TRANSMISSION and DISTRIBUTION
PRICE CONTROL REVIEW
Initial Proposals

For

NORTHERN IRELAND ELECTRICITY

A consultation paper by

The Director General of Electricity Supply for Northern Ireland

March 2002

Index

Foreword

The existing NIE T&D price control is due for revision from 1 April 2002. This document sets out Ofreg's draft proposals for new controls to apply from that date. It builds on:

- a number previous documents[1] published by Ofreg
- the responses from the company and other interested parties and
- a series of meetings with the company.

In setting the components of the price review the level of allowed revenue should be such that if the company performs satisfactorily it can expect to make an appropriate rate of return. If above average performance is achieved the company can expect an above average rate of return, although this should only result from efficiencies and not involve higher prices to customers. If the company under-performs then it is only appropriate that the company receives a lower rate of return.

The objective of this price control review is to protect the interests of consumers by:

i. ensuring that NIE has sufficient revenues to finance the licensed activities of its T&D business based on efficient and economic operation of the network;

ii. enabling quality of service to be maintained and appropriate new investment financed;

iii. ensuring that prices to NIE's customers are no higher than necessary to fulfil objectives i and ii above; and

iv. providing incentives to ensure NIE maintains an appropriate balance between the quality of its services, efficient capital investment, efficient operating expenditure and efficient financial management.

Consistent with the objectives above in setting this price control I will be guided by my statutory duties, and will ensure that a proper balance is maintained within the regulatory framework.

As part of the price control review Ofreg has taken advice from a range of consultants and advisers. Management consultants Pannell Kerr Forster (PKF) have assisted in analysing and formulating operating costs. W S Atkins reviewed and advised on the capital expenditure programme proposed by the company.

[1] April 2000 The first T&D price control paper setting out the issues in general terms.
November 2000 a second paper dealing with the size and evolution of the T&D asset base.
May 2001 a third paper setting out NIE's response to the Business Efficiency Questionnaire.
June 2001 a fourth paper entitled "Greening Transmission and Distribution"
June 2001 a fifth paper consulting on "Connection Charging Policy"
November 2001 a sixth consultation paper consulting on the "Issues" surrounding the current review.

Following the consultation process and advice received from the consultants this paper sets out draft proposals for a revised price control. These are based on initial conclusions on the form of price control, projections of operating and capital costs, targets for quality of supply and initial conclusions on financial issues. All these issues are described in this paper.

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 **10 May 2002** on matters raised in this paper.

A final view will be taken on these matters following consideration of responses to this paper. This will result in the publication of final proposals on the 19 June 2002. The company will then have an opportunity to review the final proposals and respond by the 8 July 2002. As it has not be possible to complete this process prior to 1 April 2002 Ofreg have agreed suitable transitional arrangements with the company to cover the first year of the new regulatory period.

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Chapter 1

Introduction

In November 2001 I published a paper on the issues which need to be addressed in the forthcoming T&D price control review. In that paper Ofreg demonstrated that since privatisation, T&D prices had continuously diverged from the gap revealed at the time of privatisation between average prices in Great Britain and prices here. We argued that the divergence was "systemic" - that is it was in the nature of the relationship between the way T&D revenues had been regulated here and in Great Britain, and consequently we predicted that unless checked it would continue to get worse.

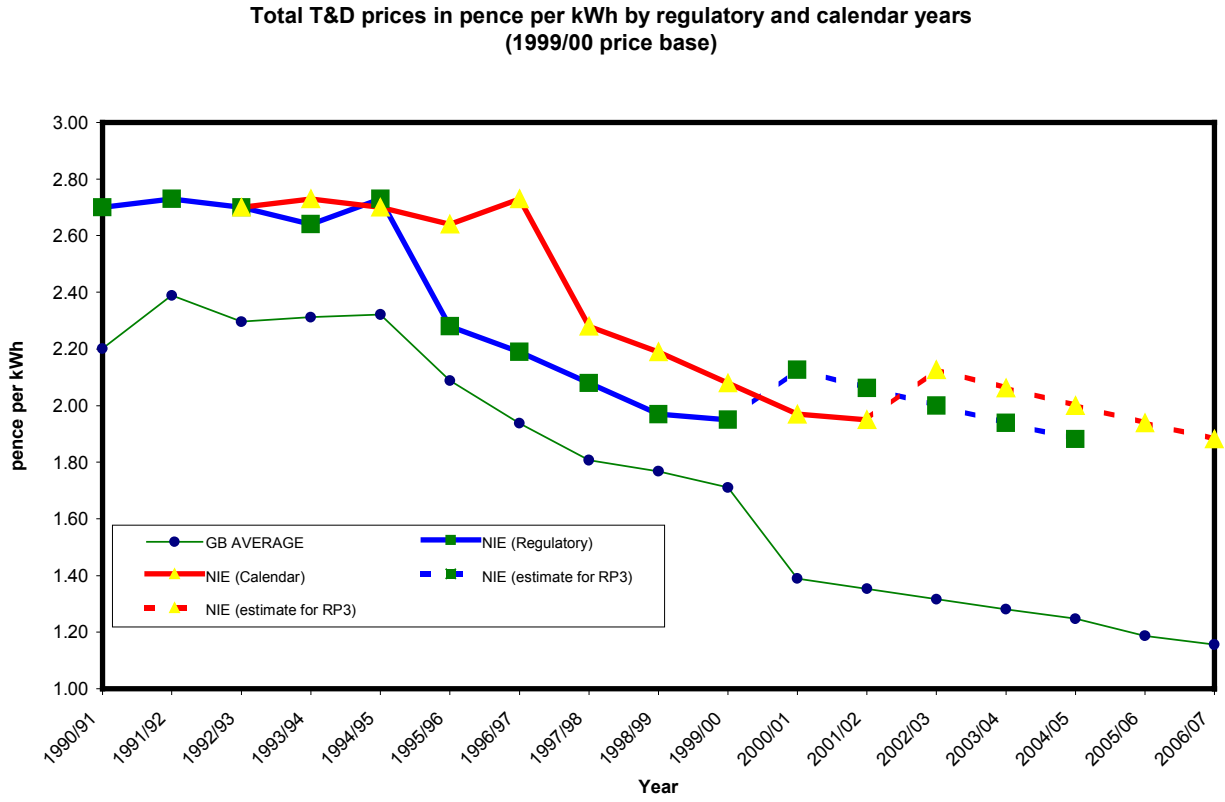
The November paper initiated a lively debate and NIE responded in January. In its response NIE showed that over the first ten years of regulation it had succeeded in cutting T&D costs at least as fast, if not faster, than costs had been cut in Great Britain. On the evidence available to me I am glad to be able to agree with NIE on this point.

Unfortunately, NIE did not seek to persuade me that, not only was the "systemic divergence" hypothesis incorrect, but in fact we were witnessing "systemic convergence". It is, however, time to set this issue of systemic divergence to one side. It was based on an attempt to explain the observed pattern of price gaps over the last ten years and developed into an expression of Ofreg's concern that – given NIE's approach to the next regulatory period (RP3) - there was an inevitability about further divergence in the future. But it is not a basis for constructing a price control.

Ofreg's price control proposals are firmly constructed on the building blocks which NIE has agreed. Inevitably our views on what goes into the building blocks differ and we put forward a robust price control proposal which would reduce prices below their present level. It is, nevertheless, salutary occasionally to look out to see how we compare to the rest of the UK. The building block methodology could have us catching up, falling behind or tracking GB. As we propose leaving out some of the costs borne by GB companies in RP3, we should be catching up. However, Ofreg strongly believes in the desirability of a regulatory framework which offers long-term stability with incentives to out-performance by the company. For this reason we will also offer the company the alternative of an approach based on tracking trends in GB.

NIE - the first three Regulatory Periods

The graph below shows NIE's historic and forecast T&D price performance over the first fifteen years compared to GB by both actual and regulatory years.



While the RP3 period based on NIE's proposal has higher prices nevertheless the NIE performance over the first ten years is encouraging. One of the ironies of regulation is that Regulators tend to have greater confidence in the ability of regulated companies to perform than they will admit to having in themselves.

The starting point and the basis of comparison

NIE has sought to partially justify its projected future divergence by saying that the gap revealed at privatisation was unnaturally small and that there is a "natural" gap between here and the GB average which is greater than the 16% gap in 1992/93. To support this contention they have argued that there was an infrastructure deficit which had to be, and has partly been, made good - though an infrastructure deficit, three quarters of which has not been made up ten years later, may be regarded as having been more theoretical than pressingly real.

