB prices relative to NIE's in the ten years which are under review. This will offset the MAR effect. Moreover after 2005 NIE's customers will still be paying for a pre-privatisation asset base whereas English customers will not. This will increase divergence further.

1.37 In both GB and NI the initial effect of privatisation was to slightly raise prices. NIE's T&D business was not only able to finance its activities but to make substantial profits. The argument that systemic divergence arose from a harsher initial privatisation regime for NIE is not sustainable. The fact that NIE are now arguing that a higher MAR is leading to price divergence is in itself interesting, given that NIE themselves argued for a much larger MAR than that actually given by the MMC.

1.38 The second argument is that NIE faced an infrastructure deficit at privatisation which had to be made good by "catch up" investment. If NIE's network required disproportionately large amounts of network investment then the drop in investment after privatisation to below the pre-privatisation levels would have to be accepted as a significant management failure. Ofreg has sought evidence of this leeway which had to be made up and NIE has informed Ofreg that there was a privatisation infrastructure gap of £320m of which £85m has been made good. Even if these figures are correct this £85m which NIE claim to have fed into the asset base would only account for a small proportion of the gap in electricity prices which has opened up since privatisation.

1.39 The third line of argument is that network investment is driven by growth in maximum demand and as maximum demand has grown faster in Northern Ireland than in GB so the asset base has had to grow faster. NIE has argued there are constant returns to investment ie each additional MW of peak demand requires the same investment in the network as the preceding incremental MW and the succeeding incremental MW. According to this analysis if two electricity networks at some point in time have identical characteristics and the same load but system A starts growing faster than system B system A will find its asset base growing faster than system B's, its average asset age becoming in consequence younger than system B's and its electricity as a consequence becoming dearer.

1.40 It is certainly true that both peak demand and total demand have been growing faster in Northern Ireland than in GB. However as an explanation of systemic divergence this theory has a number of weaknesses. The first is that load related investment is not all that takes place - it accounted for around half of NIE's capex allocation for RP2 and in practice only about 80% of this allocation was used for load related expenditure despite the fact that both peak and total demand grew faster than expected. In practice the asset

base has sunk costs which should be diluted by faster growth - faster growth should have convergent aspects.

1.41 Secondly NIE's own modelling shows that the divergent effects of faster growth reach a plateau after 40 years and then remain constant. But Northern Ireland's electricity demand has been growing faster than GB's for at least 40 years and at some periods considerably faster than in the last decade. Even on the basis of NIE's own model it is quite possibly the case that faster load related expenditure is not driving divergence at this stage.

1.42 Thirdly the modelling is too deterministic and is not borne out by the evidence of what actually happens. Load related expenditure has not occurred in the past as the model required either in Northern Ireland or elsewhere. Utilities can deal with load growth in a variety of ways and indeed incentive regulation should enable them to do so in more creative ways which are both more cost effective and more profitable.

1.43 Systemic divergence can be explained by price controls which allow NIE to recover proportionately more revenue compared to the GB companies now than they were allowed in the past. With the full depreciation of the GB pre-privatisation asset base divergence will become greater in future.

1.44 Explanations are not justifications. To restore the 1992/93 relativity would save customers in Northern Ireland £30m per annum. Does the additional £30m of additional annual cost provide customers with value for their money? The next section considers what customers buy for their £30m.

The benefits of systemic divergence

1.45 There is no doubt that the quality of electricity supply has improved in Northern Ireland over the past ten years. One standard measure of the quality of supply is the average number of customer minutes lost (CMLs) per annum. There are 525600 minutes in a year so if the average number of CMLs is 150 this means that on average each customer is off supply for 0.03% of the time.

1.46 CMLs arise from faults (fault CMLs) and from work on the network to repair or improve it. (planned CMLs). One of the paradoxes of a large investment programme is that it increases the number of planned CMLs and this shows up in the statistical returns and partly masks an improvement in fault CMLs. It should also be appreciated that CMLs are greater the greater the reliance on overhead wires and as Northern Ireland has 73% of its wires overhead as compared to an average of 44% in GB it might be expected to have a higher figure for CMLs.

1.47 NIE has informed me that fault CMLs have fallen in Northern Ireland from 174 in 1992/93 to 100 in 1999/2000.

1.48 The CML story in GB however is also one of improvement in the same period. According to Ofgem fault CMLs in GB declined from 187 in 1990/91 to 67 in 1999/00. If improving

CMLs is claimed as part of the benefit of price divergence it follows that the entire improvement cannot be attributable to price divergence. Without price divergence Northern Ireland should have had similar improvements to GB. Price divergence - if it financed any CML improvement - financed that part which might be described as CML convergence. There is no evidence that price divergence has financed any appreciable CML improvement. NIE acknowledge that their improvement in CMLs has only enabled them to keep pace with the closest comparator companies.

1.49 Moreover it should be appreciated that since NIE claim that most of the CML convergence is attributable to the rural network refurbishment it could have been achieved without any price divergence. Swalec achieved a similar CML improvement without price divergence.

1.50 NIE's CML performance - given the high proportion of overhead wires - is creditable. ESB with a higher percentage of overhead wires has an average CML of 460 - more than four times the NIE figure.

1.51 There are as mentioned above other cost allocation issues which have or appear to have caused divergence. Customers in GB pay energy efficiency levies to supply companies. In Northern Ireland it is included in T&D. The impact on the bill customers pay is the same but the effect is to contribute this year about £1.3m of cost to T&D.

1.52 Secondly customers in GB have for some years paid a larger share of the cost of their individual connection than is the case here. The divergence in practice in connection charging between Northern Ireland and GB would this year mean that T&D costs are higher than they would be if we had followed GB.

1.53 Other cost allocation issues would also have the effect of widening the gap between T&D costs in Northern Ireland and GB. On the other hand there are costs which act to narrow the gap between costs in Northern Ireland and GB. Whether these are sufficient to offset the costs mentioned above is unclear at present.

1.54 It is Ofreg's view that there has been nothing purchased by customers in Northern Ireland which offers value commensurate with the bill for systemic divergence which has added significantly to Northern Ireland's electricity bill since privatisation and which shows no signs of diminishing. On the contrary Ofreg is convinced that unless corrective action is taken it will continue to grow.

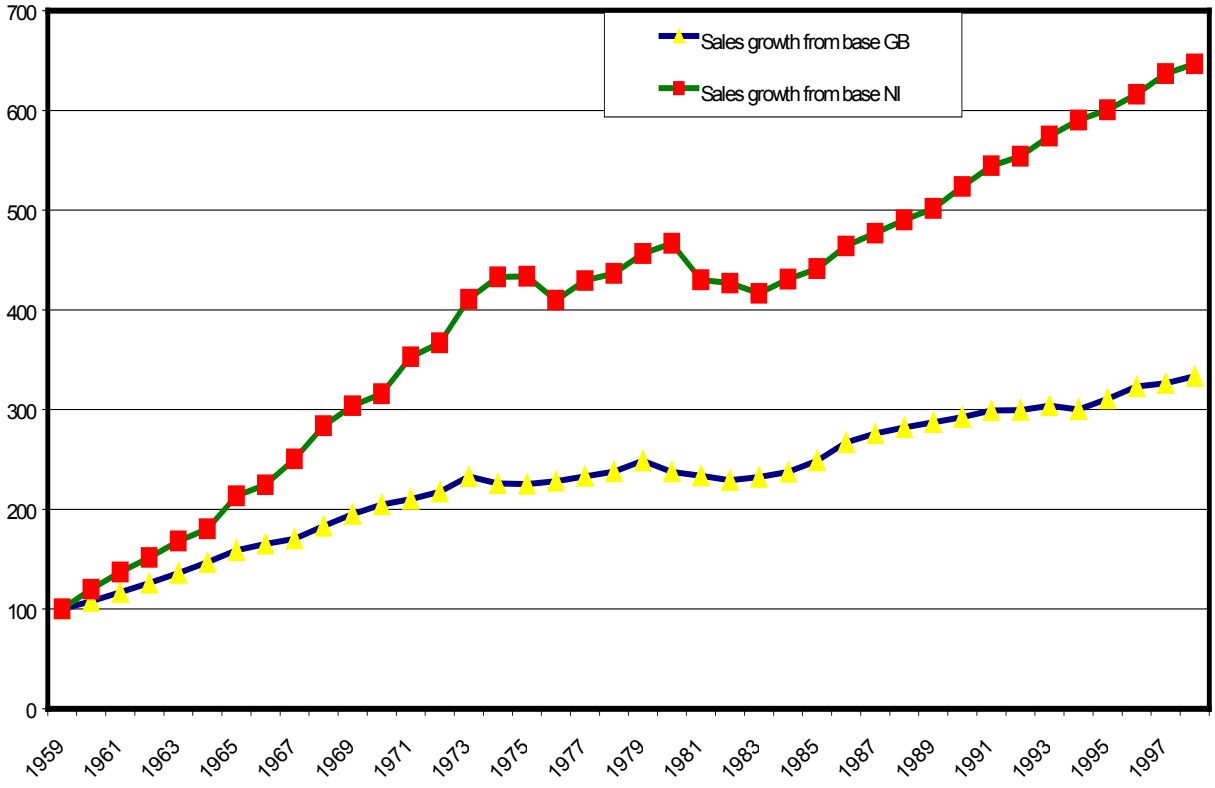
From Convergence to Divergence

1.55 The systemic divergence which has resulted from privatisation is the more alarming because it represents a reversal of the trend of the previous half century.

1.56 As a general rule it might be expected that an electricity system with a low per capita consumption would face higher T&D costs than a system with higher per capita demand all else being equal. Per capita consumption of electricity in Northern Ireland is still considerably below the GB figure (4314 kWhs compared to 5449 - the figure for the

Irish Republic is 4481). However, it is customers and not population who influence costs. As it happens consumption per customer in NI, GB and ROI are remarkably close, being 10,831: 10,818 and 10,640 respectively in 1999/2000 with Northern Ireland having the highest figure. The ratio of NI to GB demand has grown steadily both before and after privatisation as the accompanying graph shows.

Graph 1: Growth in Electricity demand over time; 1959=100



1.57 While a small per customer consumption might be expected to explain some of the underlying higher cost of distributing electricity in Northern Ireland it might be expected that as the ratio improved the cost ratio would also improve. This appeared to happen before privatisation though it is not possible to be precise about cost allocation the further back we go before privatisation. Using per capita consumption as a proxy for customer consumption it is clear is that we have moved from 46% of GB consumption per capita in 1960 to 75% at privatisation and 79% to-day. We have over the past 40 years moved from a position of having a much lower per customer consumption than GB to a slightly higher figure. In the past NIE has argued that a lower per customer consumption is a contributory factor to distribution costs in Northern Ireland being higher than in many parts of Great Britain. But if this is true then cost convergence should be associated with demand convergence as well. It is only since privatisation that demand convergence has been associated with price divergence.

Topics covered by this consultation paper

This paper will examine:

- wider strategic energy issues;
- the opex proposals
- the capex proposals
- financial issues.

Topics decided

1.58 Two topics seem to be by general consent already decided. The first is the form of the price control. No one appears to be arguing against the use of the RPI - X approach. This will therefore be the approach used.

1.59 Secondly the period of the review. The next price control will be for 5 years.

1.60 With respect to both these elements I should emphasise that in regarding these two matters as settled I am not closing off the opportunity for NIE to put to me a proposal which requires some change to an RPI - X five year price control. This is particularly important as there is potentially a trade off between X and the price control's duration. A longer period increases the benefit to the company of making efficiency gains and consequently should have a more challenging X factor.

The Equity Model and the Securitisation Model

1.61 The possibility of a different structure for the T&D business was alluded to in the first consultation paper. NIE in its response was guarded due to the absence of models or precedents though there is no law which precludes Northern Ireland from being a pioneer in improvement and creating models for others to follow.

1.62 However over the past year there have been developments in Great Britain.

1.63 It is now possible to juxtapose two models for a utility. The predominant model is known as the "equity model". Shareholders own the industry and stand between creditors and customers bearing all the risk if things go wrong. The "securitisation model" which has been set up for Welsh Water separates the ownership of the assets and the operation of the business. The assets of Welsh Water have been sold at a discount to a not for profit company called Glas which will finance the existing and future assets with high quality bonds. Thus the cost of capital falls substantially - for the benefit of customers - and the operation is put out to real competition. While the securitisation model could allow the transfer of risk from shareholders to customers in the case of Glas, a buffer fund is being built up so that risk is not being, in practice, transferred to customers. There is, however, a trade-off for customers between immediate price reduction and protection from risk.

1.64 The regulatory world remains wary of the wider application of this model even though driving down the cost of capital is the one remaining controllable cost to be challenged by regulators in industries which should by now be close to the frontier of operating efficiency. And indeed - despite this wariness - each passing month seems to heighten the expectation that the separation of asset ownership and utility operation is going to happen. Moreover there may be distinct benefits in having the full life costs perspective on the utility's assets and the operational skill and expertise residing in two distinct businesses linked together by contracts forged in a competitive interface rather than in the cosy ambiguity of a common ownership.

1.65 But while hitherto at least the equity model has served customers in GB well it appears to have failed in Northern Ireland to deliver comparable efficiency-generated price reductions. It is now the structural beneficiary of systemic divergence. The equity model may therefore represent a private vested interest opposing change.

1.66 This paper is written on the assumption that the equity model applies in Northern Ireland. The securitisation model might be much more appropriate to our circumstances as it would reduce the cost of capital, remove the conflict of interest between shareholders and customers and provide Viridian's Board with the cash that it could either use to invest in unregulated businesses - where shareholders do actually take risk - or hand back to shareholders.

However, views are sought on whether;

- T&D should be split into an asset owning not for profit company holding the assets on behalf of customers and an operations business operating in a competitive market for the management of the network; or
- there is some hybrid model more appropriate to Northern Ireland; or
- the structure should remain as it is.

Unregulated Businesses and Investment Grade

1.67 Viridian's regulated and unregulated businesses are not supposed to impact on each other but inevitably they do - which might be another reason for separating the asset ownership from NIE.

1.68 Viridian's ability to develop the unregulated businesses it has arises from its initial strength as NIE. NIE gives Viridian a degree of starting credibility in financial services and product markets, which they would not have if they were merely a few bright and able people developing new business ideas. The development of Viridian's unregulated business is a success story which should in time become a major Northern Ireland success story. But much of it remains a "virtual NIE". If Power Team, SX3 and Zenith etc did not exist NIE would require to have additional employees on its books. If those services were still carried out in house it is doubtful if those companies would have existed. Viridian did not so much see a market opportunity as conjure one or rather several out of

their own internal needs. Moreover because some of the assets they needed already existed in T&D they could do so at less risk than a rival would have faced.

1.69 The forays of privatised utilities into new business ventures have weakened the credit ratings of the core businesses - so much so that Glas's financial backers have required the Board of Glas not to become involved in other businesses. NIE does not have a credit rating. But Viridian's non regulated activities can only have moved NIE's cost of capital in one direction. When shareholders were invited to buy NIE it is doubtful if it was ever envisaged that their ambitions in non-regulated activities would be allowed to actually increase the cost of electricity.

1.70 It is therefore not possible to consider the T&D business without taking into account the wider Viridian commercial empire. Its profits to date have been substantially earned from NIE regulated businesses. Its existence and its needs have imposed costs on NIE customers. These issues must be dealt with in a fair and transparent way.

