ASSET ACCUMULATION AND ITS EFFECT ON NIE's TRANSMISSION AND DISTRIBUTION PRICE CONTROL

A consultation paper by
the Director General of Electricity Supply for Northern Ireland

November 2000

INTRODUCTION

This paper is the second in a series of consultation papers published as a contribution to informing the process leading to the introduction of a new price control for NIE's Transmission and Distribution Business from 1 April 2002. The purpose of this paper is threefold:

(i) to set out the evidence that investment in T&D in Northern Ireland is occurring at a much faster rate than in GB;
(i) to outline the effect of this on price differences with GB regions over the next 40 years under the prevailing industry arrangements for financing capital expenditure; and
(ii) to establish if the higher levels of expenditure that customers in Northern Ireland are having to pay for is enabling Northern Ireland to "catch up" with Great Britain in terms of the quality of its electricity supply.

These three objectives are tackled below in Parts (2), (3) and (4) after a brief summary of the background to these issues.

For the transparency of the process, it is desirable to have the proposed control discussed in as public a way as possible and the facts - on which judgements will in due course be made - clearly stated and open to challenge and scrutiny. Indeed the implications of the figures reported in this paper are so alarming that it is essential that they are subject to the most robust challenge. Ofreg would therefore welcome views on the three areas highlighted above and in particular on the methodology employed in arriving at the figures quoted. However it is not the purpose of this paper to seek to explain why Northern Ireland has a higher level of per capita expenditure on the transmission and distribution of electricity, nor to express an opinion on whether a higher level of expenditure is desirable. Finally it is not the purpose of the paper to propose measures for countering the price divergence which a trend of higher capital investment would cause.

BACKGROUND

The electricity industry is a capital intensive industry. This is particularly true of the parts of the industry which are engaged in the Transmission and Distribution of electricity. In order to transport electricity from the power station to the customer Transmission and Distribution networks are required. Transmission is concerned with the transporting of large quantities of electricity at high voltage from the power stations to the localities in which it will be consumed. Distribution is concerned with taking the electricity off the transmission system and delivering it at lower voltages to final customers. While in England and Wales Transmission and Distribution are handled by separate companies, in Northern Ireland they are both part of a single NIE Transmission and Distribution Business referred to hereafter as T&D. There may be separate price controls for NIE Transmission and NIE Distribution in 2002 but for the purposes of this paper NIE T&D will be treated as a single entity.

Any T&D Business is required to invest in equipment such as wires, substations, transformers, and pylons if it is to deliver electricity from power stations to customers. Together these assets form the T&D business's Regulatory Asset Base (RAB). A T&D Business must be allowed to raise from customers sufficient money to pay for past investment, finance new investment and cover its operating costs. At present the cost of servicing the RAB accounts for about 44% of the

NIE T&D Business allowed revenue.[1] If no new investments were made this percentage would remain static.[2] In the very long term (over 40 years), with no new investment, the RAB will equal zero as assets are completely depreciated away.

However over time new assets are added as assets come to the end of their working lives and as additions are needed to handle demand growth. The latter factor is significant. The number of kilowatt hours of electricity sent out from power stations has grown from around 6,500 million in 1990/91 to around 8,200 million last year and is predicted to exceed 10,000 million by the end of the decade. The T &D system also has to become more efficient with time - that is to reduce the number of units which are "lost" en route. Losses have declined from around 10% in 1992 to around 9.5% now. Reduced losses represent an important fuel saving and consequently an environmental gain in reduced pollution. If the reduction of losses from 10% to 9.5% had not been achieved a further 40 million units of electricity would have to be produced which this year would mean 4.5 million therms of gas at a cost of £0.9 million with an additional release of approximately 30,000 tonnes of CO_2 into the atmosphere.

The quality of the T&D network not only affect losses, it also affects the quality of the supply which customers receive - its reliability, the number of minutes lost by interruptions, its ability to perform in bad weather conditions, the voltage level and number of faults per one hundred kilometres of distribution system. However as with most purchasable goods or services T&D systems can deliver electricity at a given quality of service for a high cost or low cost. A regulator carrying out a price control must ask if the system represents value for money.

Regional cost variations

In assessing whether a particular T&D system represents value for money a regulator may have regard to the quality of supply achieved by other T&D systems for given costs. Of greatest importance in this regard is the performance achieved by other T&D systems in the United Kingdom. As the regions of the United Kingdom vary considerably in topography, size, population density and degree of urbanisation it is inevitable that the cost of transporting a unit of electricity should also vary from one region to another.

At one extreme the region supplied by Scottish Hydro Electric which includes the northern part of Scotland, the Hebrides, the Orkneys and Shetlands, covers one quarter of the entire land mass of Great Britain but contains only 2% of Britain's population and has 54 kms of overhead line per 1,000 customers. At the other end of the scale London Electricity supplies an area which occupies 1.25% of the supply area of Scottish Hydro but has 3.25 times as many customers and only 52 kms of overhead wire altogether. Northern Ireland fits into this pattern of regional

[1](On average the cost of servicing the RAB in GB companies is smaller and accounts for 46% of a smaller allowed revenue).

[2]The cost of servicing the debt would remain flat in cash terms as depreciation on the RAB is offset by the uplift in regulatory assets due to RPI inflation. Operating costs will remain flat in cash terms assuming efficiency savings offset inflationary RPI rises year on year with no unit growth. Therefore, over the longer term NIE's revenue assuming no unit growth (and no new investments) would also remain fairly flat in cash terms given the application of RPI-X where the increase in revenue due to RPI inflation (assuming it remains at current low levels) is mostly offset by the X factor.

variation. It has a predominantly rural distribution network with around 45 kilometres of overhead wire per 1,000 customers. It is the eighth largest by area of the 15 electricity regions in the UK and the second least densely populated next to Scottish Hydro.

As has been noted the configuration and density of the T&D network is a response by the electricity utility to the pre-existing distribution of population and economic activity. As such it has been determined by the long term factors which shape the pattern of human settlement. In some part therefore regional variations in the electricity bill reflect not only geological forces stretching over millions of years but also the more recent economic forces which from the industrial revolution of the mid Victorian period led to the pattern of cities, towns, villages and rural living that we know today.

It is however difficult to be categoric about the reasons why electricity should cost more to deliver in one region than another. There does not appear to be a strong relationship between any one of the more obvious factors such as population density, demand per customer and area which would suggest that certain factors such as low density and low demand per customer lead automatically to higher costs per unit for the transmission and distribution of electricity. There is certainly no single overriding cost driver and it seems likely that historic factors such as earlier depreciation policy, the varying quality of management, planning and efficiency in operation will have had an effect on relativities.