NIE's assertion is driven by theoretical modelling of what T&D costs in Northern Ireland should have been in 1992 according to the model produced by their consultants. But price controls have to be set on the basis of real world evidence and not on what some academic model predicts should have been the outcome. A system that functions significantly better in practice than the theory predicts would suggest that the theoreticians' model was not capable of encompassing the real world sufficiently comprehensively to be a useful predictive tool. It is certainly not an argument for raising prices to make reality conform to theory. Policy makers did that once before with electricity in Northern Ireland and customers are still paying the price! (Neither should NIE allow itself to be persuaded by its consultants' model into setting itself low and unchallenging targets which its recent history - it claims - under-estimates its real capability.)

A Proper Comparison

Hitherto, this debate about gaps and trends has been looked at by lumping transmission and distribution together. This, however, ignores the radical difference between the electricity supply industry in Great Britain and Northern Ireland.

In Great Britain power stations were built either at sources of fuel, such as coal mines, or where fuel could be handled. A high voltage network delivered the power to and across regions. In Northern Ireland electricity has been - until this year - generated within Northern Ireland. There has been no equivalent of the National Grid. If we really want to compare trends in costs between Northern Ireland and the regions of Great Britain, it is necessary to concentrate on the costs **within the regions** - the distribution costs. To do this, some adjustment can be made for the 275KV lines in Northern Ireland which would not be part of the distribution network of a GB REC. We have deducted 10% of the T&D cost in respect of this but the precise percentage is unimportant so long as it is applied consistently since we are concerned with trends over time, rather than snapshots of price gaps at moments in time.

Focusing on distribution makes NIE's point about a large "natural" gap very well. It has the further benefit that it prevents Moyle complicating matters in the future. It shows that at privatisation the gap was 35% with GB regions and Northern Ireland was the dearest region in the UK. Using Ofreg's actual year approach that gap has now widened to 83% or remained 32% with NIE's regulatory year approach. More to the point, it will widen in RP3 using NIE's figures and NIE's regulatory cycle methodology. NIE is now on record as stating that T&D should cost 50% more in Northern Ireland than in Great Britain – presumably on an all else being equal basis. Moreover, the situation - all else remaining the same - may grow even worse in RP4 when the GB English and Welsh RECs will have depreciated their pre-privatisation asset bases and the start-up costs of domestic competition will have been paid for.

On this analysis, over the first fifteen years and probably the first 20 years of regulation, the RECS in GB will have succeeded in reducing costs substantially more than NIE.

The conclusion which can be drawn from NIE's position is either:

(a) that the prices for T&D should have been 29%higher in 1993; or

(b) that NIE is less effective at managing its costs than any other British distribution company.

But it is not credible to argue that prices at privatisation should have been 29% higher. In RP1, NIE as network owner, made good profits - indeed - according to NIE - excess returns - and the cost of the network investment was properly remunerated.

Trends - a test of outcomes

There is general agreement that price controls should be the outcome of the sum of the building blocks of which the four key elements are: Operating Costs (Opex), Capital Investment (Capex), Regulatory Asset Base (RAB) and Cost of Capital. The limitation of this is that each of these four components - though to differing degrees - is the outcome of many judgements, very few of which can be regarded as scientific - at least at the margins which is where disagreement always takes place.

The seemingly reasonable proposition that the price control should flow - as it were - effortlessly - out of the building blocks therefore merely moves the problem one stage further upstream.

Comparisons, bench marking and trends are certainly not drivers but they are a way of testing the reasonableness, or otherwise, of the judgements which go into the building blocks.

Bench marking and comparisons of specific costs and performance therefore influence the judgements which go into the building blocks and consequently should tend to be reflected in a final outcome which follows to some degree the industry trend. And while NIE wisely points out that - given the trade-off between the components of the final cost - it is unreasonable to pick the best performance for each cost and assume that they can all be replicated in one region, it nevertheless remains the case that the overall average trend is the outcome of all those trade offs.

While therefore it would be very gratifying to out-perform the sector as a whole, as some companies have done, and as NIE claims to have done in its first two regulatory periods, and while the building block approach remains the key to constructing a price control, a price trend which tracked the trend in prices in Great Britain might be regarded by consumers in Northern Ireland as an acceptable outcome.

Trends - A Presumption for Convergence

There are obvious physical, demographic and economic reasons why electricity distribution costs should vary from one region to another. However, these cost differences might be expected to be most acute when the networks were first constructed and thereafter to be eroded as the cost difference is reflected in the historic asset base and depreciated away. To take one example, NIE argued with some success in 1996 that its large number of transformers was a cost driver. NIE did and does have fewer customers per transformer than any other company. In the period since, the number of transformers has grown faster in GB than in Northern Ireland.

If building up a large transformer asset base helped to account for divergence in an early period but transformers formed a much smaller percentage of total expenditure in the years following 1994/95 than they did in making up the price of that year, then difference should have been diluted. For divergence to have continued to increase implies either that the factors alleged to justify the initial gap - low density, small customer base, low consumption per customer etc. - have worsened relative to the GB average since, or that the assets employed - such as transformers - have had to be replaced more quickly than other assets. None of these is the case. In the last six years Northern Ireland's population has grown faster than the GB average so customers per square kilometre has improved, demand growth has been faster so that units per customer have improved relative to GB. The factors which in 1996 we were told were costs drivers such as line length and the number of transformers have not changed appreciably. As NIE's customers' characteristics slowly converge with Great Britain - and possibly do so faster than comparator regions - the drivers of divergence should be slightly weaker with each successive price control - as NIE acknowledges with regard to unit growth. If price divergence is increasing the causes do not lie in the geographical and demographic factors which are alleged to have caused it in the first place.

Tracking Trends versus Building Blocks

Although NIE did not claim in 1996 that it would be able to track price reductions in GB it now claims to have done so, aided to some extent by faster demand growth in Northern Ireland. NIE claims that it is unable to continue doing so. One of the reasons for this is higher costs such as a higher cost of capital - which NIE itself is demanding to have included in the price control. Its claimed inability to continue tracking is therefore in some measure the direct consequence of its own choices. It is in danger of becoming a self-fulfilling prophecy since if it succeeds in building higher costs into the price control going forward then clearly its price will not track GB's.

Implicit in NIE's position has been the assumption that some costs are higher in Northern Ireland but none is lower. This is simply not true but whether divergence increases or decreases over the next five years does not depend on the relativities of all costs but on the relativities of new costs covered by the respective price controls for RP3 in Great Britain and Northern Ireland. With regard to the new costs the matter is substantially amenable to influence by the decisions taken by the Regulator and the company. NIE has itself costed some of the new obligations proposed for the RECS which will not be faced by NIE. For example, NIE claims that a new standards of performance which may apply in GB would cost £15.5m to set up and £1.62m per annum to run; that full market opening would cost £2m per annum and £20m to set up. Even if NIE were slightly exaggerating these figures they would indisputably push prices higher. But these costs will not be included in the price control. In so far as they are included in GB controls their absence from NIE's price control is a factor which would make for price convergence.

It is therefore by no means certain that a price control which effectively tracks the overall trend in GB prices is the best obtainable outcome for customers. Building blocks - especially those which avoid new GB costs - might well result in lower prices

than a price control based on tracking GB trends. Chapter six shows that for RP3 this is indeed the case.

A tracking approach does however offer at least one distinctive advantage over the traditional alternative. It would align the interests of customers and shareholders in minimising costs and resisting the introduction of new costs. It would provide a framework in which the Company would have a much better incentive to make higher than normal profits. Exceptional gains by the Company could be taken as accelerated depreciation of the RAB in accordance with a predetermined formula. Indeed an Adjustable Tracking Mechanism enshrined in a Regulatory agreement between NIE and Ofreg could be the basis for a long term stable regulatory environment in which customers would know that their T&D charges would track Great Britain's and the Company would know that it could take a longer term view of the benefits which could arise for shareholders from management innovation and creativity. However creativity and efficiency can only be facilitated and rewarded by Regulators; they cannot be conjured by Regulators out of infertile and unyielding soil. The choice in this matter is therefore the Company's.

Regulatory Stability

The Issues paper sparked some discussion about regulatory stability. Some of it raised issues of legitimate concern, some reflected misunderstanding or misrepresentation of Ofreg's position and some of it was special pleading to protect those who have done very well out of privatisation.

It would be sensible to set out categorically the view I take on these matters and the way in which they will influence my actions and should, I believe, influence my successors.