Comparing T&D with the RECs

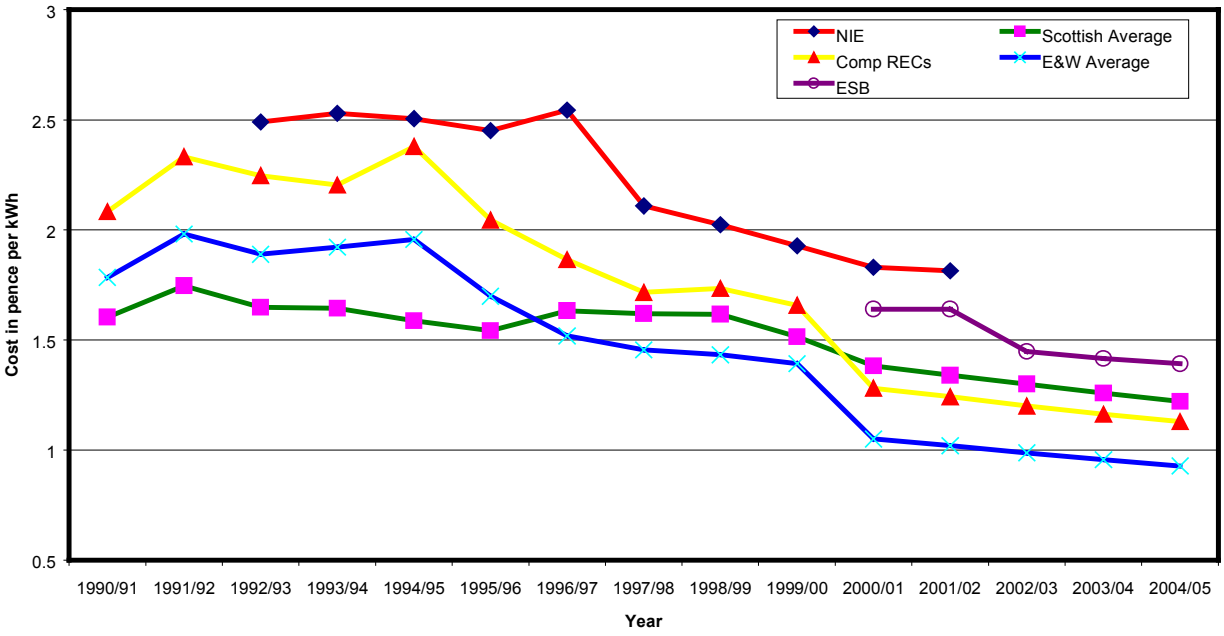
1.71 T&D is not exactly the same as the RECs. An English region has a monopoly distribution company and it also has the transmission wires of the National Grid Company (NGC). Most of the RECs will be supplied by the NGC high voltage wires which exist in GB but which do not exist in Northern Ireland. Much of this high voltage supply will come through wires which are outside the region. Those peripheral RECs which are most like NIE in size, terrain and customer numbers have the longest transmission "tail" outside their territory.

1.72 While T&D has more wire per customer than most other regions it is mainly overhead wire and overhead wires are cheaper than underground wires. NIE's own calculation of the cost of undergrounding its system is £2.5bn – i.e. it would have an asset base about two and a half times larger than its present asset base if this were the case. This gives some indication of the magnitude of the cost saving of having a "light" and largely overhead network.

1.73 To compare T&D costs in Northern Ireland with T&D costs in GB it is necessary to link the NGC and REC cost for each region. The alternative is to strip out the T cost for Northern Ireland. NIE in the past have put this at 18% of the T&D business's costs but this includes voltage levels which would be distribution in GB. Taking 90% of the T&D cost as representing costs comparable to the REC's would be more appropriate.

1.74 On this basis the Distribution costs for Northern Ireland can be compared with GB RECs for the last ten and the next four years as the following graph shows. In addition we now have the distribution price control for ESB in the Irish Republic. At the current exchange rate of about 125 pence Irish to the pound sterling, ESB's distribution prices can also be shown.

Graph 2: Cost of Electricity distribution in 2000/01 prices



1.75 The trend in England and Wales is generally consistent between all the RECs including the more expensive rural companies. This can be seen in the graph above by looking at the England and Wales average line along with the line for the Comparator RECs. Scotland started off at a significantly lower base and while the initial trend was upwards it now appears to be following the general trend in England and Wales and remains substantially below Northern Ireland's. ESB's prices are also substantially below those for Northern Ireland.

Performance

T&D performance since privatisation can be measured on three scales.

I. It can be measured against its own estimates of its requirements.

II. it can be measured by its performance against its price controls.

III. its performance can be measured against other companies.

I. It can be measured against its own estimates of its requirements.

1.76 NIE's considered view of what it required for RP2 must be the submission which it made to the MMC in 1996. By the time that submission was made it had been through the analysis and data assembly associated with a price control and it clearly regarded the MMC as an objective and impartial arbiter rather than the adversary in a regulatory "game".

1.77 The NIE proposal to the MMC, if it had been accepted, would have allowed it a revenue stream with an NPV of £649.3m. This is 13% higher than the figure which the MMC allowed.

II. it can be measured by its performance against its price controls.

1.78 T&D significantly outperformed the expectations for it in so far as there were any explicitly set in price controls. Against its own pre price control Opex estimates its out performance was about 25%. Against the MMC it was about 4%. Both these out performances understate the achievement since they ignore the profits earned by Viridian's unregulated businesses which are now acting as suppliers or sub-contractors to NIE - developments which do not appear to have been discussed with the MMC even though they were being planned at that time.

1.79 The possibility of out performance on capital expenditure was ruined by the 1998 Boxing Day storm. Material provided by Viridian at the time showed they expected a 10% out performance - in other words the Capex allowed by Ofreg was sufficient and the increase granted by the MMC was not in practice needed. That the accelerated refurbishment could be achieved without additional expenditure and without any reduction in standards is indicative of the fact that in the second price control the Capex allowance was excessive. The NIE performance against price control targets and assumptions is discussed in more detail in Chapters 4 and 5 below.

III. its performance can be measured against other companies.

NIE's performance can also be measured against the performance of other distribution companies. Whether NIE is more or less efficient, whether NIE's management is more or less able than those of the RECs is not the issue. The issue is that the RECs succeeded during this period in driving down prices more effectively than NIE.

Returns to Shareholders

1.80 This paper has looked at the way in which divergence in distribution charges i.e. high electricity bills has characterised the industry since privatisation. Have shareholders fared equally badly?

1.81 From the perspective of customers the only rationale for privatising the electricity supply industry was that prices would fall as a private sector management culture would introduce cost reductions which would exceed the higher cost of capital in the private sector - this higher cost of capital including the returns paid in dividends to the shareholders.

1.82 This logically places a limit on the extent to which shareholders can be rewarded without rewards to shareholders adversely impacting on customers. This logic led to the expectation that utility shares would be a safe investment offering modest returns.

1.83 Shareholders might therefore logically expect dividend growth in real terms to be limited to the real growth in efficiency in the industry. There were two ways in which higher real dividend growth might be achieved. The first is by diversification into unregulated businesses and the second is by taking cash out of the business and gearing up. The first requires a skilled management able to move outside its core business and is likely to take time to bear fruit. The second is limited in its potential.

1.84 Long term real dividend growth therefore implies successful diversification on a large scale or must be financed by higher prices.

1.85 In the case of NIE and then Viridian the Board has committed itself to double digit dividend growth - a commitment that goes beyond the commitment in the prospectus at privatisation.

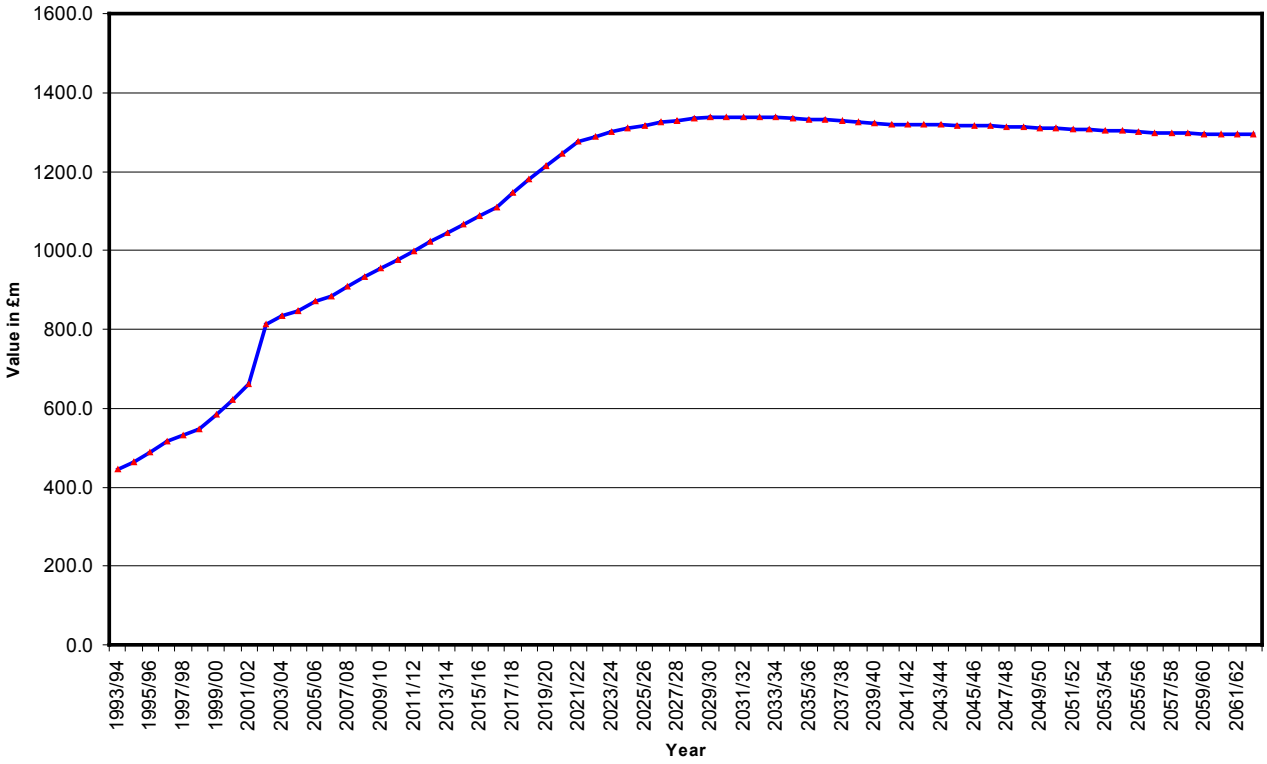
1.86 The divergence between the return which a modest low risk investment would have earned and the return which NIE's shareholders have earned - ignoring for this purpose the growth in the value of their shares - mimics the growth in the divergence between Distribution costs in GB and Northern Ireland.

1.87 While dividend growth policy is not a cost driver it does provide an explanation of the company's behaviour and its need to resist price reductions.

Systemic Divergence - the longer term

1.88 Ofreg has for some years been concerned that price divergence would continue. The Distribution companies in Great Britain appear to be at or close to steady state. Their pre-privatisation asset base will shortly be fully depreciated. This will remove the argument

Graph 3: Estimated asset base movements in 1999/00 prices*



spurious or real about the impact of the Market to Asset Ratios (MAR) on the scope for electricity price reductions. Customers in GB will then be financing an exclusively post privatisation asset base.

1.89 If the present arrangements prevail customers in Northern Ireland will, for another thirty years, continue to finance both a pre and post-privatisation asset base and the latter is, when compared with other regions, growing fast. Graph 3 on the previous page shows the projected growth in NIE's T&D asset base from the MMC's estimate of £404m at privatisation to £1.3bn in a steady state. This is in constant prices. Northern Ireland's physical and topographical characteristics do not change much from one ice age to the next. The system NIE is creating will - apart from the Moyle Interconnector - be much the same as the system sold at privatisation. But it will cost customers three times as much to finance.

Conclusion

1.90 Ofreg has a statutory duty to protect customers with respect to price. We have also a duty to ensure that the company can finance licensed activities. There is certainly no obligation to underwrite a Board policy of double digit dividend growth. But price divergence and dividend growth are symptoms, not causes.

1.91 It is Ofreg's duty to establish as objectively as we can the truth about what has happened since privatisation. Ofreg remains open to persuasion that the systemic divergence which we believe has occurred since privatisation either has not occurred, or is justified by objective circumstances. To this end we have examined the evolution of electricity demand and capital expenditure over the last fifty years to see if this provides a reason for the divergence. We have also carried out research looking at the cost drivers affecting divergence in the distribution of electricity.

1.92 All the evidence which we can accumulate stretching across fifty years provides no grounds for expecting the price divergence in T&D which has occurred since privatisation. But if Ofreg is persuaded that price divergence is justified we will seek in turn to persuade customers that they should bear it with a good grace.

1.93 But conversely if systemic divergence is not justified by an objective understanding of reality then it is wrong for NIE to profit by exploiting customers in Northern Ireland and damaging the economic prospects of an entire region. It has in the past, with great single mindedness, sought a better outcome from the price control process than it needed to ensure a sound return for its shareholders. It cannot retain unjustified benefits secured in the past and should not even contemplate trying to do so in future.

2. Strategic Energy Policy Issues

2.1 I have earlier consulted on environmental issues in a paper called "Greening Transmission and Distribution." That dealt with one aspect of wider policy issues which impact on the electricity supply industry.

2.2 However it is increasingly apparent that the electricity supply industry must operate in an environment where wider policy issues will have to be taken into account in setting price controls for the T&D system. Issues such as global warming and climate change, the development of EU wide competitive energy markets and the establishment of sound and enduring regulatorily enforced understandings between the industry's stakeholders, and physical security of supply are becoming of increasing importance to this industry – an industry which in turn is vital to the effective operation of every aspect of civilised life. It is evident that we have moved beyond mere economic regulation. In framing this price control due account must be taken of these wider issues which are becoming part of society's agenda.

From Re-active to Pro-active

2.3 The role of the T&D business is to enable the generators to deliver electricity to their customers. As such it has traditionally been regarded as passive. Whatever the level of demand the measure of success of a T&D business is its ability to meet the desires of producers and customers to have electricity delivered at least cost and with least interruption. T&D has been essentially passive – responding to the demands of the market.

2.4 Hitherto there has been some change of emphasis. Thus in GB the units element in Distribution price controls has moved from 100% to 50%. But this has only been to reinforce the view that Distribution businesses are essentially passive; regulation has sought to remove any commercial interest which the business might have in driving up throughput. The same reasoning saw the units factor in the Northern Ireland price control set at privatisation at 25% - where it has remained.

2.5 But it is no longer acceptable to build more roads as a response to increased demand. The need to move goods and the desire of people to move require new responses to complement or replace the old response of providing ever more capacity. It may be time to see if an analogous response applies to T&D networks.

2.6 There are additional reasons why in Northern Ireland in particular this might be a prudent time to place the emphasis on holding down the rate of growth.

2.7 Until recently Northern Ireland has had no natural gas and virtually no CHP plants. Natural gas is increasing its market share in Belfast and may soon be available to up to 75% of Northern Ireland households. Moreover the potential of natural gas to reduce peak demand could be significantly increased if Domestic CHP becomes – as is

generally expected – a mass market product within a couple of years. Extending the gas network also increases the potential take up of industrial CHP.

2.8 Increasing concern about climate change, maturation of technologies which facilitate auto production and embedded generation, the likelihood of increasing pressure from energy taxes all also suggest that it would be prudent at this time to see if the growth of peak demand in particular and demand in general can be held down.

2.9 The question which this Chapter poses is whether it would be possible for the T&D business to adopt a more pro-active role so that it can contribute more effectively to meeting its customers' specific requirements and society's wider aspirations more effectively at lower cost.

2.10 The cost of the T&D system increases with both total demand and peak demand. The increase in demand will also have the effect of diluting historic costs but it will add new costs. The extent to which costs increase will depend on the impact of new demand – its location and timing. New demand that does not increase peak demand is less costly than demand which increases peak demand.

2.11 NIE's total demand has been growing at 2.3% for some years and peak demand at 1.3%. NIE's Supply Business is incentivised to reduce total demand and this in turn must have some impact on peak but it takes several years of sustained activity before the cumulative impact of energy efficiency measures effectively offsets demand growth. One of the dangers with a badly designed full market liberalisation – especially if it is accompanied by falling prices - is that the energy efficiency momentum may be weakened.