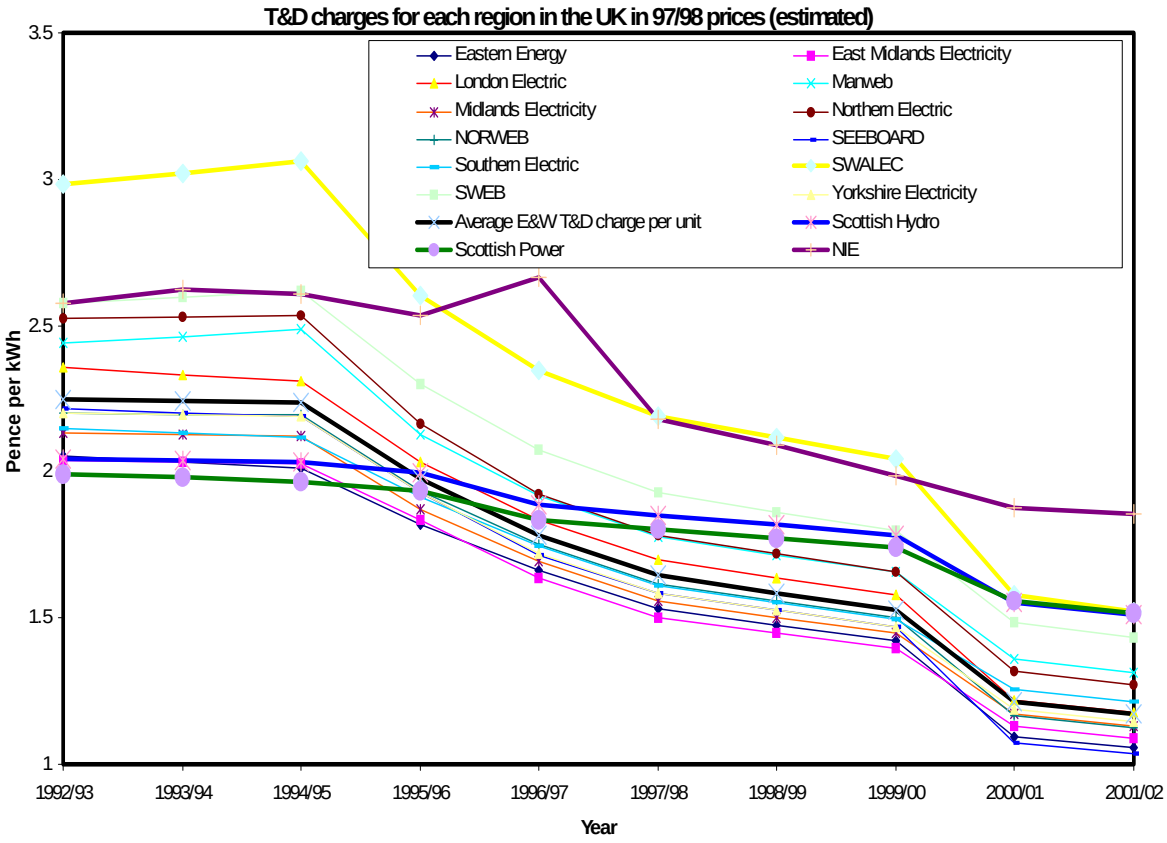
It is clear however that the incurrence of higher costs in the transmitting and distribution of electricity has clear implications for regional price variations. These implications are long lasting as it is clear from Graph 1 overleaf that T&D price relativities between regions do not change quickly over time. This shows that although the regions' ranking in 2000 is much the same as it was in 1992[3] Northern Ireland has, since the privatisation of the electricity supply industry, become the unique example of divergence from the trend of long term stability in the relative position of each of the regional electricity systems. This divergence has had a significant impact on electricity price divergence between Northern Ireland and Great Britain as the cost of T&D represents about 29% of the average Northern Ireland electricity and about 40% of the average domestic customer's bill for 2000/01. Indeed prices in Northern Ireland are now significantly higher relative to prices in Great Britain and given the current industry conventions for financing capital investment in T&D this price divergence will last for 40 years.

The Methodology employed

It is clear from the above that the incurring of relatively high costs in the transmitting and distribution of electricity has clear implications for regional price variations. In assessing the

[3] The exceptions are the two Scottish companies which, having been subject to tougher price controls at privatisation, have followed a different profile. In the case of Scotland, the surprise is not that Scottish T&D costs are now higher than England's but that they were ever lower given that by 1994/95 the T&D asset base in Scotland was 22% of the T&D asset base in England and Wales but the number of Gigawatt Hours used in Scotland were only 11% of the total consumed in England and Wales.

GRAPH 1



reasons for these higher costs it is instructive to examine as this paper sets out to do NIE's investment in the T&D regulatory asset base relative to that of comparator companies in Great Britain. The analysis undertaken below is complex and detailed involving the examination over a ten year period of the asset bases (RABs) of NIE, the National Grid Company (NGC), twelve Distribution companies (RECs) from England and Wales and two Transmission and Distribution companies from Scotland. **It should be borne in mind that the attributions of any figure to NIE's RAB is indicative and should not be taken as an endorsement by Ofreg of this figure.**

The methodology employed is simple: it is to take the value of the physical assets employed by the companies for the transmission and distribution of electricity at different points in time and to compare the quantity of assets (RAB) each company employed to transport a single unit of electricity (a kilowatt hour) from the power station to the customer at these points in time. The results are expressed in pence per kilowatt hour (pence per kWh) and the growth of assets and the level of assets on an absolute and on a pence per kWh basis are compared over time.

Over time the RAB changes as the RAB inherited by the companies at privatisation is depreciated and new assets are added. The rate at which assets are depreciated affects this rate of change and different approaches have been taken to the depreciation of pre- privatisation assets by different companies and regulatory authorities. Over time the number of units transported also changes. In all cases it has grown but at different rates. The rate of growth has been higher in Northern Ireland than in Great Britain. Clearly a higher growth rate - all else

being equal - would result in a fall in assets per kWh and thus costs relative to other regions.

Therefore, to make the comparison meaningful three major adjustments have to be made. In England and Wales transmission is carried out by NGC whereas in Northern Ireland and Scotland transmission and distribution are carried out by the same company[4]. In the methodology employed the costs of transmission have been allocated pro rata to total demand for each region. This almost certainly results in the real asset cost for the peripheral regions of England and Wales - which are those most like Northern Ireland - being understated and the costs of regions which are closest to generation being overstated. However NGC's RAB has fallen in value so while allocating more of its cost to the remoter regions would raise their opening costs it would also reduce their rate of asset growth.

It might in any event be argued that since most of the NGC cost for the peripheral regions is external to those regions most of the NGC cost should be ignored - since Northern Ireland does not at present have any external transmission costs to bear.

The second major adjustment is to take out the effect of different growth rates. It is the rate of change per unit that we are seeking to establish.

The third adjustment made is to take into account the effect of different depreciation policies on pre-privatisation assets and the different age of assets in the RAB which each company inherited at privatisation. As a sensitivity check two further factors are then examined. These are the differences in charging policy for new connections and the different dates of privatisation.

After establishing the relativities which point to NIE building up its RAB at a rate which increasingly diverges from GB the effect on long term price divergence is examined.

Finally, network performance is looked at to see if customers are receiving benefits in terms of an improving quality of supply relative to other regions from a high rate of growth in the T&D RAB.

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It should be noted that in E&W, Transmission occurs at 400 kV and 275 kV and Distribution occurs at 132 kV, 33 kV and 11 kV and below; in Scotland, Transmission occurs at 275 kV and 132 kV and Distribution occurs at 33 kV, 11 kV and below; in NI, Transmission occurs at 275 kV and 110 kV and Distribution occurs at 33 kV, 11 kV and below. However the difference in Transmission and Distribution voltages between jurisdictions is not important when percentage changes in assets are being compared as it is the rate of capital accumulation which is being compared. This paper in any case also combines Transmission with Distribution to compare asset growth. In addition when comparing the level of prices and the level of assets for individual company comparisons, Transmission and Distribution is combined to give a T&D figure for assets per kWh and T&D charge per kWh for each individual E+W and Scottish company when compared to NIE T&D Business to ensure a totally consistent comparison of NIE with the individual GB RECs and Scottish PESs.

PART I

The Evidence

(1) Transmission and Distribution treated separately for E+W

The RAB of Transmission and Distribution in England and Wales (E+W), Scotland and Northern Ireland (NI) is given in Table1 below. Data for NI relates to the RAB for Transmission and Distribution (T&D) combined, that is the asset base of NIE's T&D Business. The figure for the Transmission RAB in E+W relates to NGC. The Distribution RAB in E+W equals the sum total for all of the REC Distribution Businesses. The figure for the Transmission RAB and Distribution RAB in Scotland equals the Transmission and Distribution asset base of Scottish Hydro Electric (SHE) and ScottishPower (SP) added together respectively. Figures are quoted in 1997/98 prices and the RAB is quoted for two years, namely 1994/95 and 2001/02. The year 2001/02 was chosen as this is the last year of the current NIE price control for T&D.

Table 1: Regulatory Asset Base Estimates (£ million, 1997/98 prices)

At year end	1994/95	2001/02		Increase	
England and Wales					
NGC Transmission	4508	4235		-6.1%	
REC Distribution	8338	9335		+12.0%	
Scotland					
Transmission	871	742		-14.8%	
Distribution	2016	1920		-4.8%	
Northern Ireland					
NIE Transmission & Distribution		445	632		+42.0%

Source: Ofgem, and MMC.

All figures are end year 1994/95 and 2001/02.

The data above indicates that NIE has been investing at a considerably higher rate compared to either the RECs, NGC, or the Scottish Transmission or Distribution companies over the period 1994/95 to the end of its current price control at year 2001/02. For example, NIE is investing three and a half times faster than the RECs in Great Britain (GB), as measured by the increase in its RAB. By comparison NGC's RAB is forecast to fall by 6% real over the period. In Scotland both the Transmission RAB and Distribution RAB are falling in real terms.