There are four over-riding concerns:

(i) that the allocation of rewards and risks between customers and shareholders should be transparent;

(ii) that the regulatory regime should be consistent over time, both to reinforce its quality of equity and for the purely practical reason of minimising costs through eliminating uncertainty;

(iii) that customers should never be charged twice for the same service;

and finally

(iv) that the reward/penalty enjoyed/suffered by customers and shareholders in one period - even if with the value of hindsight it should not have been awarded in the way it was - should not be clawed back/compensated in the subsequent period -ie., that "bygones are bygones".

Electricity regulation in Northern Ireland is running behind utility regulation in Great Britain. Throughout the UK it is a young discipline and inevitably there have been teething problems. This should surprise no one. Regulation in Northern Ireland has provided at least as much stability to regulated businesses as regulation in Great Britain. Moreover, the passage of time itself is a powerful driver for stability since what has happened to regulated businesses post privatisation is more transparent than what happened before privatisation and, over time, more important in the proportion it represents of the costs and benefits for all stakeholders. The four principles set out in this paper will govern the way in which Ofreg constructs RP3.

The simplest area in establishing any price control should be the value of the initial regulatory asset base since we know exactly what shareholders paid for it. But this has never been a simple matter. The financial ratios set by Offer in 1994 were arbitrary. They allowed a 50% uplift and the uplift chosen was because the ratios otherwise looked unfair to the shareholders. However, when the reaction to this price control showed that the financial ratios had been over-titled in favour of shareholders, a year later new lower ratios were incorporated in the price control.

Uplift was invented because in its absence shareholders might have appeared hard done by. So the critical question in this matter is how well have the stakeholders - customers and shareholders - fared following privatisation. By its very nature this cannot be known ex ante. It takes time for it to be revealed. On the basis of the evidence available to date to Ofreg, shareholders in Viridian have done, and will on present form do, much better than customers by the end of RP3 and probably RP4. Indeed, now that they are safely "in the bag" NIE has published graphs demonstrating that NIE made what it describes as "excess profits" in the first regulatory period. (While NIE clearly attributes some importance to this description of performance - at least for public relation purposes - Ofreg regards it as begging more questions than it answers. It is in any event not relevant to this paper other than to demonstrate that bygones are bygones since it would be contrary to the principles set out above if the returns to shareholders - even if in NIE's view these were excessive - in RP2 were clawed back.)

Accordingly Ofreg views it as legitimate for RP3 to:

- examine again the question of whether uplift of the opening RAB should continue to be paid in RP3. But it would not be legitimate to claw back the consequences of uplift during RP2 and there will be no attempt to do so;

- enquire if RP1 was re-opened and if so, to cancel out that any effect of that re-opening. " Bygones are bygones" must apply at all times to all price controls;

- enquire if customers have been paying twice for any service eg., paying for a a depreciation charge, then continuing to pay a return on that part of the asset base - eg., if an asset has been disposed of.

It is not clear if NIE believes that these principles are threatening to shareholders' interests. In fairness, it must be said that NIE has never argued that customers should pay a return on assets which have been sold or depreciated. Indeed Ofreg has no reason to believe that NIE or shareholders could contest this position.

Regulatory Risk and De-risking T&D

The recent Issues paper stimulated comment about regulatory risk. It is generally accepted that Distribution businesses are low risk. The risks to which they are exposed do seem to be uncodified but to relate largely to storms and changes in law. It must be presumed that the Competition Commission would protect companies from unreasonable impositions by the Regulator.

The riskiness of the business has a direct bearing on the cost of capital. The assumptions in Ofreg's cost of capital calculation will be that T&D's degree of riskiness is the same as that of other businesses with transmission and distribution assets.

However, Ofreg would welcome discussions with NIE about ways in which the cost of capital could be reduced in exchange for de-risking NIE. In this respect it is somewhat puzzling that NIE should state that this sort of "de-risking" is not in customers' interests. While on the one hand NIE wants the price control to include cover for all foreseeable but not necessarily occurring costs - such as "goodwill payments" for storm supply interruptions and street work costs which may not apply in Northern Ireland - NIE has stated that it "is not convinced that a significantly different allocation of risk would be in the long term interest of customers, due to the potentially adverse effect on efficiency incentives". Thus it would appear that NIE would have customers continue to pay a large insurance premium but be deprived of most of the protection which an insurance premium provides.

A Consistent Policy of Incentives

NIE is entitled to a policy consistent over time which makes it possible to make rational decisions about disposals. This is dealt with in Chapter 5. In setting out this approach Ofreg wants to agree with the company a long-term policy on incentives.

T&D's Fee for the CBO

As part of the "buyout" agreed between NIE and PPL, PPL agreed to pay 1% of the outstanding capital owed on the buyout of the profit stream. (Under this agreement two thirds of Ballylumford's capacity was to be modernised and the rest to be exposed at different dates to the market. Finally, the bought out profit stream of the old generating sets was paid to PPL as a discounted sum and the cost of this is being recovered from customers.) No justification for this arrangement has been made to me. Indeed, I have never been formally told that this is the case. As NIE's T&D assets cannot be used as any form of co-lateral for Viridian's unregulated business it would seem that any inhibition imposed on the T&D business by the Ballylumford arrangement would ultimately impinge on customers. Accordingly, I do not see why Viridian's shareholders should have exclusive benefit from this additional income

generating power of NIE's T&D assets. NIE should, however, not be disincentivised from seeking means of adding value to the T&D business for the benefits of shareholders and customers. Accordingly, I propose allowing NIE to retain 50% of the benefit in year one of this payment with the percentage declining by 5% each year. Any receipts obtained by T&D in this connection during RP2 will of course be fully retained by the company.

Financial Structure

The cost of capital is fully dealt with in Chapter 5. This price control assumes that NIE continues to remain aligned with the equity model. I have, in the past, expressed doubts about the ability of the equity model to serve Northern Ireland as well as it appears to have served Great Britain. I remain sceptical but willing to be persuaded. The crucial test is the ability of this model to produce gains for customers on a similar scale to those this model has gained for customers in the rest of the United Kingdom. And while the financial structure of the company is primarily a matter for the company I do not believe that a regulator could totally ignore evidence that a change in financial structure would significantly benefit customers. The equity model implies shareholders assuming responsibilities and providing equity - usually in the form of retained profits rather than fresh funds - for financing the business. NIE has informed Ofreg that the T&D business's current gearing is 50% and this is the assumed gearing level of similar utilities in both Great Britain and the Irish Republic. NIE has thus gone in a few years from being cash positive to having its present level of gearing. There has been no suggestion that this has had an adverse level on their cost of capital. The argument always appears to be that a higher level of gearing than that which the company is currently at would risk increasing the cost of capital. This argument certainly suits the company's interest. That is perhaps the kindest thing that can be said about it. It would be unacceptable if having obtained a cost of capital on one basis NIE were to heavily gear up the T&D business and expose customers (and potentially the taxpayer) to the risks which could be associated with very high levels of gearing. If the actual cost of capital of the T&D business is to be driven down by higher gearing - which Ofreg believes is a possibility in current market conditions - then the cost of capital will have to be re-opened. Accordingly I will consider proposing licence conditions requiring NIE to seek regulatory approval for any material change in NIE's gearing. At the same time the T&D business must be carefully ring-fenced so that the T&D business is not treated as a low risk milk cow which can be used to provide funds for higher risk unregulated businesses.

Post the settlement of this price control Ofreg will consider sympathetically, any Viridian proposals for a different financial structure which could bring benefits to customers and shareholders.