2.12 This risk of a declining energy efficiency drive in the supply businesses might be offset by transferring or better still complementing supply company measures with T&D incentives to manage and reduce the rate of growth in T&D throughput.

2.13 It is important to distinguish at this point between the cost saving benefit which customers would enjoy from taking their electricity more evenly throughout the day and the environmental benefit from taking less electricity. Load shifting – reducing the peaks and filling the troughs – could even increase total electricity demand if it lowered prices. However it would probably lead to more efficient dispatch and as such be environmentally positive. It might even be the case that encouraging load shifting to night – especially with falling demand for Economy 7 heating – is essential if renewable output at night is not to be restricted.

2.14 Normally under a price control there is an incentive on the company to make capital efficiency gains i.e. it keeps some of the money it doesn't spend. But capital efficiency is usually taken to refer to finding a cheaper than anticipated solution but nevertheless meeting the problem in traditional terms – e.g. a lower cost way of meeting an increase in peak demand.

2.15 What is proposed here is something more radical. It is to strike an explicit regulatory bargain with the company by which in exchange for some measurable target – such as reducing or eliminating the growth in peak demand – it would receive an incentive payment that would be large enough to cover its costs and provide additional profit but small enough to reduce costs for customers.

2.16 Clearly a target such as reducing/eliminating peak demand growth raises measurement difficulties and the need for methodologies for objectively measuring cause and effect. There are also issues of control and durability. Where success depends on customer behavioural changes for example this is more likely to be enduring if it arises from an investment in different technology – a gas cooker, a CHP plant, low energy lighting and so on – than if it is a response to a price signal.

2.17 Companies are better placed than regulators to address and solve this type of question. The question which I would like to explore is whether there should be additional incentives on the company to manage peak demand such that the company would seek to persuade and assist customers and suppliers to reduce demand at peak and or re-allocate load to other times of the day?

Energy Efficiency

2.18 The energy efficiency market is characterised by market imperfections – that is the cost reducing investments which customers could make are not made to the extent which relative prices suggest they should be. One problem is the absence of effective low-cost – to the customer – delivery mechanisms. Another is the expectation of electricity prices continuing to fall in real terms. Energy efficiency could be made more credible as an option if the marginal price of electricity remained higher than the average price. In a liberalised market this is less easily achieved. While businesses will always have a strong incentive to pursue energy efficiency the same is not true for small users for whom the uncertain benefits of savings do not outweigh the hassle. One way of providing a more stable framework for energy efficiency for small users would be to charge different prices. One possibility is to charge less for the first 1000 or 2000 Kw/hrs and the second is to charge some customers more at times of peak demand so as to encourage them to move non time sensitive loads – such as washing machines – away from peak time.

2.19 It could be regarded as insensitive to introduce these types of measure against a background of rising prices. But if any price reduction were taken in this form all customers would benefit – with the energy efficient benefiting most – and the incentive for energy efficiency would be both increased and given a greater credibility into the future.

Actively Supporting Renewables

2.20 Earlier consultation suggests that there is some scope for making the T&D system more friendly for renewables – not in the form of cross-subsidies but by way of ease of access. Flat charges, green corridors, favouring embedded generation, net metering for micro auto producers may all have a contribution to make and will be dealt with in the final proposals. Also there is the question of whether renewables should pay a slightly lower DUoS charge on the grounds that they only use part of the system and if so at what figure should this be set.

Security of Supply and Emergent Technologies

2.21 Over the longer term it is widely expected that a large percentage of energy will have to come from decentralised sources. These could include measures such as domestic combined heat and power (DCHP) run on gas, LPG or oil, and photo-voltaics incorporated into the fabric of buildings. To move from buildings being substantial users of energy i.e. a large part of the problem, to being energy producers and thus part of the solution, requires a major change of attitude by society as a whole but in particular in the electricity supply industry and all the professions involved in the construction industry. Such a fundamental culture change cannot occur overnight but it may be that such a revolution will be required after 2010.

2.22 If this is so then we need to start preparing for it now. In other parts of Europe this work has started as farsighted municipalities bring together architects, energy providers, planners, politicians and local communities in a myriad of small scale creative projects which are producing substantial CO_2 reductions and in some cases communities which may eventually be CO_2 free. Unfortunately nothing comparable is happening in Northern Ireland. This means that once again we are storing up problems for future generations. Roughly 2% of buildings are replaced every year and as a society we should be ensuring that the energy requirements of new buildings are considerably lower than the existing building stock or the next generation of buildings' users will either face unnecessarily high energy bills or expensive retrofits.

2.23 There is therefore an argument to be made for allowing T&D a small amount of money each year so that it can itself begin to learn about buildings as energy producers and accustom the building professionals to this type of approach. It would be possible for T&D to associate monies provided this way with other funds available from public and private sources to maximise, structure and effectively channel a programme of this nature - a leverage of 3 or 4 pounds for every pound of NIE money should be achievable. Such a programme would have an effect - albeit it a modest one - in reducing aggregate system demand and this would complement the incentives which already exist for NIE's Supply business. The appropriate incentives on NIE to address this kind of programme need to be considered. These might include a payment in respect of the avoided system reinforcement costs.

Managing Societal Change and Regulatory Issues

2.24 It is evident that the post 2010 energy world is going to begin to diverge increasingly from the electricity system which is in place now with its emphasis on grids and fossil fuel power stations. There are already signs of a confused and confusing anticipation of the post 2010 world. Individuals – particularly in rural communities – are starting to explore their own energy solutions, community groups are also beginning to engage in this process and there is a developing awareness among farmers that energy and agriculture have a relationship of greater complexity and potential than they had in the recent past – re-establishing with new technology the agriculture/energy relationship which existed before the industrial revolution.

2.25 Is this post 2010 energy world – which may be charged with halving the 2010 CO_2 gas emissions over the 40 years to 2050 – going to emerge in an orderly way or will a great deal of damage be done as disillusion and frustration replace hope and creativity? Does NIE T&D have a capacity – if properly resourced – to bring order, structure and purpose to managing this type of societal change?

2.26 NIE's T&D business remains and will remain the central fixed point for many years to come in Northern Ireland's energy world. It has credibility and expertise. No other body is as well placed to manage the societal changes necessary to prepare us for the post 2010 world.

2.27 Should NIE's T&D business have a licence obligation to assist and facilitate the necessary transformation – for example by preparing an annual report, by providing professional guidance to potential producers or interested customers or by making recommendations to Government departments?

Issues for Consultation

Views are invited on the following issues raised in chapter 2:

- Should there be additional incentives on the company to manage peak demand such that the company would seek to persuade and assist customers and suppliers to reduce demand at peak and or re-allocate load to other times of the day?
- Should renewables be subject to a slightly lower Distribution Use of System (DUoS) charge on the grounds that they only use part of the system?
- Should NIE's T&D business have a licence obligation to assist and facilitate the necessary transformation – for example by preparing an annual report, by providing professional guidance to potential producers or interested customers or by making recommendations to government departments?
- Should the company be enabled to manage changes necessary to adapt to a radically different post 2010 energy world?

3. Operating Costs

Introduction

3.1 NIE's Transmission and Distribution business (NIE T&D) spending can be broken down into capital costs and operating costs. Capital costs cover spending on assets the benefit of which would be expected to last for several years, such as transformers or switchgear. Operating costs cover the day to day costs of running the network, such as repairs and maintenance, planning, control, overhead costs and transmission and distribution system business rates.

3.2 In the calculations underlying the present price control NIE T&D was given an allowance for operating costs. This allowance made up about one half of allowed revenue. Therefore, the assessment of operating costs is likely to have a significant impact on the overall level of price control revenue.

3.3 When setting a price control it is important to give NIE T&D properly balanced incentives between capital and operating spending. If incentives are unbalanced, NIE T&D may either reclassify one type of expenditure as another, or faced with alternative capital and operating spending choices, make decisions which have a higher overall cost to customers in the long run. Thus expenditures which have to be repeated within a few years such as tree lopping might be wrongly included in capital expenditure.

3.4 Ofreg has appointed PKF as consultants to assist with the analysis of operating costs. PKF is examining NIE T&D operating costs in 1999/00 and NIE forecasts of operating costs over the period to 2006/07.

3.5 Around 30% of operating costs are considered to be largely outside the control of the company, including transmission and distribution system business rates. Transmission and Distribution system business rates are levied by the government on NIE, and, in the short term, NIE T&D management can do little to influence these costs. Ofreg will however be interested in their apportionment.

3.6 NIE has more direct control over the remaining 70% of operating costs. These include:

- engineering costs - the costs of planning, monitoring and controlling the system, and repairing and maintaining transmission and distribution business assets;

- customer service costs - at present NIE allocates customer service costs such as the cost of maintaining customer records and billing between NIE T&D and Supply so that NIE T&D incurs a proportion of these. However costs arising from the maintenance by NIE of 13 customer service centres are borne wholly by NIE T&D.

- corporate costs - certain costs cannot be directly attributed to any particular business but are incurred in running the Viridian Group as a whole. At present the Viridian Group of which NIE is a subsidiary tends to allocate a significant

proportion of corporate costs to NIE which allocates a substantial proportion of these to the T&D business.

3.7 This chapter includes an assessment of NIE T&D operating cost movements over the period 1996/97 to 1999/00, and reviews NIE's forecasts over the period to 2006/07 as well as assessing its previous forecasting record. It then goes on to analyse costs in detail in 1999/2000, making adjustments for cost allocations and attributions. These adjustments lead to a base level of maintainable operating costs for NIE T&D for 1999/2000.

Movements in Actual Costs from 1996/97 to 1999/00 and NIE's Forecasts for the Period to 2006/07

3.8 Table 3.1 shows total operating costs for NIE T&D, less depreciation, transmission and distribution system business rates and after adjusting for exceptional costs.

3.9 In aggregate, actual NIE T&D operating costs (excluding depreciation of network assets, transmission and distribution system business rates and exceptional items) fell by 8.3% between 1996/97 and the end of 1999/00. NIE is forecasting costs to fall by 9.11% over the second regulatory period from 1996/97 to 2001/02. By contrast NIE is projecting costs to fall by a further 5.6% over the third regulatory period from 2001/02 to 2006/07. In other words NIE is projecting that operating efficiency will only improve in the third regulatory period at about 60% of the rate at which it has improved in the current period.

3.10 The reduction in actual transmission and distribution business operating costs between 1996/97 and 1999/00 and the forecast reduction in operating costs to 2001/02 suggests that NIE may be overestimating the future level of costs for the third regulatory period. An important further element in judging whether NIE's forecasts are likely to be reasonable is NIE's previous forecasting record.

NIE'S Forecasting Record

3.11 Table 3.2 sets out a comparison of NIE T&D's actual operating costs with the projected costs included in both the original submission to OFREG at the date of the last price control review and also the revised submission to the MMC.

3.12 It can be seen from Table 3.2 that after excluding exceptional items and depreciation, NIE T&D's total actual operating costs over the period 1996/97 to 1999/00 have been £98.5 million lower than those included in the original projections submitted to OFREG (representing 25% of total projected operating costs). The actual operating costs for 1999/00 were £34.5 million (32%) lower than originally projected.

3.13 The projections originally submitted to OFREG were subsequently amended and revised in the figures provided to the MMC. However, NIE T&D outperformed these revised projections with total actual operating costs over the period 1996/97 to 1999/00 being some £18 million lower than those included in the projections submitted to the MMC. This represents some 5.7% of total projected operating costs.

Table 3.1

NIE Transmission and Distribution Business Operating Costs 1999/2000(£M)

	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07
Total opex	139.5	87.5	102.8	92.9	94	101.9	102.1	104.4	106.3	108	107.2
Less exceptional items	(38.4)	-	(9.1)[1]	3.8	4.8	-	-	-	-	(1.3)	(0.4)
Less network rates	(5.2)	(7.2)	(7.3)	(7.6)	(7.8)	(7.9)	(8.1)	(8.3)	(8.4)	(8.6)	(8.7)
Less depreciation	(18.0)	(15.6)	(16.6)	(17.7)	(20.6)	(23.2)	(25.4)	(27.8)	(30.0)	(31.1)	(31.3)
Adjusted opex	77.9	64.7	69.8	71.4	70.4	70.8	68.6	68.3	67.9	67.0	66.8

Table 3.2

NIE's Forecasting Record

£m					
	1996/97	**1997/98**	**1998/99**	**1999/00**	**Total**
Original submission to OFREG					
Actual operating costs excluding exceptional Items and depreciation	76.6	68.8	76.2	74.5	296.1
Projected operating costs excluding Exceptional items and depreciation	85.6	97.3	102.7	109.0	394.6
Variances	(9.0)	(28.5)	(26.5)	(34.5)	(98.5)
Revised Submission to MMC					
Actual operating costs excluding exceptional items and depreciation	76.6	68.8	76.2	74.5	296.1
Projected operating costs excluding Exceptional items and depreciation	72.7	78.6	81.2	81.6	314.1
Variances	3.9	(9.8)	(5.0)	(7.1)	(18.0)
(actual costs for 1998/99 adjusted to exclude £9m exceptional storm costs)					

[1]This relates to exceptional costs arising from the Boxing Day storm.

3.14 NIE has not provided an explanation of why NIE T&D was able to reduce costs over and above those included in both the original projections to Ofreg and the revised MMC projections although they have provided an analysis of the actual costs against those included in the MMC projections. This analysis shows that the principal source of the reduction in costs against the MMC projections in 1999/00 related to lower repairs and maintenance, profit centre charges and business services charges offset by higher staff, other and corporate costs.

3.15 The above analysis of NIE T&D's forecasting history indicates that it has been able to achieve very substantial cost savings against the projections originally submitted to OFREG and significant savings over those submitted to the MMC. This suggests that NIE T&D has either overestimated the upward pressure on its cost base or underestimated its ability to reduce/manage that cost base.

Further Analysis

3.16 The inaccurate forecasting record of NIE in the past as outlined above suggests that a detailed assessment of NIE T&D's operating costs is required.

3.17 As part of this assessment it is important to standardise reported operating costs for differences in accounting policies over time. In this regard it is important to consider:

-the capitalisation of expenditure;

-cost allocations between the supply, transmission and distribution and other activities of NIE ; and recharges to NIE T&D from other Viridian companies;

-restructuring costs, provisions and exceptional items.

Capitalisation Policy

3.18 In preparing its transmission and distribution business regulatory accounts NIE has exercised a degree of flexibility with respect to the classification of expenditure as between operating costs, non-operational capital expenditure and network capital expenditure. It has made a number of changes to its capitalisation policies since the last transmission and distribution price control review. These changes have the effect of reducing the amount of operating costs, and increasing the amount of capital expenditure. Ofreg asked its consultants to quantify differences caused by changes in NIE T&D's capitalisation policies and they estimate that an additional £2.5m of overheads were capitalised in 1999/2000.

3.19 Ofreg has also asked its consultants to adopt as part of the current NIE T&D price control review the standard approach as regards the capitalisation of expenditure used by Ofgem in relation to the GB PESs as part of their last price control review. This approach is outlined below:

Repairs and Maintenance - all cable overhead line repairs are to be treated as operating costs. The replacement of substation equipment on failure is treated as a network capital cost;

Customer Metering - the cost of the meter asset and the new installation costs are treated as network capital, recertification costs, meter change costs and all other asset related costs are treated as operating costs;

Depreciation on non-operational IT - the only IT costs considered as network capital expenditure costs are in respect of telecontrol outstations, distribution automation equipment and associated communications interfaces. All support systems such as network management systems, work management systems and engineering management systems such as GIS and Trouble Call are treated as non-operational capital expenditure;

Tools and equipment - tools and equipment such as mobile plant and transport are treated as non operational capital expenditure;

Control room costs - network control room costs are considered to be operating costs.

3.20 In conjunction with W S Atkins and Ofreg PKF have reviewed NIE T&D's capitalisation policy to ensure that it is consistent with the above. The only adjustment that has arisen from that review is to reclassify some £0.2 million of IT depreciation from operational to non-operational depreciation in 1999/00.