(2) Transmission and Distribution combined

When comparing the projected RAB of NIE's T&D Business with the GB utilities it is necessary to combine the RAB of the RECs with NGC for E+W and combine Scottish Transmission with Distribution to get a better comparison of "like with like". The results shown in Table 2 indicate that as a combined activity NIE is investing seven and half times faster than Transmission and Distribution in E+W combined. Furthermore the combined T&D RAB for Scotland is forecast to fall by around 8% real.

Table 2: Regulatory Asset Base Estimates for Transmission and Distribution combined (£ million, 1997/98 prices)

At year end	1994/95	2001/02		Increase
England and Wales				
NGC Transmission and REC Distribution	12846	13570		+5.6%
Scotland				
Transmission and Distribution	2887	2662		-7.8%
Northern Ireland				
NIE Transmission & Distribution		445	632	+42.0%

Source: Ofgem, and MMC.

All figures are end year 1994/95 and 2001/02.

Although the results in Table 2 are presented on an aggregate basis for each jurisdiction it is more useful to look at individual companies to examine if:

- NIE’s exceptionally high growth is matched by any of the individual RECs or Scottish Companies; and
- to identify the drivers of NIE’s faster than average RAB growth.

(3) Individual company results

The RAB for each individual REC Distribution company in E+W, NGC, the individual Scottish Transmission and Distribution companies and for NIE’s T&D Business is shown in Table 3 overleaf.

Table 3 shows that the exceptionally high growth of NIE’s RAB of 42% over the period from 1994/95 to 2001/02 is not matched by any of the individual RECs or Transmission companies in the rest of the United Kingdom. Indeed the results for NGC indicate a small projected fall in its RAB of 6% to 2001/02. Scottish Hydro Transmission and Distribution RAB is projected to grow by 6% and 18% respectively whereas ScottishPower Transmission and Distribution is projected to fall by 22% and 14% respectively.

Table 3: Regulatory Asset Base Estimates for the individual companies (£ million, 1997/98 prices)

At year end	1994/95	2001/02	Increase
England and Wales:			
NGC	**4508**	**4235**	**-6.1%**
Eastern	924	1090	+18.0%
East Midlands	892	887	- 0.6%
London	730	872	+19.5%
Manweb	567	630	+11.1%
Midlands	801	853	+ 6.5%
Northern	471	514	+ 9.1%
Norweb	651	739	+13.5%
Seeboard	500	495	- 1.0%
Southern	1118	1332	+19.1%
Swalec	407	501	+23.1%
Sweb	559	651	+16.5%
Yorkshire	718	771	+ 7.4%
E+W Distribution	**8338**	**9335**	**+12.0%**
Scotland			
Hydro Transmission	211	224	+ 6.2%
ScottishPower Transmission	660	518	-21.5%
Scotland Transmission	**871**	**742**	**-14.8%**
Hydro Distribution	609	716	+17.6%
ScottishPower Distribution	1407	1204	-14.4%
Scotland Distribution	**2016**	**1920**	**- 4.8%**
Northern Ireland			
NIE Transmission & Distribution	**445**	**632**	**+42.1%**

Source: Ofgem, and MMC.

All figures are end year 1994/95 and 2001/02.

(4) Drivers for NIE's faster RAB growth

There are three drivers of NIE's faster RAB growth:

- NIE is investing at a much faster rate than the rest of the UK.
- NIE is currently depreciating its pre-privatisation assets at a much slower rate than the rest of the UK.
- Electricity demand growth and in particular peak demand growth is growing faster than the rest of the UK. Demand growth in the UK has averaged under 2% whereas in Northern Ireland it has been around 3% per annum.

The high rate of investment in relation to the size of its asset base explains the faster growth of the RAB of Eastern, London, Southern and SWALEC and NIE. However, NIE's higher rate of investment is then aggravated by a lower rate of depreciation on privatisation assets and the need

for higher investment to meet a higher demand growth.

(5) Removing the impact of unit growth

In order to examine further the higher growth of NIE's RAB it is useful to remove the effects of the factors influencing growth in the overall RAB, starting with unit demand growth. The results of a comparison of the RAB per unit between NIE and the GB companies is shown in Table 4 below. A comparison based on RAB per unit allows for a consistent and more relevant comparison given that the RAB per unit determines the amount which each Transmission and Distribution company can charge and therefore affects the price charged for use of the Transmission and Distribution system in NI and GB.

Table 4: Regulatory Asset Base Estimates Per Unit Distributed for the individual companies (pence per kWh distributed, 1997/98 prices)

At year end	1994/95	2001/02	Increase
England and Wales:			
Transmission: NGC	**2.00**	**1.68**	**-16.0%**
Eastern	3.19	3.23	+ 1.3%
East Midlands	3.73	3.33	- 10.7%
London	3.66	3.84	+ 4.9%
Manweb	4.32	4.43	+ 2.5%
Midlands	3.46	3.31	- 4.3%
Northern	3.83	3.74	- 2.3%
Norweb	3.07	3.26	+ 6.2%
Seeboard	2.96	2.65	- 10.5%
Southern	4.47	4.53	+ 1.3%
Swalec	5.05	5.40	+ 6.9%
Sweb	4.54	4.85	+ 6.8%
Yorkshire	3.54	3.43	- 3.1%
E+W Distribution	**3.70**	**3.69**	**- 0.3%**
E+W Transmission and Distribution	**5.71**	**5.37**	**- 6.0%**
Scotland			
Hydro Transmission	2.97	2.81	- 5.4%
ScottishPower Transmission	3.58	2.51	- 29.9%
Scotland Transmission	**3.41**	**2.59**	**- 24.0%**
Hydro Distribution	8.58	8.99	+ 4.8%
ScottishPower Distribution	7.64	5.82	- 23.8 %
Scotland Distribution	**7.90**	**6.70**	**- 15.2%**
Scotland Transmission and Distribution	**11.31**	**9.30**	**- 17.8%**
Northern Ireland			
NIE Transmission & Distribution	**6.81**	**8.08**	**+ 18.6%**

Source: Ofgem, MMC and Ofreg.
All figures are end year 1994/95 and 2001/02.

Table 4 gives the RAB per unit distributed for the NGC and the individual Distribution companies in E+W and the RAB per unit distributed for Transmission and Distribution combined for each jurisdiction (England and Wales, Scotland, and Northern Ireland). It shows that for T&D combined, assets per kWh transmitted and distributed for NIE, grew by 19% in real terms between 1994/95 and 2001/02. Over the same period T&D assets per kWh in England and Wales declined by 6%, a difference of 25% from Northern Ireland. Assets per kWh for T&D combined in Scotland fell by 18% over the period - a difference of 37% compared to NIE. Clearly there is a considerable upward push in asset levels in NI compared to GB even when the influence of unit growth is removed. The impact of a slower depreciation profile is examined in the next section.

(6) Removing the impact of NIE's slower depreciation policy

Depreciation schedules used by each particular electricity company affect the profile of payments which customers have to make into the future. If capital equipment is depreciated over a short period, payments are higher but do not have to be paid for so long. Different depreciation profiles employed in Northern Ireland and Great Britain will therefore have an effect on the price gap between the two jurisdictions.

In contrast to investment post privatisation where assets accumulated after flotation are written down in NI and in GB over 40 years, the treatment of T&D assets inherited by the electricity companies from the public sector at privatisation is different in Great Britain and Northern Ireland. In GB, rather than relate the depreciation profile of privatisation assets to the actual age profile of such assets, it was decided by Offer GB (now Ofgem) to treat the entire asset base of the RECs at privatisation as one composite asset with an average life of between 11 and 15 years (20 years in Scotland) depending on the average age of privatisation assets of each particular company in question. Privatisation assets of the RECs were then written off for price control purposes on a straight line basis (ie evenly with an equal amount subtracted from assets every year) based on the average life attributed to them.

The approach to NIE's privatisation assets adopted by the Monopolies and Mergers Commission (MMC) was different to the treatment by Ofgem of the privatisation assets of the GB companies. The MMC decided that it was not appropriate to treat NIE's privatisation asset base as one entire composite asset but rather the MMC related the depreciation profile of privatisation assets to the actual age profile of such assets as contained in NIE's books. The resulting depreciation profile of these assets therefore resembled more a reducing balance profile for depreciation which spread depreciation charges over 40 years.