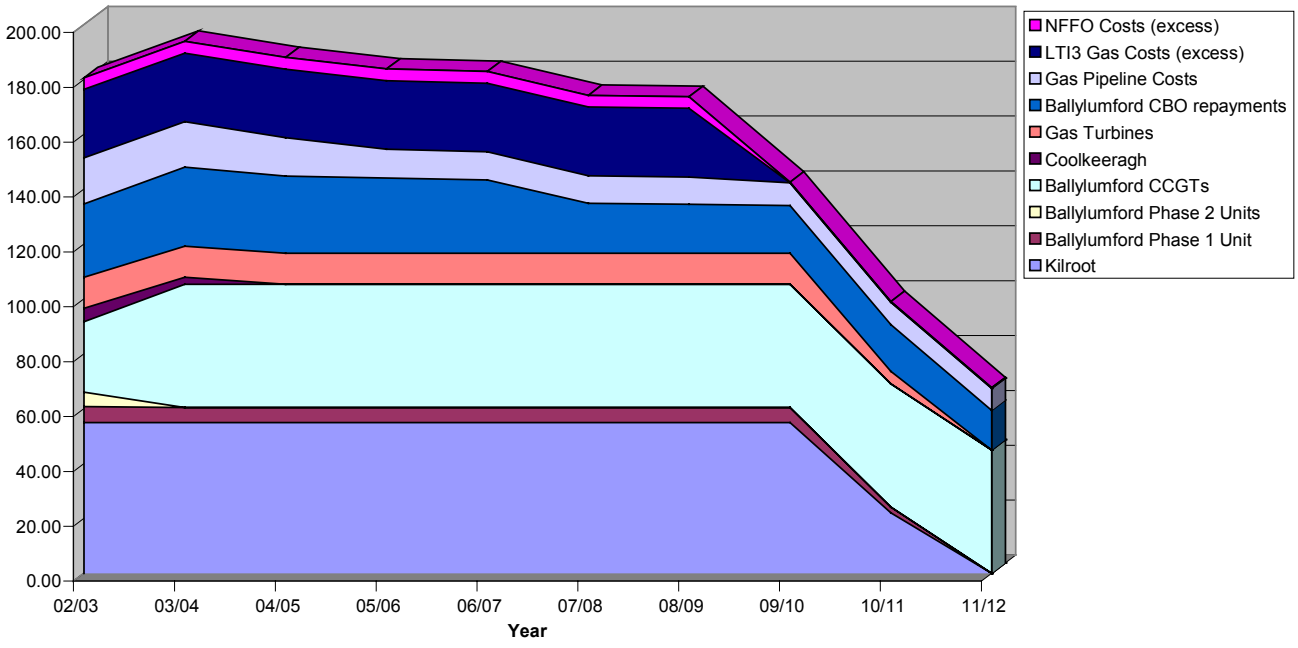
Capex - timing and context

It has become clear in the course of the price control process that Regulator and company between them have a great deal of control over the impact of capital expenditure on the price of electricity in any year. The depreciation policy, the allowed rate of return, the timing of investment decisions, capital efficiencies all have an impact. There is always scope for some argument about exactly what investment

needs to take place and whether some of it can be safely deferred and if so for how long. NIE claims now to have no interest in stimulating the growth of an asset base for its own sake and certainly RECs in Great Britain have been more inclined than NIE to underspend their Capex allowance and thereby improve their profit levels.

Electricity customers in Northern Ireland face a substantial fixed cost of generation before a single kilowatt hour of electricity is bought. They have also to pay for the financing and depreciation charge on NIE's T&D asset base before a single kilowatt hour of electricity moves on the wires. In 2001/2 the cost of financing NIE's T&D asset base was about £83m. The fixed costs of generation are about £180m. This means that customers must pay about £260m before a single light bulb is illuminated. The graph below shows the generators' fixed costs going forward. These begin to decline rapidly in 2009 and even more rapidly from 2012.

Northern Ireland Fixed Costs in Generation, £m, 2002/03 prices



One large lump of additional cost which is unavoidable will be the Moyle interconnector. It will be financed through the RP3 price control as NIE has so far failed to respond to my offer of a separate long-term price control for this investment.

In this context customers will understand the importance which Ofreg attaches to seeking to avoid as far as possible - compatible with safety and prudence in operating the network and maintaining existing standards in the quality of supply - additional network investment. As it happens the Capex proposals - while substantially below what NIE has sought - would still result in the most rapid build up of network costs of any UK company. In Great Britain Ofgem is satisfied that their proportionately

smaller post privatisation network investment programmes represent part of the strength of their post privatisation regime under which network businesses have been able to focus investment better and invest at a faster rate than they were able to pre-privatisation.

Transmission Losses Factor

The existing transmission losses incentive results in customers paying considerably more than the costs they avoid in reduced transmission losses. Moreover the incentive does not have the effect of incentivising NIE to spend shareholders' money to earn the incentive despite the generosity of the incentive. Reduced transmission losses have been secured by expenditure financed by customers and raised through Use of Systems charges. Customers have therefore been paying twice and certainly paying far in excess of the economic value to them of reduced losses. The environmental impact of transmission losses will fall as the carbon intensity of electricity declines with the introduction of more renewables, CHP and CCGT technology and the run down of older more polluting stations. Even if the present mechanism were producing additional reductions in losses - for which there is no evidence - further environmental gains could be achieved more cost effectively.

Accordingly the losses target will not be increased and the incentive will be abolished. Any worsening of performance will be subject to a penalty based on the additional costs imposed on customers. In practice the increasing decentralisation of the network should result in reduced losses - unless overwhelmed by factors operating in the other direction - and it is not anticipated that NIE will incur penalties.

"Chapter 2 Issues"

Chapter 2 of the "Issues" paper in November raised a number of broader strategic issues concerned with the environment, decentralisation, and adapting for longer term requirements to reduce more substantially the CO2 emissions associated with the electricity supply industry. I was encouraged by NIE's response to that section of the paper.

The issues raised fall into two categories. The first is the use of Capex money for investment which avoids rather than facilitates demand growth both generally and more specifically at peak. The second is the encouragement on a small scale of "horizons" technology.

With regard to the former I propose allowing NIE to use its Capex allowance to invest in assets - which could be owned by NIE, an affiliate or an entirely separate entity - other than traditional T&D assets, for the purposes of avoiding network investment. I will seek to agree with NIE after the price control is in place the sorts of controls which might be needed, the way in which projects should be appraised and whether and to what extent NIE's incentives to invest in alternatives might be subject to greater incentives than conventional Capex while avoiding the risk of disincentivising the company from continuing to make prudent and efficient investment decisions.

With regard to the latter a modest allowance will be made in the final proposals for encouraging NIE to facilitate a creative exploration of the future. Again I look forward to discussing with the Company a suitable incentives framework.

Final Proposals

NIE and other interested parties are entitled to adequate time to consider these initial proposals before Ofreg puts together and publishes its final proposals. This is a critical time for the evolution of the electricity industry in Northern Ireland. The Minister has told his officials to prepare an action plan: there is interest in new structures which would reduce the cost of capital - albeit by more explicitly transferring the risks to customers which in practice they already bear; there is the issue of the long term generation contracts, the competitive market structure and the role of PPB; there is a Northern Ireland Energy Bill in preparation.

This price control process is a separate and independent process. The integrity of the price control process requires me to proceed with it on that basis. At present I envisage that in my final proposals I will explore and put figures on the price control which would result from tracking GB trends and the price control which would result from a rigorous application of the building block approach. I do not see that given my duties to customers I can do other than opt for the one which is in the best interests of customers while ensuring that the Company can finance its licensed activities. However as indicated above the price control is being prepared in a very Northern Ireland specific context and there is no reason why that context should not be taken into account. My duty to customers is to obtain for them the best obtainable overall terms and not just the lowest possible T&D charges. I will therefore be open to representations from NIE and others for a price control based on an Adjustable Tracking Mechanism set in a longer term framework which would provide a stable environment for enabling management to outperform the rest of the sector for the benefit both shareholders and customers.

Chapter 2. Operating Costs

Introduction

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.

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

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.

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

Around 30% of operating costs are considered to be largely outside the control of the company, including transmission and distribution system business rates. The government levies transmission and distribution system business rates on NIE, and, in the short term, NIE T&D management can do little to influence these costs. Ofreg is however interested in the apportionment of such costs.

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.

The November 2001 Consultation Paper included an assessment of NIE T&D operating cost movements over the period 1996/97 to 1999/00, and reviewed NIE's forecasts over the period to 2006/07 as well as assessing its previous forecasting record. The overall approach adopted involved the analysis in detail of costs in 1999/2000 net of depreciation. These costs were then adjusted for changes in accounting policies over time, for cost allocations and attributions, and exceptional and one-off costs (as outlined below). These adjustments led to a base level of maintainable operating costs for NIE T&D for 1999/2000 of £57.9m. This is the figure that was included in the November paper and was to form a basis for further analysis and assessment.

In response to the November 2001 Consultation Paper and the PKF analysis, NIE made a number of comments relating to the assessment of operating costs. NIE stated that:

Their assessment of its maintainable cost base is £72.6m, £14.7m higher than Ofreg's figure; and

They expected those costs transferred to NIE's Supply Business following Ofreg's proposed adjustments to be incorporated within the Supply price control.

In addition NIE stated that significant disagreement or misunderstanding existed between NIE and Ofreg on some of the proposed adjustments to operating costs.

It is clear that a detailed assessment of NIE T&D's operating costs is required as part of the price control review. The various components of the analysis set out in the November 2001 Consultation Paper have been reconsidered in the light of comments from respondents particularly NIE and modified where appropriate. Nevertheless the overall approach remains broadly the same. Costs are considered net of depreciation. The resulting base level of costs forms a basis for further analysis and an efficiency assessment, which includes work by PKF.

Allocations, Attributions and Recharges

As noted in the November 2001 Consultation Paper 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.