Allocations, Attributions and Recharges

3.21 The operating costs incurred by NIE T&D can be classified into three categories: costs directly incurred by NIE T&D, costs allocated to NIE T&D, and recharges to NIE T&D from other group companies.

3.22 An accounting guideline known as CSC 194, introduced before privatisation, sets out guidance on the allocation of costs between electricity supply and distribution businesses. For example, under the guideline the cost of maintaining customer records is divided equally between distribution and supply. However the current review of the NIE T&D price control provides an opportunity for costs to be attributed according to the activity driving the costs, as opposed to the existing arrangements which allow costs to be recharged or allocated on a relatively arbitrary basis.

3.23 Ofreg has asked PKF to investigate the present cost allocation and replace it, wherever possible, with attributions made on a usage basis. It should be emphasised that these adjustments are made for the purposes of establishing a comparable cost base and do not represent an intention to either disallow certain costs or allocate them to supply. These will be matters for the draft Price Control proposals. PKF's preliminary adjustments are as follows:

- **advertising and marketing**; NIE T&D business incurred £1.0m of advertising and marketing costs in 1999/2000. NIE has stated that, following the Boxing Day storm of

1998, NIE T&D business needed to carry out substantial re-branding in order to restore public confidence and to rebuild the NIE brand. Accordingly the "More Power to you" initiative was launched incurring costs of £0.9million. However our consultants argue that as these costs are a one off they should not be included in the base year operating costs for NIE T&D. Accordingly these costs have been removed.

Additionally however a cost of £0.7million has been included in Corporate Overheads to cover the salary of a Director of Communications whose role is specifically related to the above expenditure. NIE has stated that the general public in Northern Ireland does not distinguish between the Supply and T&D business which is why the costs are reflected in the T&D Business rather than the Supply Business. However NIE T&D is a monopoly business and as such our consultants consider that it should not bear costs that relate to building or restoring a brand. Such costs should only be borne by a competitive business. The £0.7million of the Director of Communications costs have been excluded from the base year as the campaign is non-recurring cost and therefore does not form of the T&D's ongoing cost base. This adjustment has been reduced by £0.3 million to reflect the reallocation of corporate overheads discussed in the section on corporate overheads below to leave a net adjustment of £0.4million.

- **customer records and service costs**; these costs (before taking any account of Customer Service Centre costs) amount to £4.7m. This includes an amount of £1.4m which relates to 50% of Supply's billing costs, an allocation agreed with Ofreg in 1999 in line with CSC 194. However as part of the last GB PES distribution review PKF developed in conjunction with Ofgem a benchmark for the allocation of billing costs to Distribution of £0.5m. Given this and the fact that the additional costs associated with Transmission billing are de minimis £0.9m of billing costs have accordingly been re-allocated to Supply.

The remaining Customer records and service costs of £3.3m includes an amount of £1.0m of energy efficiency costs associated with the imposition of the energy efficiency levy. As T&D simply acts as Supply's agent to collect the levy through the use of system charge these costs have been allocated to the Supply Business.

The remaining £2.3m relate to customer database and customer service costs. These costs have been re-allocated between Supply and Distribution on the basis consistent with that applied as part of the last GB PES distribution review, ie on the basis of customer contacts. Call handling is provided by Sx3 to cover two main areas of service Supply Business contacts (eg billing enquiries) and T&D business contacts (eg fault reporting). Adopting the approach applied as part of the last GB PES review system faults, new connections and meter installation enquiries were treated as Distribution contacts and the balance were treated as Supply contacts. Adopting a methodology based on this breakdown of customer contacts would result in a reallocation of £1.5m of customer records and service costs out of Distribution.

- **Customer Service Centres**; these costs which relate to the operation of 13 Customer Service Centres throughout Northern Ireland amount to £7.7 million. It is Ofreg's understanding that the costs of these centres are wholly charged to NIE T&D. The primary roles of these centres as described by NIE are as follows:

- Resolving complaints and dealing with enquiries from customers;
- Managing outages on the network to minimise the impact on the customer;
- Managing delivery of customer standards;
- Providing the technical response to complex emergency situations affecting supplies to customers;
- Providing the local interface with the local community and their representatives;
- Managing the restoration of supply at a local level during major storms. Each customer service centre has an emergency plan and a staff mobilisation plan; and
- Monitoring service levels provided locally by the various service providers.

However NIE T&D have not been able to allocate the costs of these centres against the specific activities listed above. Given the lack of any activity based costing analysis for these Customer Service Centres it is unclear at this stage where these costs should lie. However it appears that some of the activities listed above and provided by NIE as being carried out at these centres may relate to the Supply business, such as dealing with customer enquiries, managing delivery of customer standards and providing the local interface with the local community and their representatives. Consideration of the allocation of these costs is ongoing and accordingly the current allocation of these costs to NIE T&D has not been changed.

- **metering**; costs relating to metering assets, including meter installation, repairs and maintenance and recertification have been allocated to NIE T&D. Other costs, representing primarily meter reading costs, have been transferred to Supply. The adjustment, based on NIE's analysis of metering costs, has been calculated as, a re-allocation of £3.3m of metering costs to Supply.

- **corporate**; by their nature, it is difficult to attribute corporate overheads on a usage basis. In its response to the business plan questionnaire for NIE T&D, NIE indicated that corporate overhead and administration costs had been allocated to NIE T&D by Viridian in two steps being an initial allocation of costs between NIE and Viridian Capital followed by a further reallocation across the NIE businesses.

Viridian Group costs are allocated between Viridian Capital and NIE on the basis of fixed assets. This method allocates 89% of the Group corporate costs to NIE. NIE has apportioned these costs on the basket of indicators method as set out by OFGEM in the GB PES reviews, i.e. average of turnover, historic operating profit, employee numbers and historical net assets. This method allocates 78% of the NIE costs to NIE T&D.

However Ofreg is of the opinion that, consistent with the approach taken at the last GB PES review, corporate costs should be allocated across the whole of the Viridian Group based on a basket of indicators approach. Applying this approach results in NIE bearing 65% of Viridian's total corporate costs, of which NIE T&D bears 78%. The resulting reallocation adjustment is £3.0million out of NIE T&D.

These allocations will of course be considered further as the price control review progresses.

Recharges

3.24 NIE has structured itself in such a way that services used by NIE T&D are provided outside this business but within the wider group of companies of which it is a part. The other Viridian Capital businesses that charge NIE T&D for the provision of services and the amounts charged in respect of these services for 1999/00 are shown in Table 3.3. It indicates that the amounts charged in respect of these services represent a significant proportion of NIE T&D's costs.

Table 3.3
Charges to NIE T&D from other Viridian Capital businesses

Business	**Principal Services provided**	**Amount charged (£m)**
Sx3	IT, Supply Chain, metering, call centre, training	13.5
O&D	Transport, property	5.7
Nevada	Telecoms services	0.6
Powerteam*	Engineering services	6.2
TOTAL		26.0

Each of these businesses generate a profit on its sales to NIE T&D. (Other NIE businesses provide services to NIE T&D, notably Supply; however NIE has stated that these services are provided at cost). As some of the businesses making recharges had little or no trade outside the group an effect of this appears to be an increase in transmission and distribution business costs and the transfer of profits from the regulated business to elsewhere in the group.

NIE however considers that the nature of the relationship between NIE T&D and Sx3, O&D and Nevada is on normal third party supplier terms and as such any profit arising within these businesses on sales made to NIE T&D should not be considered by Ofreg as part of the price review. However as:

- Viridian (including NIE T&D and other regulated businesses within the Group) is a major customer of Sx3, O&D and Powerteam such that a significant proportion of the total sales made by these businesses are to other Viridian businesses and in particular to NIE's price controlled businesses; and as

- Sx3, O&D and Powerteam are by virtue of their contractual arrangements, to a greater or lesser extent monopoly suppliers of services to Viridian and particularly the NIE T&D business with few, if any, alternative suppliers being used,

Ofreg's consultants are removing the profit margins on recharges from other companies in the group. More specifically the profit generated by Sx3, O&D and Powerteam on the provision of services to NIE T&D has been removed. Nevada has been excluded from this treatment as it is currently under separate consideration by Ofreg.

The total resulting adjustment in respect of charges from other Viridian businesses is £3.4million.

Excluded service and Non Regulated Income

3.25 NIE generated some £7.5million of excluded service and non-regulated income in 1999/00 of which profit constituted a significant component. This profit arises out of NIE T&D's role as transmission and distribution system operator. Consequently it should be deducted from T&D's cost base when considering the ongoing operating cost requirement of the business. This is consistent with the adjustment made in the most recent GB PES review. Accordingly £3.6m has been deducted in arriving at the base year costs (being the profit on such activities for the year ended 31 March 2000).

Restructuring costs, provisions and exceptional items

3.26 In arriving at NIE T&D's maintainable operating cost base for 1999/2000 adjustments have also been made to take account of one off, non-recurring and exceptional items. The adjustment for these items amounts to a net increase in costs of £0.9m. This reflects a credit of £3.5million included in the 1999/2000 operating costs which relates to the 1998/99 Boxing Day storms. £3.0million of this relates to an insurance

claim and £0.5million relates to the release of an over accrual in 1998/99. As neither of these items forms part of NIE T&D's ongoing cost base they have been added back to operating costs.

Maintainable operating costs for 1999/2000

3.27 Table 3.4 summarises the adjustments proposed above to NIE's disclosed operating costs for NIE T&D for 1999/2000. These adjustments result in a reduction of NIE T&D operating costs from £92.9m to £57.9m, a reduction of 38%. These are notional and are for purposes of comparison with GB.

Table 3.4

NIE T&D Maintainable operating costs for 1999/2000(£m)

NIE T&D operating costs (as per Table 3.1)	**92.9**
Network depreciation	(14.5)
Metering depreciation	(3.2)
Operating costs excluding depreciation	**75.2**
Capitalisation adjustments	(0.2)
Advertising and marketing	(1.3)
Customer records and service costs re-allocations	(3.4)
Customer metering costs re-allocation	(3.3)
Corporate overheads re-allocation	(3.0)
Operating costs after re-allocations	**64.0**
Charges from other Viridian Capital businesses	(3.4)
Excluded service and non-regulated income	(3.6)
Operating costs before one-off and non-recurring items	**57.0**
One-off and non recurring items	0.9
Maintainable operating costs	**57.9**

Consultants Efficiency Study

3.28 As discussed above Ofreg's consultants have made preliminary adjustments to NIE's 1999/00 operating costs in respect of capitalisation policy, allocations and recharges, one-off and non recurring items to arrive at a level of maintainable operating costs for that year. In addition, they have been engaged to assess the level of operating costs

potentially achievable by NIE by the application of efficient operating practices. This work is currently ongoing.

3.29 In considering efficiency in 1999/00, the base year for their analysis, PKF have developed a number of benchmarks to assess NIE efficiency, both in terms of operating practices and costs. Key factors influencing transmission and distribution business efficiency appear to include organisational structures, human resource policy, and engineering policy. In addition to these PKF will be looking at the approach to outsourcing and procurement and IT strategy. In developing benchmarks and comparisons relating to these factors PKF are considering the following:

3.30 In respect of organisational structures the extent NIE has reduced costs by:

- introducing centralised functions;
- moving from geographic to functional structures.

3.31 Where human resource issues are concerned, the extent NIE has reduced costs by:

- introducing the multi-skilling of appropriate staff to improve productivity;
- developing flexible working to increase effectiveness;
- controlling sickness and overtime levels;
- benchmarking wage rates;
- reducing staff numbers; and
- delayering management structures.

3.32 In relation to engineering functions the extent NIE has reduced costs by:

- adopting condition based maintenance procedures; and
- developing non-invasive maintenance techniques to streamline procedures; and

PKF are also considering the extent that NIE has developed strategies for the outsourcing, procurement and market testing of services and activities as well as assessing the effectiveness of NIE T&D's IT systems and strategies.

3.33 In addition to their work on costs in the base year, PKF have also been asked to consider the factors influencing cost levels in the future and to make a projection of the efficient level of operating costs between the base year 1999/00 and 2006/07. Projections of transmission and distribution business operating costs for the period after 2002 will be published in the draft proposals scheduled for publication towards the end of January 2002.

Issues for Consultation

3.34 Views are invited on any aspect of the issues relating to transmission and distribution operating costs, and in particular on:

- NIE's forecasts of operating costs over the period 2002/03 to 2006/07 in the light of movements in actual costs between 1996/97 and 1999/2000 and forecast costs between 1999/2000 and 2001/02 and NIE's previous forecasting record:

- the approach to adjusting operating costs for changes in capitalisation policy;

- the approach to adjusting operating costs for allocations, attributions and recharges;

- the treatment of exceptional, one-off and non recurring costs;

- the evaluation of base maintainable costs in 1999/00;

- the overall approach adopted by PKF to assessing costs and relative efficiency;

4. CAPEX

4.1 Capital expenditure forms an important part of the costs of a Transmission and Distribution business and therefore contributes significantly to the price that customers pay for their electricity supply. There is also a link between capital expenditure and Quality of supply which was commented on in Chapter 1. Before considering appropriate levels of capital expenditure for the forthcoming period, it is necessary to examine what has happened in the present price control period. The CAPEX allowance for the present price control period for NIE T&D was set by the MMC after taking account of forecasts from NIE and Ofreg. The comparison of outturn performance of the company against their forecast and the MMC's projections raises important questions about the treatment of capital expenditure. It is necessary to consider the degree of variance in the present price control period from forecasts and to see if there are any systematic patterns of behavior which require investigation. (for example, profiling expenditure for later years in the price control period, and whether any adjustments for under or over spend are appropriate). It is relevant to consider:

- the credibility of the company's forecasts in the light of the outturn results.
- whether there is evidence of unnecessary or inappropriate capital expenditure;
- whether and to what extent the company has been able to reduce capital expenditure through improved efficiency; and
- whether quality of supply levels have been affected by company's spending behaviour, both in the present control period and in the future.

4.2 In making projections for the level of capital expenditure for the company for the forthcoming period, two aims will be important:

- ensuring appropriate levels of quality of supply at the lowest overall cost to customers; and
- incentivising capital efficiency and hence reductions in overall cost levels.

Background

4.3 Historically the operational capital expenditure allowance for NIE has been split into two parts: an allowance for Transmission and an allowance for Distribution. These have been split further into load related and non-load related expenditure. Load related expenditure (LRE) is associated with the connection of new customers to the distribution system and reinforcements to the existing system to accommodate general load growth. Non-load related expenditure (NLRE) relates principally to replacement of life expired assets as well as to expenditure on network control and information gathering facilities, for diversions and environmental related expenditure and increasingly to measures to improve the quality of supply to customers.

4.4 Although it is appropriate to maintain this distinction, in many cases the investment drivers will be a combination of the above factors, with network rationalisation, the replacement of ageing assets and improvements in quality of supply often being provided as part of a reinforcement scheme required by increasing electricity demand.

Consequently the allocation of expenditure to LRE or NLRE may be somewhat arbitrary.

4.5 In general terms the drivers of LRE, namely the number and location of new customer connections and increases in electricity demands of existing customers, are outside the direct control of the company. In the case of NLRE however, in the short to medium term, the levels of investment are largely within the company's discretion, other than with respect to the relatively small proportion of expenditure associated with safety and environmental measures.

Capital Expenditure During the Present Price Control Period

4.6 In 1995 NIE submitted capital forecasts in respect of the years 1997/98 to 2001/02, the second regulatory period RP2 ("NIE's 1995 capital investment plan"). Ofreg made projections for capital expenditure in respect of the years 1997/98 to 2001/02 in 1996 ("Ofreg's July 1996 proposals"). NIE submitted revised forecasts in August 1996 ("NIE's 1996 corporate plan"). The actual capital expenditure figures used when setting the price control were those contained in the 1997 report by the MMC (MMC's 1997 proposals). These forecasts and proposals are shown in Figure 1 below.