The consequence of a faster depreciation profile in GB is that pre-privatisation assets will constitute a smaller proportion of a GB company's RAB at any point in time than they will of NIE's. The result of the MMC's decision is simply that NIE is now depreciating its pre-privatisation assets at a much slower rate than the rest of the UK. For example as Table 5 overleaf shows if the MMC had adopted a depreciation profile for NIE's assets similar to the RECs whereby the value of NIE's pre-privatisation assets (as allowed by the MMC) were written down over 15 years from privatisation as opposed to 40 years then NIE's total T&D assets would have been £37 million (in 97/98 prices) smaller by the end of this price control period (ie 31st March 2002) and would be £113 million smaller in size by 2008/09. By 2008/09 under a 15 year profile pre-privatisation assets would be totally written out of NIE's asset base. Instead under the

MMC's profile customers will still have to pay for £113 million of such assets for another 25 years.

Table 5: Depreciation of NIE's pre-privatisation RAB - 1997/98 prices - £ million

	June 1993	2001/02	2008/09
Cumulative Depreciation on Vesting assets to date:			
under MMC method	-	207	306
written down over 15 years	-	244	419
Balance left of Pre- Privatisation Assets			
under MMC method	419	212	113
written down over 15 years	419	175	0

Source: MMC and Ofreg

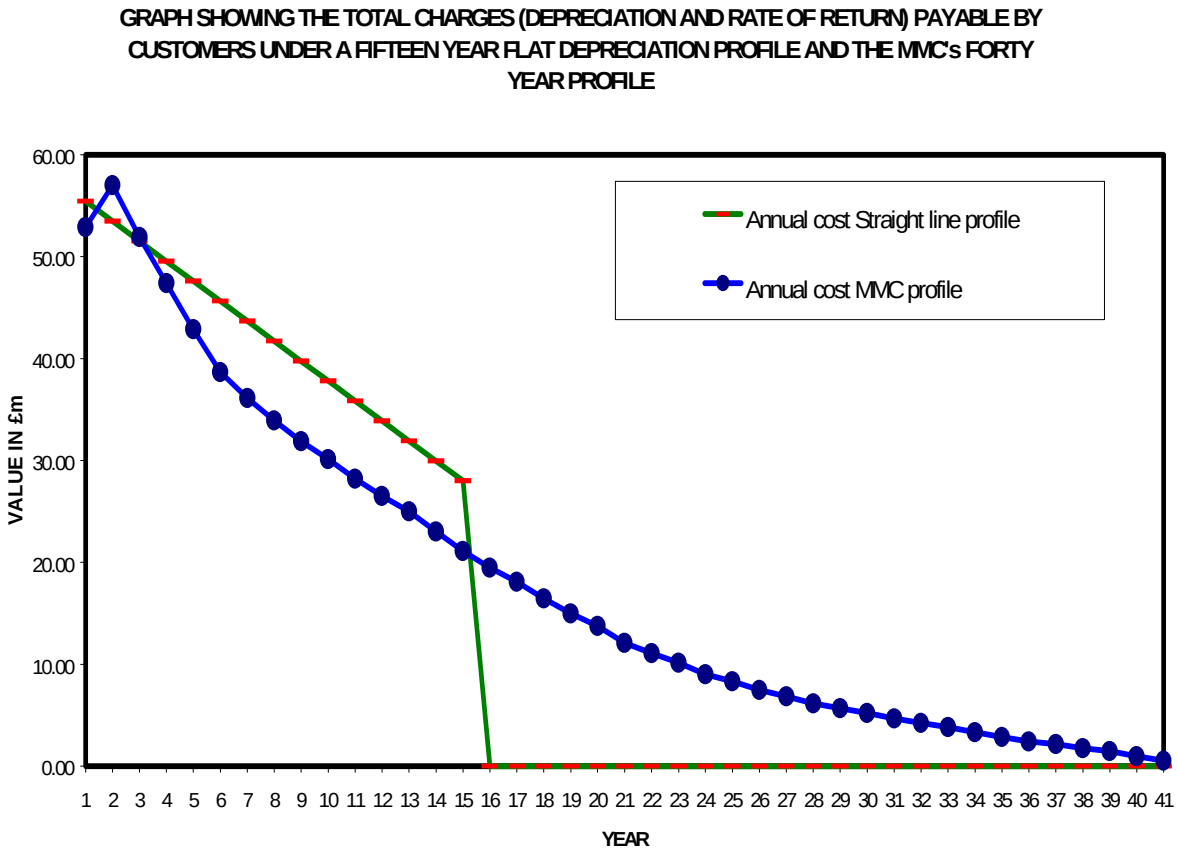
The impact of this on the amount of revenue NIE is allowed to recoup from pre-privatisation assets compared to the RECs is shown in Graph 2 overleaf. For any one year the revenue allowed on such assets equals the depreciation charge for each year plus the financing charge. The financing charge is the allowance for profit which equals the allowed rate of return multiplied by the remaining balance of pre-privatisation assets left in each year after cumulative depreciation on such assets has been subtracted (ie the written down RAB value). Graph 2 shows the revenue which customers would pay in each year for NIE's pre-privatisation assets of £420 million (in 97/98 prices) at 1993/94 assuming a pre tax allowed rate of return of 7% real both under the MMC's depreciation profile assuming it had been implemented from 1993/94 onwards and under a 15 year straight line depreciation profile similar to the RECs. The GB REC comparator charge for pre-privatisation assets is therefore proxied by the revenue allowed under the 15 year depreciation profile.

It is clear from the graph that the faster depreciation profile as implemented by the RECs has two effects. Faster GB depreciation will lead to a higher depreciation charge and a lower financing charge than in NIE's case.[5] However the higher depreciation charge for pre-privatisation assets always outweighs the lower financing charge resulting in higher revenue for vesting assets being charged by the GB RECs compared to NIE in every year up until the assets are completely written off under the faster REC depreciation profile as shown in Graph 2. For the RECs the revenue collected drops to zero after 15 years when pre privatisation assets will simply drop out of the RAB of these businesses. Clearly however after 15 years NIE will continue collecting a charge from customers for pre-privatisation assets as these assets have been given an assumed

[5]It should also be noted that while in theory the customer should be indifferent to whether assets are depreciated over a long or short period because of an assumed discount rate, in practice a long depreciation period will cost more in cash terms as the total financing cost is higher.

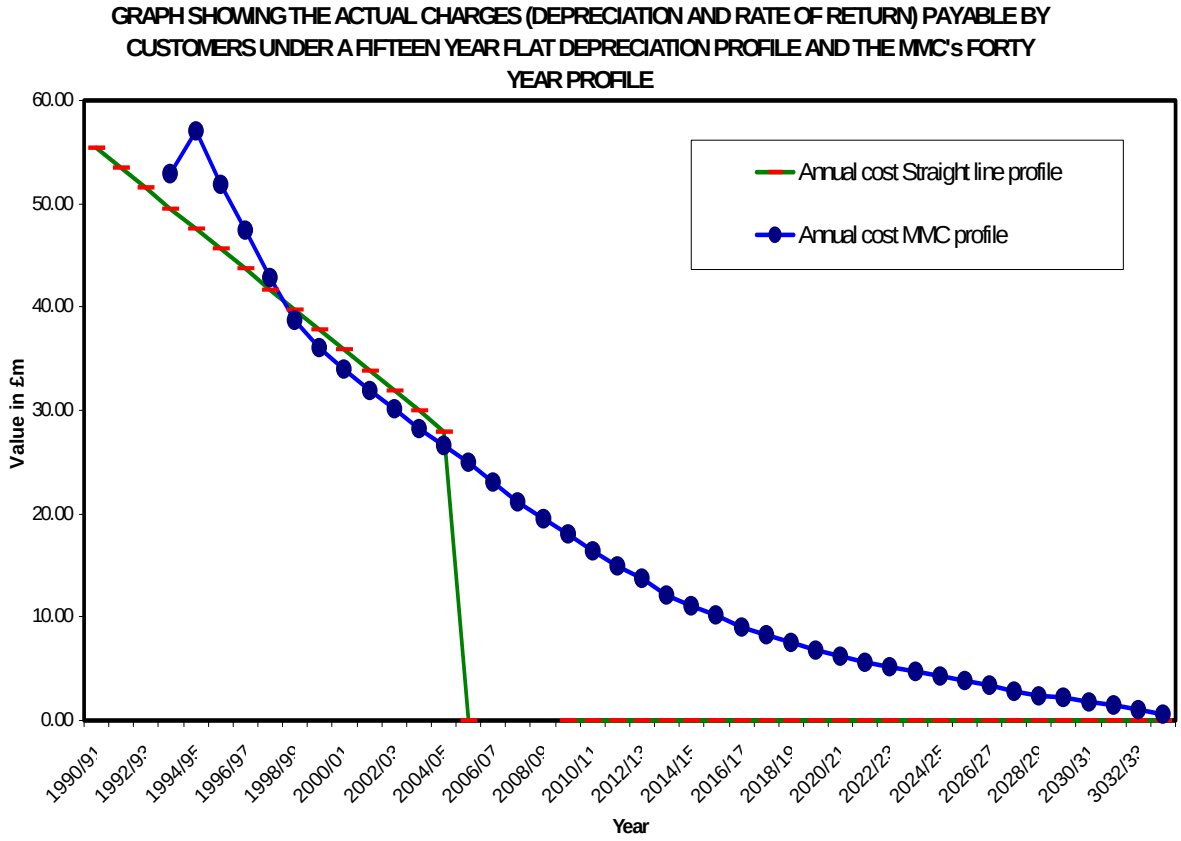
life of up to 40 years. This means that the degree of divergence between NIE's T&D costs and the RECs has been understated since 1997 by the MMC's depreciation policy.