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. As noted in the November 2001 Consultation Paper 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.

Ofreg asked PKF to investigate the present cost allocation methodologies and replace them, wherever possible, with attributions made on a usage basis. To this end PKF made preliminary adjustments in the following cost areas:

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.

In justifying this 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 it was argued by Ofreg in the November 2001 Consultation Paper that as NIE T&D is a monopoly business it should not bear costs that relate to building or restoring a brand as such costs should only be borne by a competitive business. In addition it was argued that as these costs are one off non-recurring costs they should not in any event be included in the base year operating costs for NIE T&D and hence should be removed.

In its response to the November 2001 Consultation Paper NIE stated that although the "More Power to you Campaign" was "...the first in a continuing programme of necessary communications to meet the information needs of customers preparatory to the winter storms period.....the level of customer information costs in the base year was higher than the level necessary to sustain the on-going programme" which they estimated at £250k per annum rather than the £900k included in the base year figure.

However Ofreg remains of the opinion that the adjustment proposed in the November consultation paper was correct. Accordingly Ofreg has removed £0.9m from the base year advertising and marketing costs.

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 between NIE and Ofreg in 1999 in line with CSC 194. In the November 2001 Consultation Paper it was pointed out that PKF had developed in conjunction with Ofgem as part of the last GB PES distribution review a benchmark for the allocation of billing costs to Distribution of £0.5m. Accordingly given this and the fact that the additional costs associated with Transmission billing are de minimis £0.9m of billing costs were re-allocated to Supply. Ofreg has now finalised this re-allocation.

The remaining Customer records and service cost of £3.3m includes an amount of £1.0m of energy efficiency costs associated with the imposition of the energy efficiency levy. The obligation with regard to this levy lie with the Supply business and T&D simply collects this levy through Use of System charges and passes the full amount through to the Supply business. Since the T&D business has a term in its licence which allows it to collect this money the full £1m should be deducted from T&D costs. This of course does

not mean that the levy will cease to be collected, it simply means that the levy does not form a part of T&D's ongoing cost base.

The November 2001 Consultation Paper analysed the remaining costs of £2.3m in respect of change of tenancy and call centres as relating to customer database and customer service costs. More specifically as stated in NIE's response to this Consultation Paper the figure of £2.3m can be broken down into call centres (£1.4m), customer service systems (£0.5m) and change of tenancy costs (£0.4m).

In the November 2001 Consultation Paper it was proposed that these costs should be re-allocated between NIE's Supply and Distribution Businesses on the same basis as applied as part of the 2000 GB PES distribution review i.e. on the basis of customer contacts. This resulted in a reallocation of £1.5m of customer records and service costs out of Distribution and into Supply.

In its response to the consultation paper NIE contested the application of this methodology to these costs. As regards the customer service system costs NIE argue in their response to the November 2001 consultation paper that these "relate to the Customer Services Systems unit which develops the strategy for major IT projects required within the T&D business and project manages their implementation." It also states that "The group delivers these functions almost exclusively for the T&D Business and the cost is a legitimate part of T&D's maintainable cost base". As a result of this information we have kept these costs in the Distribution business and allocated them to the Engineering cost category.

In relation to the other two cost categories (call centres £1.4m and change of tenancy costs £0.4m) we propose to follow the methodology used in our November paper. Ofreg remains of the opinion that this is an appropriate way to handle these costs and accordingly we propose to reallocate £1m of the £1.8m cost of these activities to Supply.

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 despite the lack of any detailed activity costing for these centres. The lack of any such costing has not been addressed by NIE T&D in any further detail since the publication of the November 2001 Consultation Paper and accordingly it has been decided that the allocation of these costs to NIE's engineering costs within T&D is appropriate.

Metering; As discussed in the November 2001 Consultation Paper costs relating to metering assets, including meter installation, repairs and maintenance and recertification have been allocated to NIE T&D and other costs, representing primarily meter reading costs, have been transferred to Supply. The adjustment, based on NIE's analysis of metering costs, had been calculated for the November paper as a re-allocation of £3.3m of metering costs to Supply.

In its response to the November 2001 Consultation Paper NIE agreed that in line with GB precedent meter reading costs should be re-allocated to the Supply Business. However NIE did not agree with the size of Ofreg's re-allocation. Following the November paper NIE have provided a more detailed analysis of metering costs. Based on this information the adjustment Ofreg now proposes to make in respect of metering is £2.8m. This takes the form of a reallocation of costs from the T&D business to the Supply business.

Corporate; In the November 2001 Consultation Paper Ofreg stated that consistent with the approach taken at the last GB PES review, corporate costs should be allocated across the whole of the Viridian Group. This approach is based on a basket of indicators approach as set out by OFGEM in the GB PES reviews, i.e. average of turnover, historic operating profit, employee numbers and historical net assets. It was stated that applying this approach would result in NIE bearing 65% of Viridian's total corporate costs, of which NIE T&D would bear 78% and that the resulting reallocation adjustment would be £3.0million out of NIE T&D.

In their response to the Consultation Paper NIE disagreed with this calculation and provided further detail on how the corporate costs have been allocated. In light of this updated analysis on corporate costs Ofreg at this stage is minded to reallocate £0.1m of corporate costs out of T&D.

Recharges

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 1 below. It indicates that the amounts charged in respect of these services represent a significant proportion of NIE T&D's costs.

Table 1 Charges to T&D form Viridian Capital Companies

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**

In the November 2001 Consultation Paper it was stated that Ofreg's consultants had removed the profit generated by Sx3 and O&D and Powerteam on the provision of services to NIE T&D. The total resulting adjustment in respect of charges from other Viridian businesses was proposed to be £3.4million.

In its response to the November 2001 Consultation Paper NIE disagreed with this treatment of recharges from other businesses. Ofreg has considered the points made by NIE and still considers the course of action proposed in the November paper regarding recharges to be valid. Since the publication of that paper further work has been carried out by Ofreg and PKF on the profit margin included in these charges and the outcome of this further analysis is detailed below.

Sx3; In the November 2001 Consultation Paper Ofreg assumed a profit margin on the services provided by Sx3 to NIE T&D of 15%. NIE disputed the level of margin Ofreg assumed in its calculations and Ofreg asked PKF to consider this evidence in the context of the appropriateness of the charges from Sx3 through to NIE T&D. A report has now been prepared for Ofreg on this matter. This concludes that a more correct estimate of the profit margin earned by Sx3 for 1999/2000 on its business with NIE T&D is 13.2% and not the 15% assumed by Ofreg or the 8.7% stated by NIE. Accordingly Ofreg has altered its adjustment for Sx3's profit margin.

Open + Direct; The disallowance proposed in the November paper in respect of Open + Direct was based on a 41% profit margin. NIE stated that this was incorrect as this figure was inflated by one-off property sales. Ofreg now agree that the O&D profit margin should be adjusted to reflect this one off property disposal. Consequently we have assumed a margin of 27.2%.

Powerteam; In the November 2001 Consultation Paper Ofreg proposed removing 70% (being NIE's estimate of the proportion of Powerteam's work generated by T&D) of its £0.6m of operating profit i.e. £0.4m.

In its response to this consultation paper NIE argues that this adjustment is "invalid because some 95% if the Powerteam work relates to capital work and therefore no adjustment to base year operating costs is required. On a pro-rata basis the margin attributable to service charged to Opex was £28k".

Subject to clarification as to how the Capex – Opex split has been calculated, Ofreg are minded to accept the NIE position and make no adjustment for Powerteam charges.

The result of the adjustments suggested above is to change the suggested adjustment of £3.4m as per the November paper to £2.3m which is in respect of SX3 and O+D charges.

Nevada; No adjustment was made for the profit margin earned by Nevada on its activities with NIE T&D in 1999/00 in the initial November 2001 Consultation Paper. This area was still under review following consideration of a report on the disposal of the telecoms assets prepared by W S Atkins. A more detailed commentary on the report which has been produced and its recommendations can be found in Chapter 5 of this paper. It has been decided however that T&D should charge Nevada a rent for the use of its assets to carry the telecoms assets. The rental figure has been set at £2,225 per km. Applying this figure to the appropriate length of network which in this case is estimated to be 135km we get a rental value of approximately £0.3m per annum. Ofreg propose that

this adjustment is subtracted from the operating costs to be applied in each year of the next price control period. Table 3 at the end of the chapter shows this.

Excluded service and Non Regulated Income; NIE generated some £7.5million of excluded service and non-regulated income in 1999/00 of which profit constituted £3.6m. As discussed in the November 2001 Consultation Paper this profit arises out of NIE T&D's role as transmission and distribution system operator and consequently should not be included when considering the ongoing operating cost requirement of NIE T&D. Ofreg has now finalised the deduction of £3.6m from the base year costs.