Figure 1: Suggested levels of capex for the years 1997/98 to 2001/02

	Level of Capex £m*
NIE's 1995 Capital investment plan	**£437.1**
Ofreg's July 1996 proposals	**£355.4**
NIEs 1995 Corporate plan	**£415.1**
MMC's 1997 proposals	**£378.9**

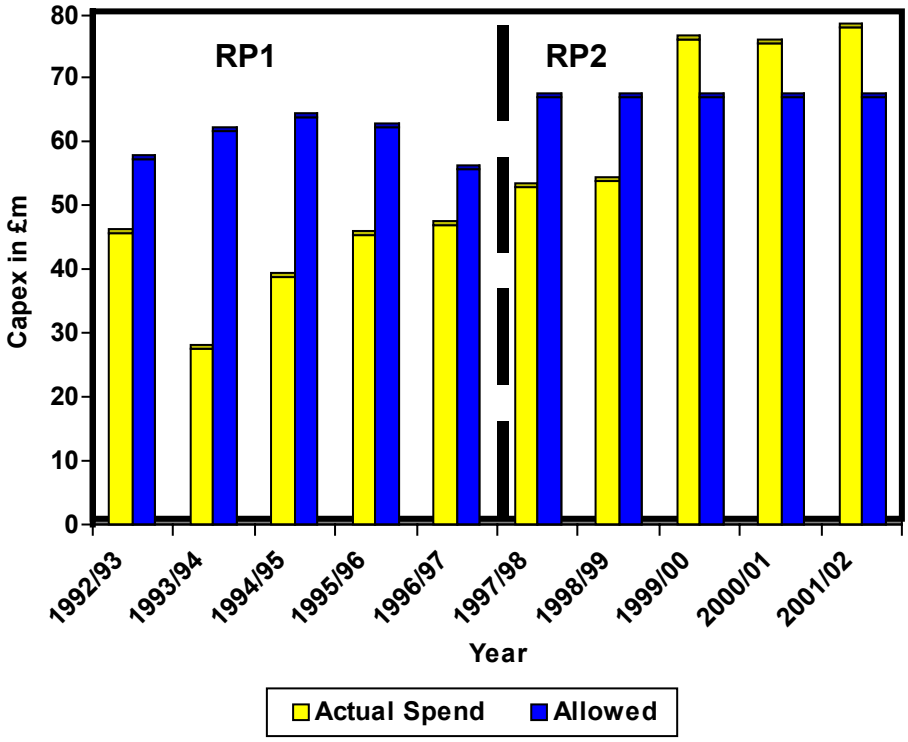
*All figures are in 1999/00 prices and are gross i.e. they include customers' contributions.

4.7 As part of the present review, NIE have submitted outturn figures for expenditure in the first three years of the present price control period and updated projections for the two remaining years ("NIE's RP2 updated forecasts"). NIE have also provided a forecast of the capex required for the period 2002/03 to 2006/07 ("NIE's RP3 forecasts").

4.8 Figure 2 shows the capital expenditure year on year of NIE's T&D business in the first two price controls after privatisation along with the amounts allowed for by the price controls. Variances between outturn and projected expenditure can be explained by mis-forecasting, efficiency savings, changes in the level of economic activity and company discretion in chosen expenditure levels (particularly for NLRE). When this is split up into five year price controls we can see that generally there has been a drop in expenditure post price control and a rise in expenditure towards the end of each period. This trend has been observed in other RECs in the rest of the UK and is indicative of the incentive on companies to push expenditure towards the end of a price control period. This has the effect of minimizing the company's financing costs

while maximizing the asset base ahead of the next price control review. This suggests that companies have considerable year on year discretion over capital expenditure. Taking RP2 as an example we can calculate the effect of delaying capex to the end of a price control period. We see that in RP2 if the MMC had foreseen the pattern of NIEs capital expenditure, NIEs allowed revenue would be approximately £0.5m per annum less than the out-turn.

Figure 2: Actual and allowed capital expenditure 1992/93 to 2001/02



4.9 The general trend in GB has been for companies to underspend significantly against their own projections and in most cases against their allowed capex spend as well.

4.10 NIE's behaviour pattern with regard to Capex in RP2 differs from the general pattern. One possible explanation is that the RECs are better than NIE in making efficiency savings.

4.11 However, opportunities for efficiency gains are likely to be common to all RECs. There is no a priori reason why Northern Ireland should be a "no go" area for efficiency gains. A more likely explanation is that having been widely criticised for the RP1 underspend, NIE was determined to spend its entire allowance in RP2.

4.12 Therefore the fact that NIE has spent an amount very close to that allowed by the MMC in RP2 (see figure 3 below), whereas other companies have achieved considerable savings, means that we will have to consider closely the spending performance of NIE in RP2 and in particular to see if they have been engaged in any

unnecessary or inefficient spending. The total amount of money spent by NIE in the second price control period RP2 is shown in Figure 3 below:

Figure 3: MMC projections and NIE's projected spending plan*

	MMC Allowance (£m)	**Actual spend (£m)**	**Difference (£m)**
TRANSMISSION			
Load related	56.0	36.7	-19.3
Interconnectors	0.0	3.3	+3.3
Non load related	16.3	15.9	-0.4
DISTRIBUTION			
Load related	119.1	106.3	-12.8
Non load related	159.3	186.5	+27.20
ON COSTS	28.1	36.7	+8.6
Gross Capital Expenditure	**378.8**	**385.4**	**+6.6**
Less contributions	43.1	49.0	+5.9
Net capital expenditure	**335.7**	**336.4**	**+0.7**

*All figures are in 1999/00 prices

4.13 As we can see from the table above the projected net capital expenditure which NIE's T&D business is forecasting it will spend by the end of RP2 is very close to the amount allowed by the MMC. The actual figures are £335.7m allowed by the MMC and £336.4m to be spent by NIE. There are however some important differences in the areas the money was spent compared to what the MMC suggested.

Load related expenditure

4.14 Load related expenditure shows a marked decrease from the MMC forecast both in the Transmission and Distribution categories. In percentage terms the decreases are approximately 34.5% and 10.5% for Transmission and Distribution respectively. Load Related expenditure would be expected to vary from forecasts due to the differences between actual and forecast levels of economic activity, and in particular with the number of units distributed and the number of new homes built. At the time of the last price control review estimates of the number of new connections and load growth on the network were made. The forecast load growth in maximum demand for RP2 was 133 MW at the time of the review. This has now been updated to 170MW

which is a 28% increase on planned. There has also been a 2.5% increase in total customer numbers over that predicted at the time of the review, this translates into approximately 18,000 new customers connected to the electricity grid. It is surprising that with a higher load growth than expected at the time of the last review and a larger than expected increase in the number of new customers NIE have under-spent significantly against their load related capex budget. This fact would seem to indicate that the make-up of a capex budget is very imprecise. There appears to be a lot of room for companies to move expenditure around from one area to another or from one project to another. This makes it difficult for a regulator to determine what are genuine efficiencies in a capex programme, and what are simply deferrals of projects/schemes to a later date and indeed what was included unnecessarily in a capex programme.

Non Load related expenditure

4.15 Actual Non Load Related distribution expenditure has increased and is around 17% higher than the figure proposed by the MMC. Non Load Related Transmission expenditure is around the level estimated by the MMC. The main reason for the divergence between the MMC and the out-turn NIE distribution expenditure is the increase in asset replacement/line refurbishment expenditure after the 1998 Boxing Day storms. Comparing NIE plans pre and post the Boxing Day storms we can see that spending on Non load related distribution projects was estimated to increase by around £25m as a result of the storm. Most of the additional expenditure was spent on the refurbishment of 11 and 33kV overhead lines.

On-Costs

4.16 On-costs cover the employment of staff such as design engineers and surveyors whose work is concerned with capital projects but are not directly engaged on the construction of the assets. On-costs have increased in percentage terms by around 30% on the level projected.

4.17 The MMC report assumed a value of 8% of gross project costs should be allowed for on-costs. NIEs outturn figure is higher than this and exceeds the MMC recommendation by around £8m. Ofreg believe that it is important to discipline the company to keep these costs at the minimum level and will be looking critically at NIE's figure for on-costs.

4.18 It is important that any significant variances between the MMC plan for capital investment and that executed by NIE are thoroughly investigated. The reasoning behind any major changes in expenditure need to be investigated to see if there was an overestimate in the level of expenditure needed, or to see if circumstances have changed and the company was obliged to act differently, or if there was simply a change in policy within the company. This is necessary as companies should not benefit from underspends which jeopardise quality of supply or are simply the result of a deferral of expenditure. Similarly overspends should be subjected to careful scrutiny so that customers do not bear the cost of unwarranted excess expenditure.

Capital Expenditure in the Period from 2002/03 to 2006/07 Analysis of NIE's Forecast

4.19 NIE's 2000 forecasts will be critically examined against the criteria of obtaining maximum capital efficiency and therefore lowest prices for customers while ensuring that quality of supply is maintained. NIE's forecast level of expenditure for the next regulatory period is summarized in the following table along with the latest estimate of the out-turn expenditure for the second regulatory period.

Figure 4:NIE's RP3 Proposals and RP2 Actual Expenditure*

	RP3 proposals (£m)	**RP2 Spend latest estimate (£m)**
TRANSMISSION		
Load related	21.38	36.7
Non load related	31.15	15.9
DISTRIBUTION		
Load related	97.94	106.3
Non load related	177.15	186.5
ON COSTS	40.0	36.7
Gross Capital Expenditure	**367.62**	**385.4**
Less contributions	42.51	49.0
Net capital expenditure	**325.11**	**336.4**

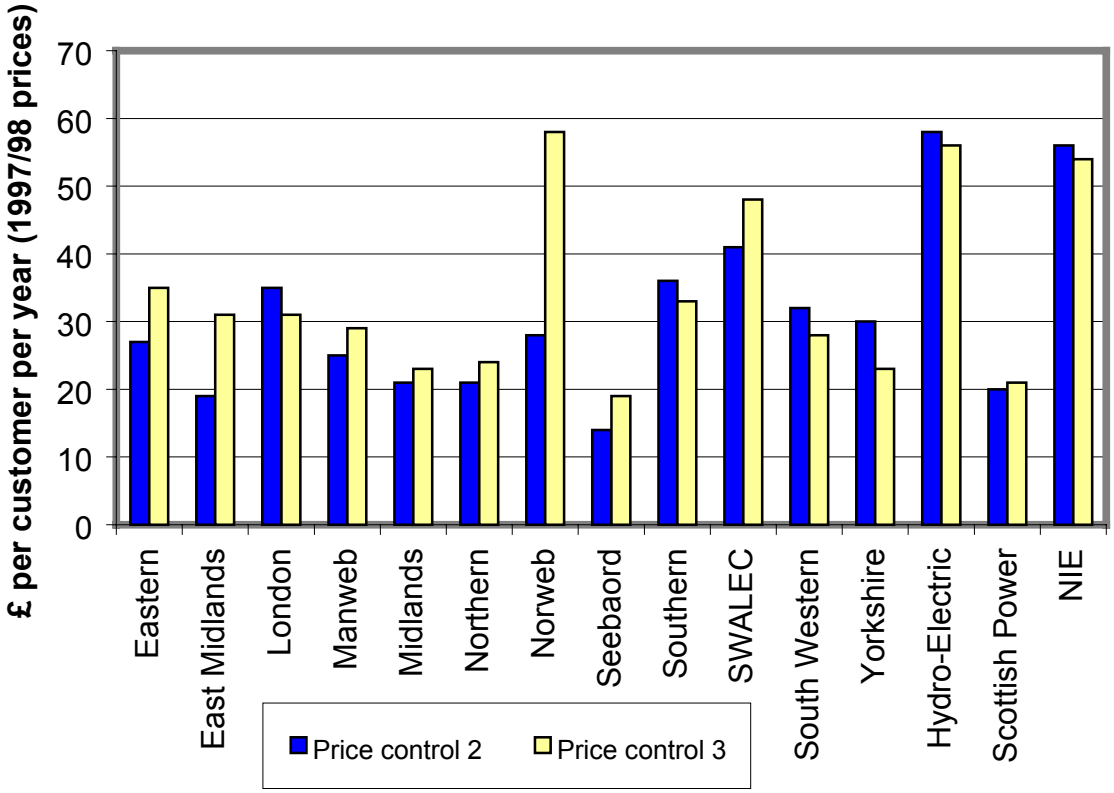
*All figures are in 1999/00 prices

4.20 The transmission figures do not include the cost of the Scottish interconnector. The net capital cost according to figures provided by NIE will be approximately £125m. The figure on which it just squeaked past its economic purchase assessment was approximately £100m.

4.21 It should be noted that the capital expenditure figures for the two price control periods cannot be compared directly as the actual spend from RP2 includes a considerable amount of expenditure which will improve the quality of supply. The proposals for RP3 do not include any expenditure to improve the quality of supply.

4.22 Figure 5 below shows a comparison of the NLRE implied by NIE's forecasts for the third period and their latest update for the second period along with the equivalent data for the GB suppliers all normalised by numbers of customers.

Figure 5 Average Non-Load Related Expenditure per Customer per year



4.23 The above graph shows us that NIE has undertaken in RP2 and plans to undertake in the next price control period RP3 one of the most substantial non-load related capex programs of all the REC'S in the UK. Whether such a large non-load related capex

program is prudent will be the subject of investigation by Ofreg's consultants during this price control review.

Back-ending Investment

4.24 Back-ending investment in a price control period is profitable for companies. Ofreg estimates that NIE made £3m from back-ending on their allowed revenue which assumed equal tranches of investment. While it may sometimes be unavoidable for reasons genuinely outside a company's control, it is so endemic that it clearly represents a response to a perverse incentive. Customers provide money for an even programme. Back-ending means customers are denied the earlier improvements for which they have paid. In these circumstances customers should be able to share the benefit of the delay.

Issues for consultation

4.25 There has been significant divergence of NIE's behaviour with respect to capital expenditure in the present price control period, with that proposed both by NIE and the MMC. An important feature of this review will be how to deal with these divergences. Another feature of this review will be the size of the capital expenditure program undertaken by NIE both in the second price control period and the projected program for the third period. Our views on the above must be consistent with our objective of encouraging NIE to provide a given level of quality of service at the lowest possible cost. Views are invited on any aspect of the issues raised in this chapter, and in particular on:

- the extent to which past underspends can be justified on the basis of efficiency savings or relate to mis-forecasts or changes in factors outside company's control;
- the extent to which capital expenditure has been unnecessarily high or inappropriate in the present price control period;
- whether the company's 2000 forecasts can be expected to reflect underlying needs taking into account experience in the present price control period;
- the extent to which the company has distorted the phasing of capital expenditure programmes and what should be done about this;
- determination of appropriate levels of load-related expenditure for the forthcoming price control period;
- determination of appropriate levels of non-load related expenditure for the forthcoming price control period; and
- in determining the above, the extent to which longer term considerations of asset replacement or possible deterioration in quality ought to be included in considerations of capital expenditure.
- the scope for sharing the savings from back-ending between customers and shareholders by penalties for slippage in Capex or for allowed revenue assuming the back-ending practised to date.

5 Financial Issues

The Cost of Capital

Introduction

5.1 It is a primary duty of regulation to ensure that the regulated company is able to finance its activities. Investors (shareholders and creditors) will require a return on the capital which they invest in a company. The cost of capital is the cost which a company faces in meeting the required return from investors. The cost of capital is determined in the financial markets. Price control regulation requires that an estimation of the cost of capital facing the company be undertaken so that an allowed return to cover this cost can be calculated. The allowed return, when applied to the company's asset base should enable the company to meet its cost of capital and therefore finance its activities.

5.2 The estimation of the cost of capital is not an exact science because complete information is not known about investors' expected return and a complete data set is sometimes unavailable. However, over the last decade there has been movement towards a common practice across the UK utility sector on the methodology and assumptions entailed in a cost of capital estimation. Much of the debate about appropriate calculation methodologies has been publicly aired and precedent in methodology established.