GRAPH 2



The depreciation effect above is exacerbated by the timing of privatisation of the T&D businesses in NI and GB. The GB RECs were privatised three years earlier (1990/91) than NIE (1993/94). The effects of this are shown in Graph 3 overleaf where the REC revenue profile associated with pre-privatisation assets has been moved back three years to allow for the timing difference. It indicates that revenue raised from privatisation assets will disappear from 2005/06 onwards whereas the customer in NI will continue to pay for NIE's privatisation asset base for the following 30 years. With present depreciation profiles on both sides of the Irish Sea left as they are, price divergence will become worse after 2005/6.

GRAPH 3



(7) Assessment of factors driving NIE's T&D RAB per unit distributed

The components of change of NIE's RAB increase are shown in Table 6.

Table 6: Impact of the various drivers (equivalent to the RECs) on NIE's T&D RAB per unit distributed (pence per kWh distributed - 1997/98 prices)

At year end	1994/95	2001/02		Increase	
NIE Transmission and Distribution (No growth in units)	6.81	9.69		+ 42%	
NIE Transmission & Distribution (Growth in units plus MMC profile)		6.81	8.08		+ 19%
NIE Transmission and Distribution (Growth in units plus 15 year REC profile)	6.81	7.60		+ 12%	

Source: Ofgem , MMC and Ofreg

Table 6 indicates that just over half (23%) of the 42% increase in NIE's total T&D RAB between 1994/95 and 2001/02 is attributable to electricity demand growth in NI. Of the 25% difference in the growth in NIE's T&D RAB per kWh over this period (Table 4) compared to the unit T&D RAB in E+W, just under one third (7%) is due to a slower depreciation in NIE's pre-privatisation assets and just over two thirds (18%) is due to a higher rate of investment per kWh by NIE compared to the RECs and NGC in E+W.

It is clear then that higher investment by NIE compared to the RECs is the driver putting upward pressure on NIE's RAB.

(8) Sensitivity check

A sensitivity check has been carried out on the above figures to take account of two further factors - namely the differences in charging policy for new connections and the different dates of privatisation between NI and GB.

***Connection Charging*[6]**

An adjustment for differences in connection charge policy reduces NIE's RAB at 31st March 2002 from £632 million (97/98 price base) to £622 million. The growth in NIE's total RAB between 1994/95 and 2001/02 is reduced from 42% to 40%. NIE's RAB per kWh at 31 March 2002 would be reduced from 8.08 pence to 7.94 pence per kWh. The growth in the NIE's unit RAB between 1994/05 and 2001/02 reduces from 18.6% to 16.6%. It can be seen then that the adjustment for customer contributions makes no material difference to the analysis and does not affect the conclusions of the analysis above.

The effect of later privatisation

The earlier analysis looked at growth in NIE's RAB compared to the other companies in GB over the period from 31st March 1995 to 31st March 2002. This period was chosen because it marked the period from the end of the first price control of the RECs in GB to the end of the second price control of NIE.

It could be argued however that this analysis should take into account the timing difference which resulted from privatising NIE later than the RECs. Such a comparison would examine assets of NIE at privatisation (at June 1993) compared to assets of the GB RECs at privatisation (at December 1990). It would then look at the assets of the GB RECs, 10 years later, that is after two complete price control periods from REC privatisation to 31st March 2000 and compare this with the assets of NIE two complete price controls after privatisation at 31st March 2002. In an attempt to achieve as close a match for consistency as possible with the dates of the REC Distribution privatisation and price controls, assets of NGC and the Scottish companies were also examined at 31st March 1990 and 31st March 2000. This analysis taking into account timing differences is

[6]This issue is analysed in greater depth in Appendix 1 - a summary of this analysis is presented in this section

outlined in Table 7 overleaf.

Table 7: Regulatory Asset Base Estimates Per Unit Distributed for the individual companies (pence per KWh distributed, 1997/98 prices) - ADJUSTED FOR TIMING DIFFERENCES

	At Privatisation	**After 2 price controls**	
	Dec 1990	31 Mar 2000	Increase %
England and Wales:			
Transmission: NGC	**1.94**	**1.74**	**-10.3**
Eastern	3.79	3.20	-15.6
East Midlands	3.54	3.44	-2.8
London	3.55	3.89	+9.6
Manweb	3.79	4.44	+17.2
Midlands	3.29	3.31	+0.6
Northern	3.44	3.63	+5.5
Norweb	3.46	3.27	-5.5
Seeboard	2.68	2.49	-7.1
Southern	3.96	4.65	+17.4
Swalec	3.92	5.56	+41.8
Sweb	4.04	4.75	+17.6
Yorkshire	3.81	3.62	-5.0
E+W Distribution	**3.60**	**3.71**	**+3.1**
E+W Transmission and Distribution	**5.54**	**5.45**	**-1.6**
Scotland			
Hydro Transmission	2.81	2.86	+1.8
ScottishPower Transmission	4.13	2.77	-32.9
Scotland Transmission	**3.76**	**2.80**	**-25.5**
Hydro Distribution	8.36	8.99	+7.5
ScottishPower Distribution	8.22	6.29	-23.5
Scotland Distribution	**8.26**	**7.04**	**-14.8**
Scotland Transmission and Distribution	**12.02**	**9.84**	**-18.1**

Northern Ireland

	At Privatisation	**After 2 price controls**	
	June 1993	31 Mar 2002	Increase %
NIE Transmission & Distribution	**6.53**	**8.08**	**+23.7**
NIE with 15 year depreciation		7.60	

Note data for NGC and the Scottish companies in 1990 relates to 31 March 1990.

Source: Ofgem, MMC and Ofreg.

Table 7 shows that the growth of NIE's RAB per unit over two price controls at 24% significantly exceeds that experienced by the RECs in E+W with the exception of SWALEC.

It is also instructive to compare growth in RAB per kWh distributed for all of the UK companies with Transmission and Distribution combined. The results are shown in Table 8 overleaf. It indicates that growth in NIE's T&D RAB per kWh since privatisation covering two price controls (up to end 2001/02) equals 24% or 16% on a comparable depreciation profile. This is significantly greater than all of the RECs (except SWALEC) and well above the average for E+W and Scotland where the T&D RAB per unit fell by 2% and 18% respectively in the ten years following REC privatisation.

Table 8: Regulatory Asset Base Estimates for Transmission and Distribution combined expressed per Unit Distributed for the individual regions (pence per kWh distributed, 1997/98 prices) - ADJUSTED FOR TIMING DIFFERENCES

	At Privatisation	**After 2 price controls**	
	Dec 1990	31 Mar 2000	Increase %
England and Wales:			
Eastern	5.73	4.94	-13.8
East Midlands	5.48	5.18	-5.5
London	5.49	5.63	+2.6
Manweb	5.73	6.18	+7.9
Midlands	5.23	5.05	-3.4
Northern	5.38	5.37	-0.2
Norweb	5.40	5.01	-7.2
Seeboard	4.62	4.23	-8.4
Southern	5.90	6.39	+8.3
Swalec	5.86	7.30	+24.6
Sweb	5.98	6.49	+8.5
Yorkshire	5.75	5.36	-6.8
E+W Transmission and Distribution	**5.54**	**5.45**	**-1.6**
Scotland			
Hydro	11.17	11.85	+6.1
ScottishPower	12.35	9.06	-26.6
Scotland Transmission and Distribution	**12.02**	**9.84**	**-18.1**
	At Privatisation	**After 2 price controls**	
	June 1993	31 Mar 2002	Increase %
Northern Ireland			
NIE Transmission & Distribution	**6.53**	**8.08**	**+23.7**
NIE Transmission & Distribution With 15 year depreciation		**7.60**	**+ 16.4**

Note data for NGC and the Scottish companies in 1990 relates to 31 March 1990.