Restructuring costs, provisions and exceptional items;

In arriving at NIE T&D's maintainable operating cost base for 1999/2000 an aggregate net adjustment was also proposed in the November 2001 Consultation Paper to take account of one off, non-recurring and exceptional items. These adjustments have now been finalised and are described in greater detail below.

Staff redundancies; The November paper indicated a reduction of £0.7m from base year operating costs as a result of staff redundancies. NIE agreed with the principle behind this adjustment but calculated that the adjustment should have been £0.4m based on further information provided. In light of reviewing the initial proposal this new information contradicts the originally provided information and we therefore propose to continue with our original suggestion of making a £0.7m reduction to base year operating costs.

Boxing Day Storm; Included in the base year operating costs is a credit of £3.5 million relating to the 1998/99 Boxing Day storms. £3.0 million relates to the insurance claim and £0.5 million to the release of an over accrual in 1998/99. Neither of these items form part of NIE T&D's ongoing cost base and so they were added back to operating costs in the November 2001 Consultation Paper. NIE did not make any comment on this in their response to the Consultation Paper and so this adjustment has now been finalised.

Implementation costs of IT projects; All implementation costs of IT projects are charged to Capex and so no adjustment to operating cost was proposed in the November 2001 Consultation Paper. NIE did not comment on this in their response to that paper and so no adjustment to operating cost in respect of the above is proposed.

Millennium overtime; Some £0.2m of "excess" overtime was incurred in 1999/00 as a result of higher rates of overtime payments to staff during the year. This was eliminated from Engineering costs on the basis that they are one off costs. This adjustment has now been confirmed.

Business improvement and Consultancy costs; NIE has stated that it has included £0.4 million for Business Improvement costs within "Other" costs. These relate to the "Areas of best Practice" team. At present no cost benefit has been shown against this spending. On this basis the cost was viewed as a one off business cost and therefore it has been

excluded from the base year. As Other costs have been reallocated these have been deducted from Engineering costs.

In addition, NIE incurred £0.6 million of consultancy fees during 1999/00 (charged against Engineering and Other costs) which relate to one off consultancy projects such as the Six Sigma methodology. NIE has provided analysis for these projects but we consider them to be largely one off in nature and have therefore excluded them from the base year. As Other costs have been reallocated these costs have been deducted from Engineering costs.

The total adjustment proposed in respect of these items was therefore £1 million.

Year 2000 costs; NIE incurred some £1.1m in respect of year 2000 costs in the base year and as these costs were one off costs they should be excluded from the base year. We have therefore proposed an adjustment of £1.1m to the base year costs.

Canteen subsidy and staff discount; Information provided by NIE to Ofreg indicates that NIE anticipates saving £0.2 million per annum each from the removal of the staff canteen subsidy and general staff discounts. It was argued that Ofreg did not consider that these costs should be borne by the customer and that £0.1 million should be removed from engineering costs in the base year. NIE have agreed with this adjustment.

Licence fees; In submissions provided by NIE to Ofreg it was stated that the licence fee costs are understated by £0.5 million due to the release of a provision in the Viridian Corporate accounts related to the MMC referral. Licence fees are an area which Ofreg intend to examine in more detail before the final proposals are published. For the purpose of these initial proposals Ofreg has decided to increase the operating cost in the base year to reflect NIE's comments on this area.

Provision Releases; In its response to the November 2001 Consultation Paper NIE stated that "Ofreg has not made any adjustment in respect of provision release of £1.2million". As this item does not form part of NIE's cost base it has been excluded from base year operating costs.

Additional Cost Items; In its response to the November 2001 Consultation Paper NIE states that "Ofreg omits to add back into the cost base valid cost increase relating to enhanced customer call handling services during system emergencies, support costs for the Distribution Control Centre, SCADA and Troubleman systems, insurance premiums and storm damage".

For the purpose of these initial proposals Ofreg has decided to ignore these additional cost items which NIE have now asked for. That is not to say that these will not be allowed in the final proposals. These additional cost items need careful consideration by Ofreg and we intend to hold further discussions with NIE in relation to these items.

Maintainable operating costs for 1999/2000

Table 2 below 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 £75.2m to £64.2m net of depreciation, a reduction of approximately 15%.

Table 2
NIE T&D maintainable operating costs for 1999/00 in £m

	1999/00 £m
T&D business operating costs	**92.9**
Network Depreciation	(14.50)
Metering Depreciation	(3.2)
Profit on sale of assets and other operating income	-
Operating costs excluding network and metering depreciation	**75.2**
Provision add back	1.2
Capitalisation adjustments	-
Advertising and marketing	(0.9)
Customer records and service costs re-allocation	(3.4)
Corporate overheads re-allocation	(0.1)
Customer metering costs re-allocation	(2.8)
Operating costs after re-allocation	**69.2**
Charges form other Viridian capital businesses	(2.3)
Excluded service and Non-Regulated income	(3.6)
Operating costs before one-off and non-recurring items	**63.3**
Staff redundancies	(0.7)
Boxing day storm	3.5
Implementation costs of IT projects	-
Millenium overtime costs	(0.2)
Business improvement and consultancy	(1.0)
Year 2000 costs	(1.1)
Use of agency staff	-
License fee	0.5
Canteen and staff discounts	(0.1)
Maintainable operating costs	**64.2**

Consultants Efficiency Study

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 assessed the level of operating costs potentially achievable by NIE by the application of efficient operating practices. In this respect technical/capital expenditure consultants WS Atkins have assisted them.

At the time of the November 2001 Consultation Paper PKF had assisted in the design of business plan questionnaires, analysed the completed questionnaires, visited NIE to clarify areas of uncertainty, gathered further information and asked further written questions. They then completed a draft report on the level of maintainable operating costs for 1999/2000 as outlined above which was sent to NIE for comment. They have also been considering the level of costs potentially achievable by NIE by the application of efficient operating practices. Their views on this area have not been shared with NIE prior to this paper.

In considering efficiency in 1999/00, the base year for their analysis, PKF applied several complementary techniques. They considered the underlying level of cost reduction achieved since 1996/97, benchmarked the cost of performing the main transmission and distribution activities, and also carried out supporting analysis of human resource and IT costs.

Comparison of Historic savings

The historic savings achieved by NIE T&D was compared against those achieved by the best performing PESs during the last price control review in GB. Over the period 1996/97 to 1999/00 NIE has generated a total reduction in operating costs of 5.3%. The level of these savings is modest when compared to those achieved by the three most efficient of the GB PES. For example (over a different four year period) these PES businesses achieved a total reduction in operating costs of 27.2% compared to 5.3% for T&D.

If T&D had matched the level of savings achieved by these three PES it would have reduced its operating costs by a further £16.9m over the four year term. Whilst this does not prove that the T&D business is inefficient it does show that it has not matched the significant cost reductions achieved elsewhere, and future cost saving should be achievable.

Payroll and human resource related savings:

PKF also carried out supporting analyses of NIE T&D payroll and human resource costs. This included the benchmarking of overtime and sickness rates, an assessment of pay rates as compared to the 2000 New Earnings Survey, consideration of the efficiency of NIE T&D's organisational shape and the potential savings from moving to more commercial contracts. Some detail on this analysis is outlined below.

Organisational shape: NIE has stated that T&D has undergone a period of delayering over RP2. However PKF concluded, based on an optimum organisation structure derived by it during the last PES review, that the NIE T&D management structure remains top heavy and that the shape could be squeezed downwards with a reduced level of

management required for its craftsman base. PKF estimated that if T&D were to adopt an efficient organisational shape, based on its existing staff numbers, it could generate annual savings of between £2.8m and £3.9m based on using lower and median quartile rates from the New Earnings Survey.

Rates of pay: T&D's total payroll bill for 1999/00 was £35.5 million with an average annual salary of £28,000. The average salary is forecast to rise to £33,000 by 2006/07. PKF carried out a review of NIE T&D's pay rates against data included in the 2000 New Earnings Survey (based on job descriptions supplied by NIE). This indicated that if NIE T&D were to move from its current pay rates to lower quartile and median rates for equivalent roles as set out in the 2000 New Earnings Survey it could generate annual savings of between £12.3 million and £6.4 million.

Overtime and sickness levels: PKF consider, given their review of the GB PESs, that an efficient recurring level of overtime is 10% of the total payroll cost. If NIE T&D were to reduce the level of overtime to 10% of its total payroll costs it would achieve annual savings of some £0.8 million per annum. In 1999/00 NIE T&D's sickness and absenteeism level was 3.2%. Evidence from the GB PES review indicates that an efficient recurring level of sickness and absenteeism is 2.5%. If NIE T&D were to reduce its sickness and absenteeism rate to 2.5% it would achieve annual payroll savings of some £0.4 million.