5.3 If the approach to estimating the cost of capital for a regulated company were to be constantly changing then this might affect the forward-looking incentives on the company. Inevitably however, in the final analysis, as the Monopolies and Mergers Commission (MMC) stated, the cost of capital is an estimation and requires a degree of judgement[1] and assumptions made about figures and models.

5.4 The privatisation process of formerly nationalised utilities in the UK has been based on an equity model of corporate finance. In such a model where shares in the newly privatised industries are freely traded on the stock exchange, the cost of capital is necessarily determined to some extent by an equity premium and is influenced by the level of gearing in a company. In recent years there has been a growing interest in alternative models of corporate finance structures in privatised utility industries. The restructuring of Sutton & East Surrey Water plc and Glas Cymru are two recent examples. Where such alternative structures have been established it is evident that they have had a clearly beneficial effect of reducing the cost of capital to the companies involved. It is therefore worth asking at the outset whether NIE should be paying the higher cost of the equity model or whether an alternative model should be adopted for its capital structure which would reduce the cost of its capital.

[1] MMC: Northern Ireland Electricity plc: A report on a reference under Article 15 of the Electricity (Northern Ireland) Order 1992: March 1997: para 9.32

NIE's Cost of Capital since privatisation

5.5 NIE plc was privatised in June 1993 with three separately price controlled, businesses: PPB, T&D and Supply. The first price control period ran to 1 April 1997 and was established at vesting.

5.6 In 1996 Offer NI undertook a review of the original price controls on the companies. On 21 June 1996 the Director General of Electricity Supply published a paper setting out his initial thoughts on the cost of capital. This proposed allowing the T&D business a 6.0% (real, pre-tax) rate of return, while the respective rate for both the PPB and Supply business was 6.5% on assets.

5.7 In NIE's response to the paper, the company stated that the cost of capital of the T&D business should not be less than 7.5%, that the supply business should earn a return of at least 8% and that PPB should be allowed a return of 7% on capital (plus an additional return on turnover).

5.8 After further discussions with the company, the Director General published his final price control proposals in July 1996. He allowed the T&D business 7% real pre-tax return on assets, the PPB 8% while, instead of a return on assets, he allowed the Supply business a 0.5% margin on turnover.

5.9 NIE did not accept the Director General's proposals for the T&D and Supply businesses and referred the issue to the MMC. The MMC considered the appropriate figure for T&D's cost of capital to be 7% and endorsed the Supply business margin on turnover.

5.10 The allowed rate of return on the T&D business assets for the duration of the present price control is therefore 7% real and pre-tax.

Other regulatory history

5.11 Since NIE's last price control review further price control reviews of regulated industries have taken place in the UK. These include recent price controls by Ofgem in which it reviewed the cost of capital for the National Grid Company (NGC) and, separately for the Public Electricity Supply Companies (PESs) in Great Britain and Transco. Ofwat the water regulator examined the cost of capital for the water and sewage companies, The Office of the Rail Regulator has reviewed the cost of capital for Railtrack, while the Competition Commission has reviewed the cost of capital for Vodafone / BT Cellnet and two of the water and sewage companies.

5.12 The methodology used in calculating the cost of capital in the UK is now well established and, while not yet without some contention, has generally been accepted by the utilities.

Methodology

5.13 The generally accepted main methodology used by UK regulators, regulated firms and by the Competition Commission (which replaced the MMC) in estimating the relevant cost of capital for regulated industries is the Capital Asset Pricing Model (CAPM). The values derived from this methodology can be supported by other methodologies such as the Dividend Growth Model.

5.14 A company can generally raise finance in two ways, either by borrowing (for example, from banks or by issuing corporate bonds) or by selling shares. The cost of capital is therefore the total cost to the company of raising finance through these two ways. The CAPM is used to estimate the Weighted Average Cost of Capital. (WACC). This is the sum of the company's cost of debt and cost of equity, weighted by the level of gearing. (Gearing is the level of the company's debt to total capitalisation).

5.15 The WACC can be expressed algebraically:

$$WACC = \{ (1-g) \times r_e \} + \{ g \times r_d \}$$

Where : g is the level of gearing in the company;

r_d is the cost of debt finance; and

r_e is the cost of equity finance.

The cost of debt is normally measured as a premium over the risk-free rate:

$$r_d = r_f + DP$$

Where: r_f is the risk-free rate; and

DP is the company debt premium

The cost of equity is normally measured as:

$$r_e = r_f + \beta (r_m - r_f)$$

Where: r_e is the cost of equity finance;

r_f is the risk-free return;

βe is the equity beta;

r_m is the level of market return.

The calculation of the WACC involves drawing conclusions on the appropriate value of both economy-wide variables and company specific variables. The economy-wide measures are the risk free rate of return and the equity risk premium, while the company specific measures are the beta and the debt premium.

Economy Wide Measures

Risk-free rate

5.16 In calculating the WACC it is necessary to estimate what return could be achieved from an investment which was completely guaranteed. In other words a risk-free return. The returns to index-linked government bonds have traditionally been used as the risk-free benchmark.

5.17 There has been much debate as to whether historical returns on government bonds are a sufficient indication of future returns. While many commentators believe that using older data would bias the risk-free rate upwards because of fundamental changes in capital markets, others argue that using historical data would diminish the effect of any extreme variability of the measure. Other commentators believe that a spot rate or current rate should be used. This assumes that investors will have incorporated all the relevant information into their latest estimate of the variable. Assuming this to be the case, the value of the risk free interest rate should be estimated from the implied zero coupon curve on index-linked gilts.

5.18 As a proxy for this analysis, Ofreg has examined the prospective real redemption yields on a variety of index-linked gilts. The return on index-linked gilts has been falling over the last decade. For example, using the first security which has a redemption date after the end of the next price control period, the 2½pc 2009 index-linked gilt, the average yield over the last six years was 3.3%, over the last year this average yield has fallen to 2.04% (assuming projected inflation of 5%). The prospective real redemption yield on this gilt assuming 3% inflation is currently 2.24%.

5.19 The six-year average yield rate for three index-linked gilts which Ofreg has examined which have a maturity between 2004 and 2016 range from 3.29% to 3.34%. The average range last year[2] was between 1.98% and 2.7%. (at 5% projected inflation). If one believes that markets are efficient then one gives more credence to current figures since they are assumed to reflect the market's forward looking projections. Currently the range of yields on gilts with a maturity date between 2006 and 2016 is 2.23% to 2.51% assuming 5% future inflation, or 2.13% to 2.27% assuming 3% future inflation.

5.20 In the Competition Commission's reports on Mid Kent Water plc and Sutton and East Surrey Water plc[3] it considered a range of 2.75% - 3.25% for the risk-free rate and used the middle of this rate, 3%, in assessing the cost of capital. This compares to 3.5% - 3.8% in the MMC report on Cellnet and Vodafone in 1998. The recent lower level estimate supports the evidence of a lowering of the risk-free rate as displayed in the gilts market and outlined above. Ofgem's view was that the longer the present relatively low yields on index-linked and conventional gilts persist, the more persuasive becomes the argument that these lower yields are not simply a feature of shorter term market conditions. In December 1999 Ofgem used a rate of between 2.25% and 2.75% in its review of the Public Electricity Supply companies[4]. Ofgem calculated a range of between 2.5% and 2.75% in its review of the National Grid

[2] Year to March 2001
[3] Reports on the references under sections 12 and 14 of the Water Industry Act 1991. Competition Commission: September 2000.
[4] Reviews of Public Electricity Suppliers 1998 to 2000 : Distribution Price Control Review : Final Proposals : December 1999

Company (NGC) in September 2000[5]. The Office of the Rail Regulator used the Competition Commission's 3% figure for the risk-free rate in its final conclusions on Railtrack in October 2000[6].

5.21 When Ofreg calculated the cost of capital in 1996 it used the spot rate and to ensure that the then current value was not arbitrarily high or low, compared it to historic averages. It concluded that the spot rate was a reasonable estimate of the risk-free rate. It would not, therefore, be inconsistent with our previous approach to use the current yields on index-linked gilts as a measure of the risk-free rate. This would give a range of between 2.13 and 3%. Using historic averages would set a rate of around 3.3%. However, recent market evidence suggests that the risk-free rate has fallen since the last price control review. Regulatory precedent suggests a rate of between 2.5% and 3.25%.

5.22 Using all the evidence a range of between 2.5% and 3.25% is therefore appropriate for the risk-free rate.

Equity risk premium

5.23 The difference between the return available from the market and the risk-free rate ($r_m - r_f$) is known as the market risk premium, here referred to as the Equity Risk Premium (ERP), it is therefore the return above the risk free return which investors require in order to accept the higher risk of equities.

5.24 In estimating the appropriate ERP the problem of whether it is appropriate to use historic returns as a basis for expectations of the future is again an issue. It is undoubtedly the case that the equity premium is not constant but is in fact time varying due to variations in corporate profitability and investors' risk tolerance levels over time. Showing similar time-series properties to stock market volatility, the equity premium is also observed to be 'persistent', meaning that when it is low (high) it tends to stay low (high). This feature of the equity premium's dynamics means that when equity valuations are observed to remain at high levels over recent time periods, then the corresponding estimate of the equity premium will almost certainly be below the long-term historical average. However, given the random-walk feature of stock markets, even if the current market expectation for the equity premium is below the historical average and in addition the ex-ante 'crash fears' implicit in traded put option prices are 'normal' – meaning essentially that the market consensus expectation is for a continuation of the status quo – then the use of the currently implied level of the equity premium for rate-setting purposes is both reasonable and defensible on theoretical grounds.

5.25 For the PESs Ofgem used various quoted estimates for the ERP based on the present expectations of City institutions and investors. It considered a range of 3.25% to 3.75% as appropriate for the ERP. The Competition Commission determined a rate for the ERP of 4% in the case of the two water companies. The Competition Commission report suggested that the current ERP might be lower than in the past, for instance due to diminished risk of the underlying cash flows associated with the

[5] The transmission Price Control review of the National Grid Company from 2001 :Final Proposals : September 2000

[6] Periodic Review of Railtrack's access charges : Final conclusions : October 2000

equity investment or increased appetite for risk among investors. Its estimate was somewhat below the historical average but above the current estimates of market expectations. The ORR concurred with the figure used by the Competition Commission. Ofgem took the Competition Commission's determination into view when it set the price control for the NGC. It settled on an ERP of 3.5% noting that the Commission stated that the longer equity valuations remain high, the more confidence it is possible to have that the ERP is lower than the historical average. Accordingly it considered that the estimate should be at the low end of the Commission's implied range. In its preliminary review of Transco, Ofgem suggested an ERP of 3.5% to be appropriate.

5.26 Taking all views into account it would therefore be appropriate to consider a range for the ERP of between 3.25% and 4%.

Company Specific Measures

Debt premium

5.27 A company has debt when it borrows a set amount of money on which interest is levied over a specified time period of repayment. The cost of debt for companies such as NIE is the risk free rate plus a debt premium. This is the premium over and above the risk free rate which the company must pay in order to obtain debt such as a bank loan or a bond issue. The debt premium is the market's current assessment of the likelihood of NIE defaulting on its corporate debt obligations in the future.

5.28 NIE plc has issued a September 2018 Eurobond which is now publicly traded. We can impute the prevailing Eurobond yield from its observable market price. Then, by evaluating the differential of the implied corporate yield and the computed nominal yield of a circa 17-year duration conventional gilt, other things being equal, we have a basis for forming a forward-looking assessment of the 'market price of NIE's default risk' and hence of the corresponding real-valued 'debt-risk premium'.

5.29 However, this approach may inadvertently overstate NIE's relevant cost of debt in the WACC formula. This is because the credit spread on the bond itself can diverge with increasing time to maturity. Consequently the market-implied credit spread may overstate the relevant debt risk premium.

5.30 A spread of 141 basis points or 1.41% is implied by the prevailing relative yields on NIE's 2018 Eurobond issue and comparable-maturity conventional government gilt. Using the argument above that the market-implied credit spread may overstate the relevant debt risk premium, then this debt premium should be scaled back to 1.01% to avoid overstatement. These two figures can be used as a high and low estimation of NIE's debt premium in the WACC calculation.

5.31 It is worth noting that the implied credit rating for NIE could be adversely affected by the other activities of the Viridian group as these activities are unlikely to be perceived to reduce the risk on all companies in the group.

5.32 At present companies with credit ratings A- to BBB+ run debt margins in the range of 100 to 145 basis points. This spread was considered an appropriate figure by Ofgem for the PESs. Notwithstanding the fact that neither NIE nor Viridian has formal credit ratings the estimated range for debt premium falls within the range of companies with 'efficient' credit ratings.

Gearing

5.33 Gearing is the proportion of debt in the total capital of the company. In the calculation of the WACC the cost of debt and the cost of equity are weighted according to the level of gearing in the company.

5.34 Generally as the level of gearing increases, other things being equal, a simple run of a WACC calculation would show a reduction in the cost of capital. This is a mathematical certainty due to the fact that the cost of debt is originally calculated as smaller than the cost of equity. However as the level of gearing continues to increase in a company operating in a competitive market environment, a point will be reached when the cost of debt also starts to increase and therefore the cost of capital will start to increase also. This is because debt issuers will perceive greater risk of default on the debt leading to higher company debt premium. There is therefore an efficient capital structure, or an efficient mix of debt and equity which will minimise the overall WACC. This efficient capital structure can of course be stated as an efficient gearing level. However, in a monopoly T&D business it is unlikely that the effect of ratcheting up gearing will significantly increase the cost of capital because the business is effectively insulated against default. This view has been confirmed by Ofreg's discussions with lending institutions. The market knows that its costs will be met and its revenues will be guaranteed as the Regulator has a statutory duty to ensure that the company can finance its activities. Under such an analysis high levels of gearing can be considered 'efficient' in terms of capital structure, in that they do not necessarily lead to a higher cost of capital.

5.35 Other regulators require companies to maintain an investment rate credit rating as a means of ensuring that they have an efficient capital structure. Some analysts consider a gearing level of between 50% and 60% to be appropriate. Ofgem accepted a 50% gearing level as efficient for the PESs. In its recent assessment of Transco, Ofgem considered 60% to 70% to be the range for efficient gearing.

5.36 NIE has provided Ofreg with details of its gearing levels in recent years. NIE has progressively increased its gearing (on book-income values) in the three most recent fiscal years to a level well above the 50% which Ofgem assumed as 'efficient' for a PES company. NIE's current level of gearing is 73%.

5.37 In setting a price control the regulator must assess what is an efficient policy rather that what is the actual policy which the company has adopted. This argument also applies to the level of gearing. The table below shows the sensitivity of the cost of capital calculation to the level of gearing in the company: The table assumes that there is no change in the debt premium (or other variables) associated with higher levels of debt; with a monopoly utility with guaranteed revenues this should be the case.

Gearing Level	Implied Range for Cost of Capital	
	Low	**High**
50%	5.17	6.65
60%	4.84	6.25
70%	4.50	5.86
73%	4.40	5.74
80%	4.17	5.46
90%	3.84	5.06

Beta

5.38 If a company is to be able to attract future investment then investors in that company will seek a return for their capital expenditure. Shareholders' return comes in two forms – dividend payments and capital gains (or losses) through increases (decreases) in the share price. However investment in equities is more risky than, say, government bonds. In order to undertake more risk, investors generally require a higher return.

5.39 Equity investors face two types of risk: The risk that the returns to the market as a whole may fall and the specific company risk that the returns to the company will be less than those on the market as a whole. The specific company risk i.e. the volatility of returns to a particular company compared to the returns on all companies can be calculated. The value is known as the company's beta value and measures the riskiness of that company compared to all companies. The beta represents the company specific risk that the investor cannot eliminate through holding a portfolio of shares.