Source: Ofgem, MMC and Ofreg.

There are a number of reasons for the anomalous position of SWALEC in the above analysis. SWALEC was the smallest company measured by value of its assets at privatisation. The SWALEC RAB equalled £289 million (97/98 price) at December 1990 compared to an average GB company size of £630 million. It also (along with Norweb) had the oldest network at privatisation with average life remaining for assets at privatisation of 11 years. (This compares to an average figure for the REC networks in GB of 15 years and an average life left of 18.5 years

for NIE). Given the small size of the SWALEC asset base and the old age of its network it is not surprising that it received a very high capital expenditure allowance at privatisation (in fact the highest of all the RECs) which led to significant growth in its RAB per unit distributed. It should also be noted that despite these factors SWALEC's overall distribution price trend did not diverge from that of the other RECS.

It is also clear that the factors leading to growth in SWALEC's RAB do not apply in the case of NIE. NIE's asset base at privatisation was bigger than SWALEC's at privatisation, (on a rough split between £320 million to £340 million of NIE assets were attributed to Distribution at June 1993), NIE's asset base was younger and NIE with its larger asset base supplies less customers and GWh than SWALEC (NIE supplies two thirds the number of customers and units compared to SWALEC). On the basis of this, it is hard to justify a rise in NIE's T&D asset base since privatisation which is on a par with the expansion in SWALEC's T&D assets.

It should be noted in passing the extent to which this evidence goes against perceived wisdom. The perceived wisdom is that at privatisation NIE had an under-funded network which was performing badly and that substantial investment would be needed to catch up with GB. That sits badly with the relatively high value of NIE's assets at privatisation (ie the young network) and the MMC's choice of 40 years as their depreciation period. If the NIE system was worse than in Great Britain it should have had a lower value and been quickly depreciated and replaced. With its high value and younger age presumably it should not have needed such a high level of replacement investment and therefore its RAB should not have expanded as fast as an older network such as SWALEC.

Clearly then the above analysis which considers the movement in NIE's RAB per unit distributed compared to that of other transmission and distribution companies in Great Britain over two price control periods supports the earlier analysis which focused on the period from 31st March 1995 to 31st March 2002. The analysis which focused on the period from 31st March 1995 to 31st March 2002, the results of which are contained in Table 4, indicated that NIE's RAB per unit had increased by 19% compared to an actual decrease of 6% in the RAB for Transmission and Distribution combined in E+W (a difference of 25% from Northern Ireland). The analysis which focused on two price control periods, the results of which are contained in Table 8, indicated that NIE's RAB per unit had increased by 24% compared to an actual decrease of 1% in the RAB for Transmission and Distribution combined in E+W (a difference of 25% from Northern Ireland). It is therefore reasonable to focus for the purposes of the rest of this paper on the movement in NIE's RAB over the period from 31st March 1995 to 31st March 2002.

PART II

The impact on electricity prices

What is unambiguously clear from the preceding analysis is that NIE's RAB per unit has increased at a significantly faster rate than the average for the RECs in E+W and that this can be attributed as Table 6 highlighted to higher investment by NIE compared to the RECs. Table 9 below, which is basically Table 4 reproduced with Transmission and Distribution combined, shows that in 94/95 NIE's RAB per unit was 1.1 pence per kWh (or 20%) higher than the average for E+W. In addition NIE's unit RAB was very close to the figures for comparator RECs - Sweb and Manweb were slightly below the figure for NIE while the SWALEC figure was actually above NIE's unit RAB by 0.24 pence per kWh. NIE's unit RAB was considerably lower, around 4 to 5 pence per kWh, than both Scottish companies although this is not surprising given the size of the Scotland land mass in relation to its population (especially in the case of Scottish Hydro) and hence the length of its network.

Table 9: Regulatory Asset Base Estimates for Transmission and Distribution combined expressed per Unit Distributed for the individual regions (pence per kWh distributed, 1997/98 prices)

At year end	1994/95 p/kWh	2001/02 p/kWh	Difference with NIE at 2001/02 in p/kWh (-) below NIE/(+) above NIE
England and Wales:			
Eastern	5.19	4.91	-3.17
East Midlands	5.73	5.01	-3.07
London	5.66	5.52	-2.56
Manweb	6.32	6.11	-1.97
Midlands	5.46	4.99	-3.09
Northern	5.83	5.42	-2.66
Norweb	5.07	4.94	-3.14
Seeboard	4.96	4.33	-3.75
Southern	6.47	6.21	-1.87
Swalec	7.05	7.08	-1.00
Sweb	6.54	6.53	-1.55
Yorkshire	5.54	5.11	-2.97
E+W Transmission and Distribution	**5.71**	**5.37**	**-2.71**
Scotland			
Hydro	11.55	11.80	+3.72
ScottishPower	11.22	8.33	+0.25
Scotland Transmission and Distribution	**11.31**	**9.30**	+1.22
Northern Ireland			
NIE Transmission & Distribution	**6.81**	**8.08**	-------

Source: Ofgem, MMC and Ofreg.

All figures are end year 1994/95 and 2001/02.

By 2001/02 the situation has changed however. The higher rate of investment and lower rate of depreciation of privatisation assets has driven a wedge between NIE's asset base and the equivalent figure for Transmission and Distribution in GB. Compared to the England and Wales average, the value of assets devoted to Transmission and Distribution in NI is now considerably higher than in GB. NIE's RAB per unit at 8.08 pence per kWh is now projected to be 2.7 pence per kWh higher (in 1997/98 prices) than the average REC at 5.37 pence per kWh by 2001/02. In one case, namely Seeboard, the difference is projected to be close to 4 pence and in five cases (Eastern, East Midlands, Midlands, Norweb, Yorkshire) the difference is projected to be around 3 pence. The smallest gap will exist between NIE and its comparator RECs (including Southern as well) with the lowest difference existing between NIE and SWALEC at 1 pence per kWh[7]. The comparison with Scotland is also marked. Hydro's unit RAB will still be above NIE's but the gap will have fallen by 1 pence from 4.7 pence to 3.7 pence between 1994/95 and 2001/02. However, NIE's unit RAB has now in fact caught up with ScottishPower where the difference between the two companies has now closed. In 1994/95 ScottishPower's unit RAB was 4.4 pence above NIE's and now it's unit RAB is only 0.3 pence above NIE's.

Impact on the electricity bill of NI customers

This has profound implications for relative electricity prices between Northern Ireland and Great Britain. Ignoring Scotland for the moment which is a special case given its history, it is clear that the current rate of accumulation of assets by NIE's T&D Business is driving a wedge between prices in NI compared to GB and raising electricity prices above levels elsewhere in the UK. This is because a higher RAB per unit translates, other things being equal, into a higher T&D charge per unit distributed and hence to higher final electricity prices for customers. This is because the profit allowance for Transmission and Distribution companies is calculated by multiplying the RAB by the allowed rate of return for each company (as determined by the Director General).

The future trend for electricity bills in both NI and GB over the longer term, barring major fuel price shocks, is likely to be electricity bills which are at worst constant in cash terms or more likely falling in cash terms as generating plant becomes more fuel efficient, Transmission and Distribution Businesses become operationally more efficient (and this is passed onto customers through price control review Po drops) and the X factor in RPI-X regulation continues to limit any year on year price rises for Transmission and Distribution to below inflation.

Therefore assuming for the sake of simplicity, that electricity bills are constant in cash terms from now on, then the consequences for the build up of assets by NIE to 2.7 pence per kWh on average above the RECs is serious. On the simplistic assumption that the depreciation profiles of all assets in NI and GB are depreciated over 40 years (which is not the case for GB privatisation assets) then it can be assumed that the allowance for depreciation equals around 3%

[7] As SWALEC was more expensive than NIE in 1994/95 the "swing" against NIE and in favour of SWALEC is actually 1.24p.

of the asset value of all T&D companies in the UK. In addition on the assumption that both the GB companies and NIE are allowed the same profit, that is an allowed rate of return pre tax of 7% real[8] then the difference in assets in pence per kWh between NIE and GB translates into a difference in revenue in pence per kWh equal to 10% of the difference in assets.