Other potential sources of savings: In 1997 NIE set up NIE Industrial and staff were recruited from the external labour markets. NIE Industrial Limited acted as a contractor to NIE T&D. NIE Industrial Ltd became "Powerteam", and in October 2000, as part of the increasing commercialisation of T&D, 419 staff in the NIE Network Services business (a business unit within T&D) transferred into Powerteam. It was anticipated that as part of this transfer the cheaper terms and conditions in place within the existing Powerteam business would be introduced across the expanded business. However at present only 93 out of 512 Powerteam staff are employed under the cheaper terms and conditions rather than the NIE terms and conditions. This is an area where Ofreg would expect NIE to achieve savings over time as more staff are introduced into the business under the new contracts.

Summary of Payroll and HR Savings

The potential savings available to T&D through payroll and HR changes are estimated at between £18.0m and £13.2m based on using the lower and median quartile rates. Ofreg's price control proposals do not assume that all these potential savings are achieved during RP3.

Benchmarking efficiencies:

The main activities carried out by the transmission and distribution business can be summarised as follows:

Engineering – including network repairs and maintenance, system control and non-capitalised planning and construction;

Meter operation – including meter repair and maintenance, meter recertification and meter changes;

Customer service – including the proportion of customer interface activity related to transmission and distribution.

The consultants carried out a detailed study of the costs of these main activities. In order to assess the potential savings available to NIE a number of techniques were applied. These included the development of a number of benchmarks against which to measure NIE T&D's performance based on those derived by PKF as part of their recent review of the GB PESs. The initial benchmarks derived by PKF during the GB PES review were based on a basket of the base costs (as calculated by PKF) of the three best performing PES. The efficient PES benchmarks were accepted by each of the PES businesses and formed the basis for the price controls which the PES are now operating. These initial benchmarks are set out below:

Engineering – Two engineering benchmarks were developed during the GB PES review. The first of these was based on an engineering cost per kilometre of network length, the cost derived under this benchmark was £575 per kilometre. In addition, and in conjunction with PB Power Limited, an asset based benchmark based on the asset profile of each PES was developed. This generated an efficient engineering cost based on the type and number of assets making up each PESs network. It also included a benchmark cost for system control and non-capitalised planning and control. NIE has emphasised the length of its network as having a detrimental impact on the level of T&D's engineering expenditure. However PKF's derived cost per kilometre benchmark may favour PESs such as NIE with a long line length and certainly will not be unfavorable to them.

Metering – For customer metering operation a benchmark of £2.40 per customer was derived.

Customer records, service and billing - A customer records, billing and service benchmark of £1.50 per customer was derived.

Wayleaves – A wayleaves benchmark of £40.58 per km of line was derived.

The original benchmarks were calculated in 1997/98 prices whereas the NIE T&D base year is 1999/00, i.e. some two years later. In order to reflect this the benchmarks were adjusted to include an allowance for inflation, calculated at 2.5% per year. This was offset by an underlying efficiency of 1% (based on an underlying productivity increase of 2.5% per annum less an allowance of 1.5% for network growth, i.e. a net efficiency saving of 1% per annum).

As NIE T&D carries out the same broad activities as the GB PES it is our view that the above represent valid benchmarks for the business. In particular, although NIE business includes Transmission this should not have any impact on those benchmarks driven by customer numbers. In the case of engineering costs the length of the transmission network has been incorporated in the cost per kilometre benchmark. Further, in conjunction with WS Atkins, the asset based benchmark has been revised to include an allowance for transmission related assets based on the costs of the Scottish transmission business. Given that significant cost reductions are recommended for each of these businesses it may be that the transmission related asset cost is generous.

In addition to the above efficiencies PKF have identified further specific areas where NIE T&D could reduce its cost base. These are summarised as follows:

Customer service centres - NIE T&D currently operates 13 regional customer service centres ("CSCs") carrying out a variety of services at a local level as discussed in the November 2001 Consultation Paper. The total cost of these CSCs in 1999/00 was some £8.0m (of which broadly 50% are payroll and 50% premises costs) all of which was allocated to the T&D business. NIE has stated that, as part of its ongoing efficiency plans, it intends to reduce the number of CSCs (although it has not provided details of how many will be closed). PKF's review of the GB PES indicates that these CSCs are unique within a UK context with no GB PES operating at such a scale at such a local level. It is believed that the centralisation of these activities could lead to a significant proportion of the associated costs being saved.

control centres - NIE T&D currently operates three control centres at a total cost of £2.1m. The GB model indicates that there has been a move to centralising control centre activities. It is believed that NIE T&D could generate substantial savings through the centralisation of control centre activity in one centre.

Increased use of IT - At present NIE T&D are in the process of implementing various considerable IT projects. At the time of this review the systems were not being used to their full operational capability. The business cases provided to the board of NIE to authorise the spending are not clear as to where the financial and customer service benefits will arrive. In relation to the GB RECs NIE is behind in implementing and gaining the benefits of the new IT systems specifically the GNIS and Trouble Management systems.

Level of Efficient Costs

The different components of the above analysis produced a range of potential cost savings considered by PKF to be available to NIE. PKF then used these analyses to determine an appropriate overall level of cost savings for NIE T&D. PKF's view of the overall cost reductions potentially achievable by NIE T&D for the year 1999/00 are shown in Table 3 below.

Engineering

NIE T&D has a base engineering cost per kilometre of £902 compared to the PKF efficient benchmark cost of £592 per kilometre. If T&D were to reduce its engineering cost to the efficient benchmark this would result in total engineering costs of £24.7m. WSA have also calculated a network cost for T&D based on the profile of its assets and a best practice cost for maintaining those assets. This indicates a network cost for T&D of £29.2m, equivalent to savings of £8.5 million. The above suggests an efficient network cost of between £24.7 million and £29.2 million, a potential range of savings of between £13.0 million and £8.5 million.

The further analysis of engineering costs described above and the range of potential savings identified support this benchmark range of savings. Due to the limited cost savings that have been achieved by NIE over RP2 the upper level of £13.0 million should be achievable and thus a reasonable estimate of the efficient level of engineering costs is £27.4m (£40.4m less £13m).

Customer Metering

The principal influence on the level of customer metering costs appears to be customer numbers. NIE T&D has base year customer metering costs of £2.2m compared to PKF's inflation adjusted benchmark of £2.47 per customer. In the case of NIE T&D this suggests an efficient cost of £1.7m, which is a saving of £0.5m on base year metering costs.

Customer Records Billing and Service Costs

The principal influence on the level of customer records, billing and service costs appears to be customer numbers. NIE T&D has base year customer records, billing and service costs of £1.3 million. However PKF's inflation adjusted benchmark of £1.54 per customer suggests an efficient cost of £1.1 million in the case of NIE T&D. This leads to an efficiency adjustment of £0.2m.

Corporate Overheads

T&D has base corporate overheads of £7.4m. These costs have been reviewed after the proposed re-allocations and are in excess of the benchmark cost. Efficiencies of £0.4m have been suggested for corporate costs.

Wayleaves

T&D has a Wayleaves cost of £3.8 million. However PKF's inflated benchmark of £41.76 per km suggests an efficient cost of £1.8 million. Given the relative value of agricultural land in GB and NI Ofreg is of the view that NIE's figure is too high and the efficiencies of £2million suggested by PKF should be applied.

Formula rates, insurance and licence fees

Formula rates, insurance and licence fees charges primarily consist of external payments and, other than improved negotiation, the scope for applying efficiencies is limited. Consequently no further reductions in these costs in arriving at an efficient base operating cost is proposed.

Level of Efficient Future Costs

In the paragraphs above we have identified some £16.2m of efficiencies to be applied to NIE's T&D base operating costs if it is to achieve a reasonably efficient level of costs. In addition to these specific efficiencies we also consider that NIE T&D should also be able to achieve further general on-going efficiencies. The level of these on-going efficiencies has been estimated at some 1.5% per annum, based on that typically achieved by the UK economy as a whole.

In applying the specific efficiencies to NIE T&D's base cost, we have assumed that a PES can reduce costs by 12.5% per year (based on the overall reduction in costs of all GB PES after the first year of the last price control). This results in a 2.3 year glide path to achieving the specific efficiencies. We then applied the on-going efficiency percentage to NIE's T&D efficient costs i.e. operating costs after implementing the total specific efficiency savings. The results can be seen in Table 3 below.