5.40 Beta is a measure of the degree to which the return on a specific company's assets move in line with returns to the market as a whole. A beta equal to unity implies that the returns to the company exactly mirror the returns to the market. A beta of greater than one implies that the returns to the firm are more volatile than the returns to the market, while a beta of less than one implies that returns to the firm are less volatile than the market. Because risk means that more things can happen than will happen, if a company's expected returns are less volatile than the market then investing in that company will be less risky than investing in a market wide portfolio.

5.41 One would expect companies whose core business is a regulated utility to possess a beta of less than unity. This is because regulated companies are inherently less risky than non-regulated companies. Regulated companies have a set rate of return on their assets guaranteed by the regulator and paid for by their captive customers. They are not exposed to the same investment risk which an ordinary commercial firm must face. If a regulated company undertakes inefficient investment it will still be able to earn a rate of return on that investment even if the company invested in assets which

are not operational; moreover, under current arrangements, if assets are damaged or destroyed they can still earn a rate of return on their replacement value.

5.42 The London Business School Risk Management Service calculates the value of beta using monthly share data for a wide spectrum of companies including the utilities sector. The LBS publishes this data on a quarterly basis. Examining these calculated equity betas for the whole UK quoted electricity sector (including Viridian) over the past three years shows that beta values have generally been on a downward trend. This means that the average sensitivity of electricity sector shares to general market movements has been falling. For Viridian LBS has calculated a fall in the beta value over the past three years[7] from 0.98 to 0.55 with an average value of 0.65. The LBS equally weighted average for the whole electricity sector yields a beta of 0.66

5.43 As mentioned earlier the beta for a network utility is likely to be low. The main difficulty in using the observed beta for the Viridian group is that there is no reason to believe that the non-regulated parts of the group should have the same beta as NIE. It is possible to disaggregate the individual company beta from the group aggregate if the group aggregate is based on a weighted average of individual company betas weighted by the proportion of net assets in each company.

5.44 Equity betas such as those calculated by LBS reflect both the underlying business risk and the impact of the chosen financial structure. In order to compare betas across companies with differing financial structures it is possible to construct an asset beta. In as far as the asset beta reflects the *business risk* of the firm's assets it is hence 'independent' of the mix of debt and equity securities used to finance the company's investment in those assets. By assuming the debt beta to be approximately equal to zero (a common assumption for the debt of regulated companies) we can determine the asset beta with reference to the following formula:

$\beta_a = (1 - g)\,\beta_e$

Where β_a is the asset beta

β_e is the equity beta

g is the level of gearing

5.45 In its review of the PESs price controls, Ofgem considered a range of 0.45 to 0.55 to be reasonable for distribution asset betas, this was consistent with equity beta range of 0.9 to 1.1. Similarly for NGC Ofgem estimated an equity beta of 1.0 but considered this to be generous. Ofreg has used research on variations in the cost of capital for international transmission companies which suggests a range of 0.3 – 0.5 for the asset beta. These figures are broadly in line with the range cited by Ofgem as appropriate for the PES's distribution asset betas.

5.46 Applying this asset beta range with the LBS average equity beta of 0.66 would imply a range for the level of gearing of between 25% and 55%. This range is consistent with the historic levels of NIE's gearing. An equity beta of greater than one could be seen as erring on the side of generosity towards the company since in a regulated network industry the volatility of the market must set the upper limit to the volatility

[7] To March 2001

of the firm. Accordingly a beta of 0.7 can be seen as a good estimate based on available information.

Adjusting for Taxation

5.47 The existence of different rates of personal and corporate taxation creates a 'tax wedge' between the return on equity earned by a business and the return on equity received by shareholders. CAPM estimates the post-tax returns to investors. The tax wedge provides a calculation of the impact of tax on the cost of equity.

5.48 At the time of the previous NIE price control review, In order to take account of the partial imputation system for corporation tax in the UK, the MMC adjusted the cost of equity finance upwards by a tax wedge to take account of corporation tax payments. In doing so, it made a number of simplifying assumptions, including that the company pays corporation tax at the full rate and that all profits are distributed as dividends.

5.49 Since that report Advance Corporation tax in the UK has been abolished while Mainstream Corporation tax has been revised downwards. Taking these changes into account has the taxation multiplier becomes 1.429. This multiplier on the cost of equity was the tax wedge used by Ofgem in its recent price control reviews and is also consistent with the MMC's approach in its report on Cellnet and Vodafone.

MMC adjusted Cost of Capital estimation

5.50 If we take the MMC's calculation of the Cost of Capital at the last price control and since the MMC's report was published, adjust it where there have patently been changes in the economy-wide components – while holding company specific factors constant, it is possible to create a rough estimate of the Cost of Capital that is the equivalent of the 7% on which both Ofreg and the MMC settled in 1996/7 The table below shows the MMC's calculation at the time of the last price control and the adjustments since.

Institution	**MMC**	**'MMC updated'**
Case	NIE 1997 approx values	
Basis of estimation	Real pre-tax	Real pre-tax
Risk free rate %	3.5-3.9	2.5-3.25
Equity risk premium %	3.5-5.0	3.25-4.0
Equity beta	0.6-0.75	0.6-0.75
Debt premium	1.3-1.8	1.3-1.8
Tax Wedge	1.1625	1.429
Approach to gearing	8%-41%	8%-41%
Average WACC	7	6.74

5.51 It is therefore obvious that adjusting the MMC's methodology for estimating the cost of capital by amending economy wide changes results in an estimate which is considerably lower that that estimated in the MMC's report. This table demonstrates that exogenous changes since 1997 would without any other company specific change reduce the WACC by 0.26%.

Range for estimated cost of capital

5.52 Based of the above analysis the appropriate range for NIE's cost of capital has been determined as follows:

	Low Case	Mid Case	High Case
Risk free rate r_f	2.5%	3.25%	3.25%
Equity risk premium ERP	3.25%	4%	4%
Beta β	0.7	0.7	0.7
Gearing	90%	73%	50%
Debt Premium	1.01%	1.41%	1.41%
Tax Wedge	1.429	1.429	1.429
PRE TAX WACC	**3.84%**	**5.74%**	**6.65%**

5.53 For comparative purposes the following table shows how this estimation compares to other recent cost of capital calculations by other UK regulators and the Competition Commission.[8]

Institution	Ofreg	Ofgem	ORR	CC	Ofgem	Ofwat	MMC	MMC
Case	NIE 2001	2001 Transco	Oct 2000 (based on CC central values)	Sutton and East Surrey Water Aug 2000	PES review Dec 1999	Water and sewage charges Nov 1999	Cellnet / Vodafone 1998	BAA 1996
Basis of estimation	Real pre-tax	Real pre-tax	Real pre-tax	Real pre-tax	Real pre-tax	Real post-tax	nominal pre-tax	real pre-tax
Risk free rate %	2.5-3.25	2.75	3.0	3.0	2.25-2.75	2.5-3.0	6.5-6.8 nominal 3.5-3.8 real	3.5-3.8
Equity risk premium %	3.25-4.0	3.5	4.0	4.0	3.25-3.75	3.0-4.0	3.5-5.0	4.0-5.0
Equity beta	0.7	1.0	1.1-1.3	0.7-1.0	1.0	0.7-0.8	1.27 (4 year average LBS)	0.7-0.9
Debt premium	1.01-1.41	1.5-1.9	1.5-1.75 (to reflect impact of gearing)	1.5-1.9	1.85-1.7 (adj. from 1.4 to reflect LT debt)	1.5-2.0	0.7-1.0	0.3-0.8
Approach to gearing	73%-90%	62.5%	50% (assumed)	25% -50%	Optimal 50%	Optimal 50%	9.1% planned level	30% estimated but not optional
WACC	3.84-6.65	6.25	6.9-8.2	7.3	6.0-6.9	4.6-6.2	14.9-17.8 nominal	6.4-8.3

Recent Innovations in the financing of regulated utility companies

5.54 The WACC approach has been the traditional method for estimating the cost of capital for regulated utilities since the start of the UK privatisation process which was characterised by stock market flotation of previously nationalised utility industries. In recent months, however, as mentioned in Chapter 1, several regulated utility companies in the UK have rearranged their capital structures and withdrawn equity holding as a means of reducing the cost of capital which they face. In the light of

[8] Source : Civil Aviation Authority ; Cost of Capital Position Paper, June 2001; Ofgem June 2001 and Ofreg

these developments it is worthwhile assessing whether the existing capital structure of NIE serves in the best interests of its stakeholders.

The Dwr Cymru Case

5.55 Like most water companies in the UK the equity market in particular had encouraged Dwr Cymru to diversify their earnings into non-regulated, non-core areas. This was a particularly unwelcome process for bondholders who suffered credit deterioration as a result of a more risky business profile which in turn put downward pressure on group credit ratings. The recent purchase by Glas of the assets of Dwr Cymru is an innovative approach to reducing the cost of capital to what is essentially a low risk business by ring fencing the financing of the regulated utility business away from the diversified group businesses.

5.56 Therefore unlike its peer group, Dwr Cymru has the advantage of not owning higher risk non-core, non-regulated businesses and it has covenanted and accepted licence amendments that this will always remain the case. Thus, the credit strength of its main business will never be diluted by expansions into non-core businesses. Glas has also chosen to increase the level of its operations outsourced from 60% to 85%. This has the effect, within the core water business of shifting most of the economic risks to another operator.

5.57 The repayment of equity-holders means Glas's structure has clear attractions for bondholders over other industry peers as there is now no equity-market pressure for increasing returns and a higher risk profile. The new balance sheet structure has been designed to minimise risk and it minimises Glas's cost of capital making future credit deterioration unlikely.

5.58 It is estimated that the cost of capital for Glas is 200 basis points below that of peer companies. It is however clearly the case that the lower the WACC the less the benefit to customers of moving to the Glas model. Conversely a cost of capital which reflects accurately the business gearing and fundamental lack of risk must increase the attractiveness of the securitisation model for shareholders. Views are sought as to whether NIE's existing capital structure best serves its stakeholders or whether a restructuring along the lines of the Glas example would be more suitable.

Asset Valuation

Treatment of Assets at the last Price Control Review

5.59 In terms of the financial impact, the valuation of assets is one of the most critical components of the price review. It is this valuation that determines the basis of rewarding shareholders for their investment over the period of the price review.

5.60 The valuation of assets at the start of the new price control period is calculated by adding investments made since privatisation to assets acquired at privatisation less the depreciation of all assets.

5.61 The determination of each of these values is needed to adequately reward customers and shareholders in a balanced and equitable manner. At the last price control review NIE and Ofreg differed in their determination of the value of the asset base. The MMC then made its own assessment but did so quite explicitly for the RP2 period only.[9]

5.62 It is necessary to review the methodology and the arguments addressed at the time of the last price control review in order to set a valuation for the asset base for the next price control period. The elements to be addressed include an examination of the initial value of the company, an assessment of how that value should be allocated across different businesses of the company, the case for an uplift to that value and finally an analysis of the depreciation policy which is to be applied to assets. These are important areas where mistakes were made by all parties at the time of the last review. Ofreg believes that a thorough review of these issues can provide a sustainable basis on which all NIE's businesses can move forward into the future.

The approach adopted by the MMC

Assets Acquired at Flotation

5.63 The MMC advocated using the same approach which Ofreg had used, namely the Initial Market Value (IMV) rolled forward approach. This methodology takes the acquired assets at privatisation based on their IMV value and rolls them forward to the start of the next price control period by adding those assets which were accumulated, and allowing for depreciation on all assets. The overriding argument for using this approach was the logic of rewarding investors on the basis of what they were prepared to pay for the company at the time of flotation. This is often below what the company has calculated as the CCA asset base. The CCA asset base must of course be the CCA asset base net of receipts such as customer contributions for connections or grants by public bodies.

5.64 Opex and Capex were addressed by the MMC on a cash basis. This approach allows the return for investors to be considered in terms of discounting the closing asset valuation by the appropriate cost of capital and comparing the shortfall of this value

[9] MMC : Northern Ireland Electricity plc : A report on a reference under Article 15 of the Electricity (Northern Ireland) Order 1992 : March 1997 : para 2.84

with the opening asset valuation. The closing value being after adding new investment net of depreciation.

5.65 The first task was to establish the Opening Value or IMV. Trading in NIE shares commenced on 21 June 1993 and the closing price on that day was 126.5 pence compared to the first instalment of 100 pence. This represented a premium of 26.5 %. However, only the first instalment of shares was paid for. The MMC factored in the second instalment using a discount rate of just under 6%. It was also necessary to account for cash balances and short-term debt and investments. Taking into account all theses factors, the MMC calculated that the market value of the company at the close of the first day of trading to be £381.3m (all 1993/94 prices).

5.66 The NIE share price went to an immediate premium in the market in comparison to the electricity sector. However, thereafter, the price more or less tracked the index. The MMC took the view that this suggested that the relevant price was the immediate price in the market i.e. the first day of trading. The movement subsequent to this would appear to be an index tracking movement.

The case for an uplift

5.67 NIE argued that there was a case for a further uplift for the purpose of calculating the IMV. Ofreg saw no case for a further uplift and believed that investors should be remunerated on the basis of what they had actually paid.

5.68 If an uplift is applied and is set at the wrong level then customers will be penalised because the company is allowed to earn a return on an unjustly inflated asset base. Moreover, unless something is done to rebase the asset base, this extra penalty on customers will continue not just for one year or one price control period but for the duration of the asset lives – up to 40 years.

5.69 Ofreg argued that investors would have been well aware of the level of efficiency savings that could have been achieved and would have assessed NIE in the light of what had been learned in earlier privatisations. The MMC argued that it was difficult to reach definite conclusions on what investors must have thought. They stated that the arguments for an uplift are inevitably a matter for judgement rather than precise calculation.

5.70 Nevertheless the MMC decided to give the company an uplift of 7.5% on its IMV for the second price control period without any in-depth explanation of its reasoning. Indeed the marginality of the MMC's decision was demonstrated by their statement that this was "a matter of judgement" and that their judgement was limited to the price control period. What happens after RP2 is an open question. This uplift has cost customers an extra £10m approximately to date and, whatever the argument in 1997, it is difficult to see any case for continuing to impose this additional burden of about £2m per annum on customers for the next 30 years.

The Allocation of Market Value between Businesses

5.71 Once the value of the assets is calculated it is necessary to allocate the market value between the various businesses in NIE. Several methods for allocation were investigated at the time of the last price control. The MMC defined an 'unfocused' approach as the allocation of values pro rata to the CCA net asset values for the various businesses and applying the Market Asset Ratio (MAR) in each case. Ofreg used a variant of this approach. The 'focused' approach was to assess the value of the businesses other than T&D by reference to the future cash flows which investors might have expected and to assume that the residual figure needed to make up the total for NIE is the value of T&D.

5.72 Taking the CCA value of each of the constituent businesses and applying the MAR at flotation yielded implausible results. In particular it assigned a negative value to the PPB which was profitable and a positive value to the Retail business which was incurring losses.

5.73 To overcome these problems the Director General gave a zero value to all other businesses, a £1m value to the PPB and apportioned the remainder of the IMV between the T&D and Supply businesses- £332m and £40m respectively.

5.74 The MMC also addressed the issue of allocating the IMV (plus uplift) to the different NIE businesses. In its deliberations it thought that the £1m which Ofreg had allocated to the PPB business to be too small given the profitability levels which the company was achieving It regarded £5m to be a reasonable, indeed cautious, estimate of the value of PPB's business at flotation. On a similar basis it valued the Supply business at some £35m and applied a zero value to all other businesses. This approach left £370m as the value to be ascribed to the T&D business.

5.75 At the time of the last price control NIE's company structure was such that certain functions such as telecommunications, information systems, property and transport were managed separately and called profit centres by NIE. However, when the total asset base was allocated between NIE's separate businesses there was no attempt to ascribe an asset value to these profit centres either by Ofreg or by the MMC. The MMC in one hand stated that the capital employed in these centres is not included in the asset base of the T&D business while on the other hand they concluded that their functions could exist as profit centres while still forming part of the regulated T&D business. However, the MMC expressed concern that their existence outside T&D might reduce transparency and make the process of regulation harder. The MMC suggested that the DG should keep the matter under review.