The difference of 2.7 pence in assets then translates (in 97/98 prices) into a 0.27 pence per kWh difference in overall T&D charges in NI compared to GB and means that the NI electricity bill is £21 million higher compared to GB due to NIE's higher asset base. **This £21m per annum will be sustained in cash terms for the next 40 years as assets and the extra revenue derived from these are uplifted for RPI inflation. Thus the current asset base divergence will cost customers £840m over the next 40 years.**

If NIE tries to maintain its current 2.7 pence per kWh asset advantage in real terms over time then the impact on the NI electricity bill becomes in real terms even worse. In cash terms, the 2.7 pence per kWh excess of assets would rise in line with inflation. For example in 10 years the asset difference would be 3.5 pence, after 20 years it would be 4.4 pence and after 40 years it would be 7.2 pence. In cash terms, the excess of NI T&D charges over GB levels would rise from 0.27 pence per kWh (or an extra £21m per annum) at 1st April 2002, to around 0.35 pence (an extra £27m per annum) after 10 years, 0.72 pence (or an extra £56m per annum) by 1st April 2042. **In cash terms this would mean that customers in NI would pay an extra £705m over the next forty years on top of the £840 million already incurred bringing the total to £1.55 billion. In addition if NIE's RAB continues to diverge at its current rate then the extra cost will become even greater.**

[8] This is currently not the case for the GB RECs which are allowed a slightly lower figure of 6.5% real pre tax rate of return after the recent REC price control review and 6.25% for NGC

PART III

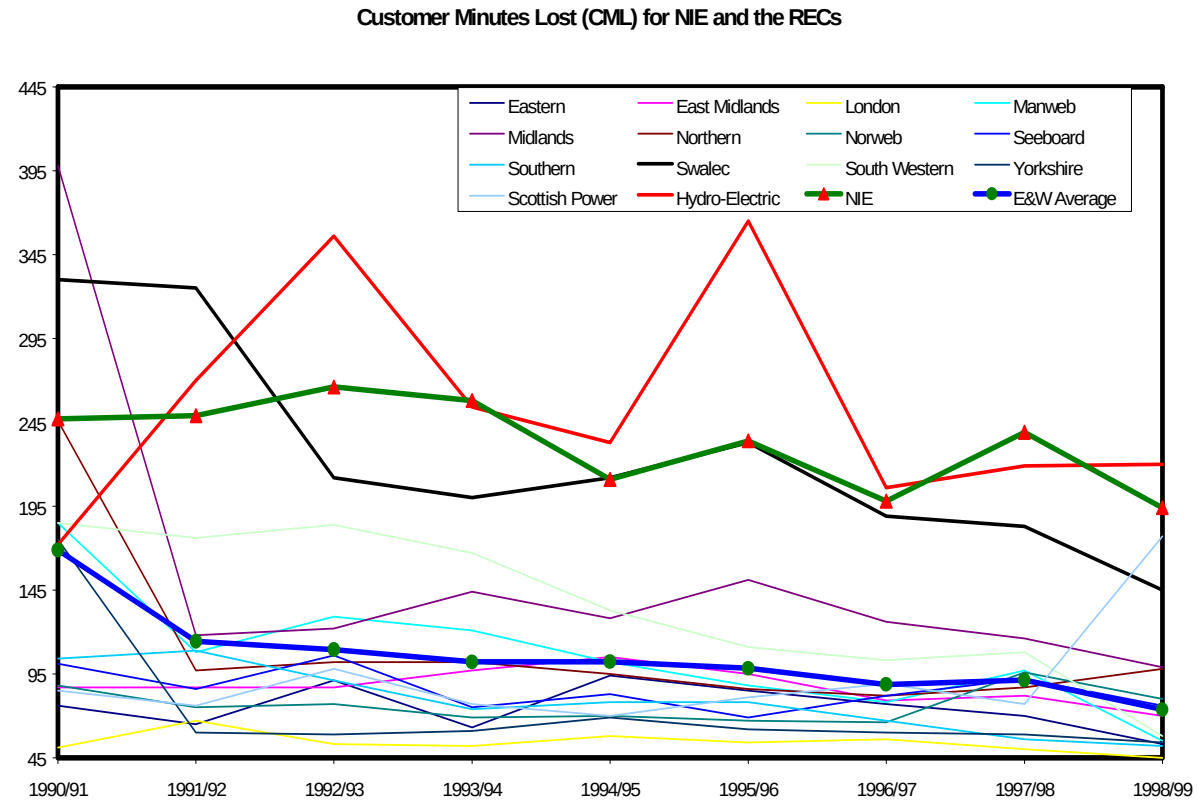
Quality of Supply

The preceding part of this paper examined the evidence that indicated that NIE's Transmission and Distribution Business has a larger RAB per unit distributed which is growing faster than in other regions of the UK. This part seeks to quantify the benefits which customers have received from the increased size of NIE's RAB. The benefits which should arise are improvements in the quality of electricity supply. Quality of service may be attributed to a number of factors including better practices in the management of the business, higher priority to customer care and greater operational efficiency. Different companies might achieve a similar level of service or a similar improvement of service by different strategies and for lower cost. It has to be acknowledged that quality of supply issues in the electricity supply industry leave a great deal of room for argument and debate. What are the appropriate measures for example? Quality of supply can be measured by average number of customer minutes lost (CMLs) or frequency of interruptions or distribution of CMLs (rural versus urban) or interruptions, voltage levels and speed of restoration of supply.

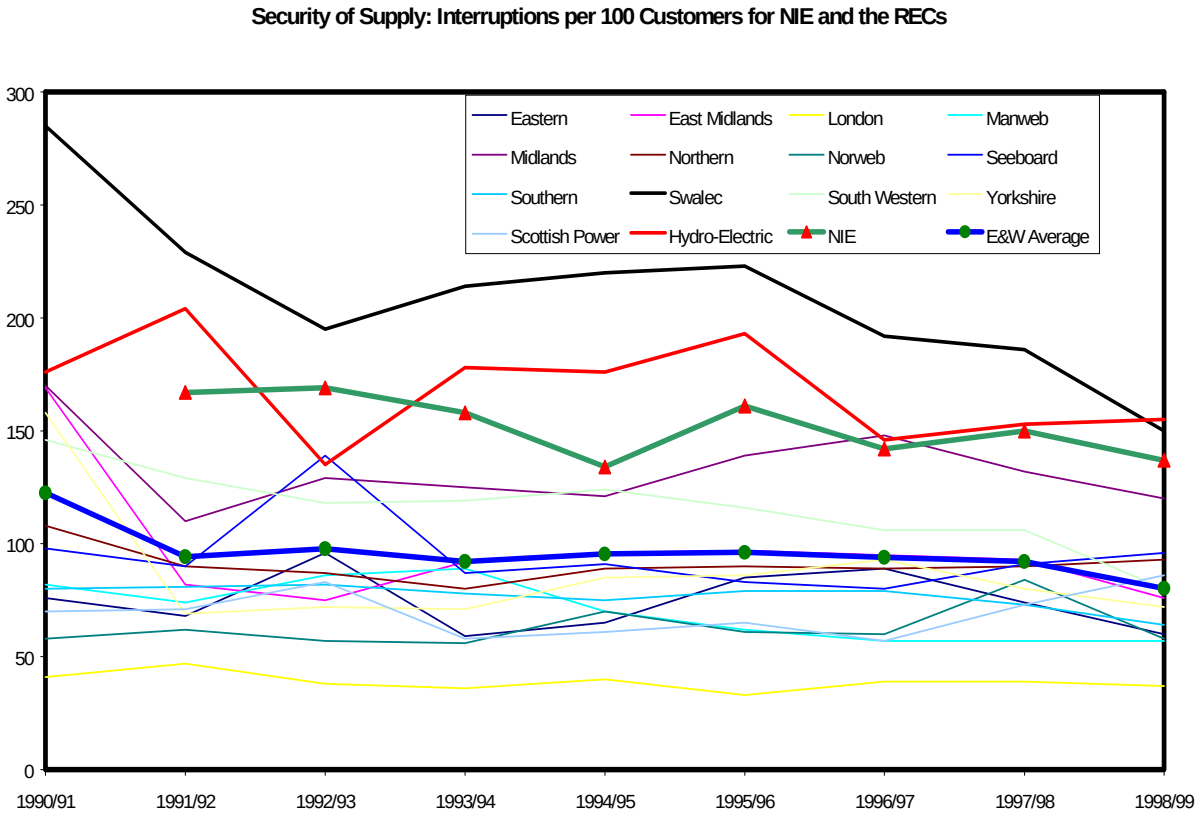
Even so, it seems reasonable to assume that quality of electricity supply should improve as the average age of the Distribution network falls and this in turn should be associated with a high level of capital expenditure and an increasing RAB. Improvements in quality of supply should arise if there is new and increasing capital expenditure replacing older equipment. An increasing RAB should therefore be reflected in improved quality of supply statistics (although not necessarily as changes in the RAB are also influenced by depreciation profiles and Table 8 shows that some RECs actually experienced a fall in their RAB per kWh and this can be also associated at the same time with improved quality of service). Since all of the RECs have embarked on a large capital investment programme since privatisation it would be expected that quality of supply should have improved since the early 1990s. In addition since NIE (and SWALEC) had the largest capex programmes and exhibited the largest increases in the RAB you would expect NIE to experience the greatest improvement in quality of supply and its relative position vis-a-vis the other UK companies to improve. This has not happened as Graphs 4 and 5 (overleaf) show.