5.76 The activities of the profit centres were detailed by the MMC as follows:

- *Telecommunications*. This centre provides a wide range of communications services for the various businesses within NIE. The service makes use of both public and private telecoms networks and the tariff structure for the services depends upon the type of services, for example stand alone or global shared resource.

- *Information systems*. This centre provides information technology services to NIE, for example project management, software procurement and development, system integration, operation of hardware and software support.

- *Training and conferences*. This centre is responsible for implementation of NIE's training policy and also offers conference and accommodation services. NIE told the MMC that the centre provided services to a number of outside organisations as well as its own businesses.

- *Transport*. This centre provides cars, commercial vehicles and mobile plant for use throughout NIE, together with fleet management, repairs and servicing, and transport advice.

- *Civil projects*. This centre provides civil engineering, architecture and quantity surveying services to extend and maintain the property portfolio and the T&D network infrastructure and to manage NIE's environmental responsibilities.

- *Culcavy*. This centre provides a warehousing, storage and delivery system for engineering materials to meet the needs of NIE's capital and maintenance programmes, together with the warehousing of electrical appliances for the Retail Business

5.77 The turnover from these activities plus some miscellaneous income rose from £7 million in 1992/93 to £24 million in 1995/96. Profits amounted to some £3.4 million in 1995/96.

5.78 It appears anomalous that a detailed apportionment of some parts of the regulated business was carried out while other parts were ignored. NIE did however identify a valuation for the different profit centres and these values were made known to the MMC. However, they were not taken into account in the allocation of assets between the various businesses. While Ofreg, NIE and the MMC all looked at this issue of the allocation of the market value between businesses it is clear that the position of the NIE profit centres and the asset allocation to these was not carried out with due diligence. Ofreg believe that this review provides an opportunity to carry out this exercise and set out in a clear and precise manner the basis on which these businesses should move forward into the future.

5.79 During the current regulatory period a holding company Viridian has been formed. NIE now operates all regulated activities of the group. Viridian Capital, a sister company to NIE, has been set up to develop non-regulated businesses. Viridian Capital Limited operates a new group of companies all established during the current regulatory period. Most if not all of these companies were formed out of the above mentioned profit centres.

5.80 The new companies and activities can be listed as follows:

- *Telecommunications* as detailed above became the nucleus of **Nevada tele.com** (a joint venture with Energis). The assets transferred from T&D to Nevada and employed in this business are the subject of ongoing discussions with Ofreg;

- *Information systems, training & conferences and Culcavy (stores*) formed the foundation for **Sx3**. This has since gone on to be a very successful company within the Viridian Group with a turnover in 2000/01 of £108.7 million and an operating profit of £13.5 million. External revenue increased to £83.7 million. By difference therefore £25 million or 23% of turnover must have been generated internally from the group mainly NIE T&D and Supply. This turnover is generated from the provision of IT services, purchasing, central stores and training.

- *Transport and property* – ***Open + Direct***; Open + Direct has grown rapidly from the last Price Review to employ 350 people and post profits of £13.3 million in the year to 31.03.01. The business is described as having two main divisions: consumer Financial Services; and Asset Management comprising Fleet Solutions and Property. While it is accepted that the Financial Services division is a new stand alone business the Asset Management division has been developed from NIE assets and activities.

5.81 The privatised assets of NIE plc included a substantial portfolio of property some of which are detailed in the Offer for Sale – Prospectus section IV paragraph 12 - Principal Establishments. It is obvious from the prominence afforded to the list of properties, in the prospectus, many in prime locations, that prospective shareholders would attribute a value to these properties. It is not therefore unreasonable to assume that the value of the company as determined by the MMC, based on share price, included an element in respect of the property portfolio.

5.82 NIE has notified Ofreg of five properties that have been transferred from T&D and offered an adjustment in favour of the RAB calculated by reference to their CCA value at privatisation. These properties did not rank as principal establishments and therefore were not included in the prospectus. The RAB adjustment NIE has offered to make is in Ofreg's view unacceptable. Ofreg believes that the transfer value of these properties should be based on an actual commercial valuation of the properties and not the written down CCA value. In addition the Retail Business which was allocated a zero value for the 1997 price control was partly sold off disclosing a positive value.

5.83 There clearly have been other significant property transactions involving some of the principal establishments as listed in the prospectus most notably the Danesfort complex on the Malone Road Belfast. The latest annual report of Viridian states that the Asset Management division made good progress in a property Joint Venture with Morrisons on the Danesfort site, with Phase 1 complete and Phase 2 due to start in the coming months. In addition, 33,000sq.ft. in the redeveloped Danesfort headquarters has been leased to a local financial institution. It has to be acknowledged that the government put in place a claw back provision, in the prospectus, whereby government was entitled to 50% on any profits from the disposal of property up to

2003. However the question still remains should the value of this property, not used by the T&D business, be removed from the asset value of the T&D business?

5.84 In assessing the situation one might therefore ask how a rational investor might have viewed the value of the portfolio of properties as listed in the prospectus. An investor could reasonably have expected that the value of these properties would have a positive influence on the value of the company. This being the case it does not seem unreasonable to assume that the value of any property not used for T&D purposes should be removed from the T&D regulatory value.

5.85 The asset management division also deals with vehicle leasing. What was the transfer value of vehicles in the NIE fleet on the establishment of this unit? While it is accepted that vehicles have a short life and loose value quickly the overall fleet within NIE had significant value. There is no reference in the MMC report to any adjustment being made for their removal.

5.86 **Powerteam**. This is a new company created by NIE since the last price review and unlike the ones mentioned above did not develop from a pre existent profit centre. Powerteam provides network services and electrical contracting to NIE and external customers.

5.87 Although set up to serve NIE and external contracts it is heavily reliant on NIE. On a turnover of £23.6 million in the year to 31.03.01, 88% or £20.8 million was earned from contracts with NIE.

5.88 In an attempt to make a rational judgement on the value of assets and people transferred from NIE T&D to the new companies one has to ask the question could any company or individual with an entrepreneurial bent have formed SX3, Open + Direct and Powerteam and secured contracts with NIE T&D. If the answer is no, then NIE/Viridian clearly had an advantage based on one or more of the following (a) Assets; (b) contract opportunities; (c) trained personnel; and (d) goodwill. If the answer is yes then the cost of setting up this entity and winning this contract would need to be taken into account.

5.89 In addressing the concerns of the MMC and fulfilling my obligation to keep the matter of the profit centres under review I feel there is a clear case for revisiting this area. The question which needs to be asked is has NIE been able to use assets/resources, which are being paid for by customers through the RAB, to build up unregulated businesses and unregulated profits? Ofreg therefore has to decide if any value has accrued to non-regulated businesses from:

- the allocation of assets previously part of NIE;
- the movement of trained and experienced personnel from NIE to the new entities;
- the award of non market tested service contracts; and
- goodwill.

If it is proven that these companies have gained an advantage Ofreg will have to decide what course of action would be most appropriate to ensure that customers share in these gains.

Asset Lives and Depreciation policy

5.90 Through wear and tear the value of assets is reduced over time. This depreciation represents a cost to the company and the regulator must allow the company to meet its costs. Thus the company receives an allowance in its cash account each year based on the depreciation profile of its assets.

5.91 The effect on the allowed revenue which the company can raise each year will therefore be affected by the depreciation policy which is adopted. Two types of assets have generally been assessed to have different depreciation profiles. These are firstly, those assets which the company acquired at privatisation, (pre-privatisation assets) and those which the company has invested in since (post-privatisation assets).

5.92 A 'Kinked' 40-year depreciation policy was commonly used throughout the UK distribution sector of the electricity supply industry. NIE had adopted this approach for post-privatisation assets. The policy was to depreciate the bulk of T&D assets over 40 years but at a rate of 3 per cent per annum for the first 20 years and 2 per cent per annum for the next 20 years rather than a straight-line rate of 2.5 per cent. The MMC endorsed this approach at their review.

5.93 The treatment of pre-privatisation assets was different. At the time of privatisation no explicit depreciation policy had been set. In 1996 Ofreg and NIE agreed a depreciation profile for pre-privatisation assets. It was agreed that it was reasonable to assume that the remaining lives of the pre-flotation fixed assets was 18.5 years at the time of flotation. This was consistent with the fact that, under NIE's depreciation policy, most of the T&D assets were depreciated over 40 years and that it was assumed that, on average, the pre-flotation assets were halfway through their useful lives. This treatment was also consistent with the approach adopted by Ofgem and the RECs in GB. Ofreg did not carry out any analysis of whether 18.5 years was a reasonable or desirable figure for pre-privatisation depreciation in the specific case of NIE.

5.94 The MMC argued persuasively that this methodology was not appropriate because it entailed a sudden fall in depreciation charge at the end of the 18.5-year period, when all of the pre-flotation assets would drop out of the asset base. The MMC decided that the 18.5 year figure was not a true reflection of the remaining lives of the pre-flotation assets and decided to adopt a 40 year profile.

5.95 The graph above shows the original pre-privatisation asset depreciation profile and the new profile which the MMC adopted

5.96 The MMC examined the revenue differences which the two alternative depreciation profiles would have produced since privatisation. They concluded that the established 18.5 year policy would have not allowed NIE the same revenue in the first five years since privatisation as their new policy proposal. They calculated the shortfall to be £25 million. They suggested that NIE should be allowed to make up this shortfall in

the second price control period rather than spreading it evenly over the whole of the remaining lives of the assets concerned.

5.97 This suggestion was never discussed with, never mind agreed, by Ofreg. The MMC's change in depreciation profile meant that customers paid £25m more in the years 1997 to 2002 than they would otherwise have done.

5.98 It is now apparent that Ofreg was mistaken in 1996 in its initial 18.5 year pre-flotation asset life approach to depreciation. While no explicit depreciation revenue had been identified in the first price control period, it seems reasonable to assume that the original post-privatisation price control did allow NIE sufficient revenue to account for depreciation. At no stage during RP1 did NIE claim that there was an inadequate depreciation allowance in their price control. On the contrary the evidence of RPI points to NIE being fully compensated for depreciation.

5.99 This review of the price controls needs also to address the question as to whether the MMC was correct or not when it changed the agreed depreciation profile and whether its assessment that the company was entitled to £25m from customers. The MMC assumed that under its new profile that customers paid too little in the first price control period and that the company could charge this £25m over the five years of the second price control period. Ofreg has undertaken an analysis of the effect of the MMC's depreciation profile and the results show that it is possible that customers actually paid too much in the first period. While there is no intention on Ofreg's part of re-opening the first Control Ofreg would not accept that a regulated utility is entitled to receive the same depreciation charge twice.

Issues for Consultation

5.100 Views are sought from interested parties on the following issues which have been addressed in this chapter:

- The cost of debt and equity finance in the cost of capital estimation;
- Whether the historic treatment of NIE's approach to gearing and its capital structure is appropriate to best serve the company's customers;
- Whether the previous approach to valuing privatisation assets has been correct given that the burden of past mistakes will fall on customers: in particular whether it was and remains appropriate to apply an uplift to the initial market value of the company;
- Whether, in the light of subsequent information, the earlier allocation of market values between businesses properly reflected the real contribution of each component of the privatised utility to the company's value at privatisation; and what adjustments need to made to account for market values of different companies given the change in status of many of these companies since the last price control review;
- The most suitable approach to calculating depreciation profiles in the next price control period.

6. Issues

This paper covers the initial review of NIE's T&D Business. It presents my initial thoughts on the key areas that will shape the outcome of the new price control. This paper takes a systematic walk through the NIE business with a view to:

- understanding and investigating the costs which the T&D business faces;
- benchmarking its performance to similar businesses in other regions and countries;
- reviewing its performance in relation to previously published targets; and
- identify the issues that require further investigation and consultation prior to publishing my initial proposals.

The following is a summary of the key issues raised in each chapter of the document.

Review of NIE's T&D Business (Chapter 1)

The first chapter or introduction in setting the scene deals with the divergence in costs between NI and GB. The fact that T&D costs will be higher in some regions than others is not in dispute. There are significant variances within the GB regions.

The concern is not about the existence of a cost gap. It is that the gap has widened from 17% to 44% in a very short space of time. It is the cause or causes of divergence not the existence of a price gap, that is the central issue, which needs to be addressed in this price control review.

Strategic Energy policy Issues (Chapter 2)

This chapter examines the possibility of the T&D business becoming more pro-active in managing change in the way that customer needs are met in the future.

Views are invited on the following issues raised in chapter 2:

- Should there be additional incentives on the company to manage peak demand such that the company would seek to persuade and assist customers and suppliers to reduce demand at peak and or re-allocate load to other times of the day?
- Should renewables be subject to a slightly lower Distribution Use of System (DUoS) charge on the grounds that they only use part of the system?
- Should NIE's T&D business have a licence obligation to assist and facilitate the necessary transformation – for example by preparing an annual report, by providing professional guidance to potential producers or interested customers or by making recommendations to government departments.
- Should the company be enabled to manage changes necessary to adapt to a radically different post 2010 energy world.

Operating Costs (Chapter 3)

Views are invited on any aspect of the issues relating to transmission and distribution operating costs, and in particular on:

- NIE's forecasts of operating costs over the period 2002/03 to 2006/07 in the light of movements in actual costs between 1996/97 and 1999/2000 and forecast costs between 1999/2000 and 2001/02 and NIE's previous forecasting record;

- the approach to adjusting operating costs for capitalisation policy, allocations, attributions and recharges;
- the treatment of exceptional, one-off and non recurring costs;
- the evaluation of base maintainable costs in 1999/00;
- the overall approach adopted by PKF to assessing costs and relative efficiency; and
- the appropriateness of comparing NIE's costs with those of the other PESs.

Capital Expenditure (Chapter 4)

There has been significant divergence of NIE's behaviour with respect to capital expenditure in the present price control period, with that proposed both by NIE and the MMC. An important feature of this review will be how to deal with these divergences. Another feature of this review will be the size of the capital expenditure program undertaken by NIE both in the second price control period and the projected program for the third period. Our views on the above must be consistent with our objective of encouraging NIE to provide a given level of quality of service at the lowest possible cost. Views are invited on any aspect of the issues raised in chapter 4, and in particular on:

- the extent to which past underspends can be justified on the basis of efficiency savings or relate to mis-forecasts or changes in factors outside companies' control;
- the extent to which capital expenditure has been unnecessarily high or inappropriate in the present price control period;
- whether the company's 2000 forecasts can be expected to reflect underlying needs taking into account experience in the present price control period;
- the extent to which the company has distorted the phasing of capital expenditure programmes and what should be done about this;
- determination of appropriate levels of load-related expenditure for the forthcoming price control period;
- determination of appropriate levels of non-load related expenditure for the forthcoming price control period; and
- in determining the above, the extent to which longer term considerations of asset replacement or possible deterioration in quality ought to be included in considerations of capital expenditure;
- the scope for sharing the savings from back-ending between customers and shareholders by penalties for slippage in Capex or for allowed revenue assuming the back-ending practised to date.

Financial Issues (Chapter 5)

Views are sought from interested parties on the following issues which have been addressed in chapter 5:

- The cost of debt and equity finance in the cost of capital estimation;
- Whether the historic treatment of NIE's approach to gearing and its capital structure is appropriate to best serve the company's customers;
- Whether the previous approach to valuing privatisation assets has been correct given that the burden of past mistakes will fall on customers: In particular whether it was and remains appropriate to apply an uplift to the initial market value of the company;
- Whether, in the light of subsequent information, the earlier allocation of market values between businesses properly reflected the real contribution of each component of the privatised utility to the company's value at privatisation; and what adjustments need to made to account for market values of different companies given the change in status of many of these companies since the last price control review; and
- The most suitable approach to calculating depreciation profiles in the next price control period.

It would be helpful to hear from all those with an interest in these issues, including customers, their representatives and other interested groups, as well as the company. Views are invited by 28 December 2001 on matters raised in this paper. Responses should be sent to:

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