Graphs 4 and 5 indicate that all of the UK companies (including NIE) have experienced improved quality of supply (as measured by Customer Minutes Lost per connected customer and Interruptions per 100 customers) from the early 1990s to the start of the new millennium. However despite NIE's bigger capex programme and rising T&D asset base NIE has consistently remained one of the three worst performing companies in terms of quality of supply alongside SWALEC and Hydro Electric. The relative position of NIE has remained the same and not improved. This evidence therefore suggests that the electricity customer has been paying for a larger capex programme and asset base without any return given back for this cost in terms of a relative improvement in quality of service vis-vis the rest of the UK. It also suggests that NIE may have been investing inefficiently and a rising RAB may indicate falling NIE capital productivity. This is a major concern. It begs the question as to why NI customers are paying more and expenditure is higher if they are not getting an improving quality of supply relative to England, Wales and Scotland.

GRAPH 4



GRAPH 5



PART IV

Summary and conclusion

Before privatisation it required 18% more capital assets for NIE to move a single kWh of electricity from power station to consumer than in England and Wales. At the end of the first ten years of privatisation NIE required 48% more capital assets to move a single kWh of electricity from power station to consumer than in England and Wales.

This means that the divergence in the capital stock required to move a single kWh of electricity has increased by more than 250% in ten years. All the indications are that unless corrective measures are taken this will translate into sustained price divergence over the long term for which there is no inherent justification that we have been able to identify.

Only one company in Great Britain went against the trend of capital stock divergence from NIE. That company was SWALEC whose capital stock per kWh as a percentage of NIE's moved from 90% to 98%. This atypical behaviour on Capex did not however cause SWALEC to diverge in its overall T&D price profile from the pattern followed by all the Distribution companies in England and Wales.

This paper was intended to serve a limited purpose. It was not intended to examine the reasons why the RAB in Northern Ireland should be larger or smaller than the GB average since it is self-evident that the RAB in any region has been mainly determined by unchanging or slowly changing factors such as topography, population density and urbanisation. It is about rates of change rather than absolute sizes. The paper examined the evidence that a tendency in Northern Ireland to increase the size of NIE's RAB at a much faster rate than in Great Britain would have a long term effect on price divergence. It found, after due allowance is made for faster demand growth here, that:

- **NIE has been investing at a faster rate than the other UK electricity Distribution companies;**
- **NIE had been depreciating its privatisation assets more slowly;**
- **NIE's RAB per kWh is rising faster than the GB RECs;**
- **NIE's RAB per kWh exceeds the REC's T&D RAB per unit and the gap is widening;**
- **NIE's expanding asset base is contributing to price divergence and higher electricity prices in NI;**
- **there is little evidence of improvement in NI's position vis-a-vis the other UK companies in terms of quality of electricity supply.**

It also raises the question of how was it possible at privatisation that NIE had both the youngest asset base of all the privatised electricity companies and merited the largest post privatisation investment. Were its privatisation assets significantly over-valued or did it not really need such a significant post privatisation investment programme?

If nothing changes this investment history will impose higher costs on Northern Ireland's customers for the next forty years. This is an issue which needs to be addressed, especially against a background where construction of the Scottish Interconnector will have the additional

effect of increasing NIE's T&D RAB by a further £100 million or about 15% from 2002/03 onwards. This increased cost arising from the Interconnector has to be paid for by customers in the context of any future demand from NIE for new capital expenditure for the T&D network in the next price control period which runs from 2002/03 to 2006/07.

Finally it should be noted that this paper limits itself to looking at the capital stock of each of the electricity companies. The price customers pay is dependent on the way in which the capital stock is charged out. For reasons alluded to, the regime in place in Northern Ireland means that the costs to customers and the cumulative divergence in prices over the first forty years of privatisation will be greater than the divergences in the size of the RAB reported in this paper.

Any comments should be forwarded to Mary McWilliams by Friday 15th December 2000 at:

Ofreg
Brookmount Buildings
42 Fountain Street
Belfast
BT1 5EE

or e-mail mary.mcwilliams@ofregni.gov.uk

DATA SOURCES:

- Distribution Price Control Review Consultation Paper May 1999
- Distribution Price Control Review Draft Proposals August 1999
- Distribution Price Control Review Consultation Paper December1999
- The Transmission Price Control Review of the National Grid Company: Proposals (Offer) October 1996
- The Transmission Price Control Review of the National Grid Company from 2001 Draft Proposals June 2000
- Scottish Transmission Price Control Review Final Proposals December 1999

APPENDIX 1

The RAB consists of those assets which NIE finances from the Use of System charge which customers pay. However the portfolio of physical assets which NIE owns and manages is larger than the portfolio financed by Use of System charges because NIE is in receipt of contributions from other sources such as, for example, grants from public bodies. The main alternative source of contributions to assets is the connection charge collected from new customers towards the cost of connecting a new customer to the system. Since connection charges are paid for upfront in cash this amount (called customer contributions) is subtracted from the gross cost of NIE's assets to arrive at the value of NIE's RAB. Clearly then NIE does not charge customers for that part of its asset base which has been paid upfront by customer contributions. The bigger customer contributions are the smaller is NIE's RAB and the smaller the amount of money charged to customers through Use of System charges as part of price control revenue.

To date customer contributions in Northern Ireland for connections below 1 MW have been based on a formula rather than cost reflectivity. In particular 60% of the total costs of connection is paid upfront by customers under 1MW in NI. In GB the method for charging customer contributions have moved to greater cost reflectiveness and the RECs collect a higher proportion of the costs of connections through customer contributions (in GB the proportion of connection costs covered by customers contributions is closer to 80%). Clearly if the connection charge policy in GB had been applied in NI after privatisation then the amount collected in customer contributions would have been greater and NIE's RAB correspondingly smaller.

A move from a 60% contribution from under 1 MW customers in NI to a contribution of 80% of the cost of connection is worth an extra £2 million in additional customer contributions per annum to NIE. The new more cost reflective connection charge policy was applied in GB from the start of the second price control (ie 1995/96) and the RECs therefore had five years in the private sector applying the older policy. A correction to NIE's RAB to correct for this difference in connection charge policy with GB should take this into account and therefore NIE should be allowed to run the first price control period under the old (60%) policy and run the new (80%) policy from the start of its second price control period thereafter (from 1997/98 onwards). On this assumption NIE would have collected an extra £10 million in customer contributions over the period (1997/98 to 2001/02) and NIE's RAB would have been £10 million less at 31st March 2002.

An adjustment for differences in connection charge policy reduces NIE's RAB at 31st March 2002 from £632 million (97/98 price base) to £622 million. The growth in NIE's total RAB between 1994/95 and 2001/02 is reduced from 42% to 40%. NIE's RAB per kWh at 31 March 2002 would be reduced from 8.08 pence to 7.94 pence per kWh a reduction of around 0.14 pence. The growth in the NIE's unit RAB between 1994/05 and 2001/02 reduces from 18.6% to 16.6%, a reduction of 2% in the unit RAB growth. On a change in connection charge policy the excess of NIE assets per kWh above the E+W RECs would decrease from 2.71 pence to 2.57 pence per kWh on average. In terms of electricity prices NIE assets would raise prices in NI by 0.26 pence per kWh (as opposed to 0.27 pence per kWh under the old connection charge policy). It can be seen then that the adjustment for customer contributions makes no material difference to the analysis and does not affect the conclusions of the analysis above.