It is possible that there may be costs associated with implementing the specific efficiencies. The primary costs in achieving those efficiencies will be staff related and will consist of payments to existing staff. PKF's review of the level of redundancy payments made by NIE T&D indicates that they typically average one year's salary and therefore a cost has been estimated, being the payroll percentage of base costs, of the projected savings for the year.

The effect of the above on NIE's T&D base costs for the seven years ending 31 March 2007 has been summarised in Table 3. This shows that the projected accumulated operating costs for NIE T&D amount to some £223.9m (excluding rental income from Nevada) over the five-year price control period starting 2002/03. The resulting annual level of costs in 2006/07 should be £43.6m (excluding rental income from Nevada).

Table 3
Efficient on-going T&D operating costs

1999/00 PRICES	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
	£m	**£m**	**£m**	**£m**	**£m**	**£m**	**£m**	**£m**
Base costs	64.2							
Less network rates	(8.1)							
Adjusted base costs	**56.1**	**56.1**	**56.1**	**56.1**	**56.1**	**56.1**	**56.1**	**56.1**
Cumulative specific efficiencies	-	(7.0)	(14.0)	(16.2)	(16.2)	(16.2)	(16.2)	(16.2)
Efficiency related costs	-	1.9	1.9	0.6	-	-	-	-
Costs after specific efficiencies	**56.1**	**51.0**	**44.0**	**40.5**	**39.9**	**39.9**	**39.9**	**39.9**
On-going efficiencies	-	(0.8)	(1.6)	(2.2)	(2.8)	(3.4)	(3.9)	(4.4)
Adjusted costs	**56.1**	**50.2**	**42.4**	**38.3**	**37.1**	**36.5**	**36.0**	**35.5**
Add network rates	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Total Allowed OPEX	**64.2**	**58.3**	**50.5**	**46.4**	**45.2**	**44.6**	**44.1**	**43.6**
Nevada rent adjustment		(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)
Total Adjusted Opex	**64.2**	**58.0**	**50.2**	**46.1**	**44.9**	**44.3**	**43.8**	**43.3**

Chapter 3. CAPEX

The November Ofreg consultation paper presented an analysis of NIE's CAPEX spending in the second regulatory period as well as presenting a preliminary analysis of NIE's forecast capex requirements for the third regulatory period. It identified several issues for consideration:

- The extent to which capital expenditure has been unnecessarily high or inappropriate in the present price control;
- The extent to which NIE have distorted their capital expenditure programme and what, if anything, should be done about this;
- The appropriate level of load related capital expenditure for the third price control period;
- The appropriate level of non-load related capital expenditure for the third price control period;

When constructing the appropriate levels of capital expenditure for the forthcoming price control period RP3, it is important that we;

- incentivise capital efficiency and hence reductions in overall cost levels;
- achieve quality of supply standards and targets at least cost;
- incentivise improvements in quality of supply where these are cost effective.

The overriding consideration to bear in mind for this price control period is to obtain maximum capital efficiency and therefore lowest prices for customers while ensuring that quality of supply is maintained or improved. Given the fact that NIE spent their whole capital allowance[1] in the second price control period it is important to ensure that their forecast for the third price control period reflects their underlying needs.

Capital expenditure during the present price control period

The November paper examined the capex programme carried out during RP2 and raised a number of areas where there were significant variances with the programme proposed by the MMC. Ofreg believe it is important to look at the reasons for the differences between the capex allowance given by the MMC and the programme undertaken by the company. This will enable us to get an idea of where the differences arose and what the reasons for this difference in expenditure were. Variance in expenditure with that allowed by the MMC can only be due to an increase or decrease in workload or an increase or decrease in unit costs.

NIE's assertion that all that matters is that the outputs anticipated have been delivered and this is all that Ofreg need concern itself with is an overly simplistic way of looking at a capital expenditure programme. If we take for example a situation where a capital

[1] The basis of this statement is the original NIE RP2 submission W5E. NIE subsequently advised Ofreg in O99E that 94% of the allowance was expected to be invested by the end of RP2. Further detail on this can be found at the end of this chapter.

project has been clearly deferred between price controls it would seem reasonable to make an adjustment between these controls, otherwise customers will be asked to pay twice for this defined capital project. This is particularly relevant where the company have received a financing benefit as a result of an underspend in capital expenditure. It is only through a detailed analysis of past capital expenditure that a regulator is able to determine what are genuine efficiencies in a capex programme and what are simply deferrals of projects/schemes to a later date. A detailed examination of the past capex programme may also provide an indication of any area where there was an over-provision of capex, or areas where expenditure was included unnecessarily.

RP2 EXPENDITURE

Table 3.1: The MMC Proposals and RP2 Actual Expenditure

	MMC Proposals (£m)	**RP2 Spend latest estimate (£m)**
TRANSMISSION		
Load related	60.00	36.7
Asset Replacement	12.56	15.9
Sub Total	**72.56**	**55.90***
DISTRIBUTION		
New Business	56.86	59.10
Load related	62.27	47.20
Non-Load Related		
Line Refurbishment	62.60	86.10
Asset Replacement	30.43	28.70
Network	32.81	27.20
Sub Total	**244.97**	**248.30**
OTHER EXPENDITURE		
Metering	23.61	16.20
DCC / Scada	5.42	19.90
Non-Network	4.33	8.40
On-costs	28.16	36.60
Sub Total	**61.52**	**81.10**
Gross Capital Expenditure	**379.05**	**385.30**
Less Contributions	**43.32**	**49.00**
Net capital expenditure	**335.73**	**336.3**

*Includes £3.3m of Interconnector expenditure

NIE have stated that since the outputs associated with the RP2 capex plan have been largely delivered there is no need to look at a comparison of the inputs as the Ofreg November paper has done. Ofreg do not agree with this approach. NIE state that the outputs anticipated by the MMC have been delivered and in achieving these outputs over £40m of savings will have been achieved.

EFFICIENCY SAVINGS

An examination of the main categories making up these savings follows. There are four main categories where NIE claim efficiency savings have taken place;

Transmission Load related expenditure;
Distribution Load related expenditure;
Network Improvement costs;
Metering.

Transmission Load related expenditure

The main project which covers the majority of the saving in this category is the Omagh / Tyrone project. The cost of the Omagh project in the RP2 capex plan was £20.1m. This was replaced with an alternative scheme at Dungannon costing £3.7m. This results in an efficiency saving of £16.4m according to NIE. Ofreg believes that this is a clear example of deferring a specific project which was included in the RP2 investment plan. To claim that this saving in project costs of £16.4m is a pure efficiency saving is in Ofreg's opinion incorrect. The fact that the Dungannon project has not been undertaken in RP2 because of delays in gaining planning consent shows that this project could in theory have been completely omitted from the RP2 capex programme. This case underlies the problem regulators face when trying to attribute variances in capital expenditure programmes. It may be possible to justify a proportion of the saving from this project to efficiency for example efficiency in planning the network. However to attribute this complete underspend of £16.4m to efficiency savings is obviously incorrect.

Distribution Load related expenditure

Distribution Load related expenditure shows a reduction of £15.1m from the MMC outcome of £62.3m at 1999 prices, representing a reduction of about 25%. The load growth the MMC assumed when setting this budget was 133MW. The actual load growth met by the 25% lower spend was in fact 166MW. NIE have pointed out that if the £62.3m investment to meet a load growth of 133MW is uplifted pro rata then the actual allowance should have been £77.8m. If we assume that the MMC would have set this allowance for load growth of 166MW then the actual underspend on distribution load growth expenditure would have been £30.6m a reduction of 39%. The reasons for the significant decrease in expenditure while load growth actually increased are unclear and could be a combination of specific projects and the load growth modelling used. However it seems reasonable to assume that this decrease in expenditure is not solely the result of

capital efficiencies. It is interesting to note that the view expressed by the DG to the MMC at the time of the enquiry is that the modelling used tended to overestimate the investment requirements.

Network Improvement costs

The MMC outcome provided expenditure for a range of network improvement programmes. An allowance of £32.8m was included to cover these improvements. The RP2 outcome was that NIE spent £27.2m an underspend of some £5.6m or 17% of the capex allowance. The workload defined by the MMC in this area is unclear except for undergrounding where an overall target of 760km in 20 years is set out in the MMC Report. NIE plans to complete 150kms of undergrounding in RP2 as opposed to the 190km in the MMC outcome. This decrease in undergrounding does suggest some deferral of workload and therefore it is difficult to tell what proportion, if any, of the underspend is due to capital efficiencies. The impact of the reduced undergrounding workload would in itself account for an underspend of around £3.6m.

Metering

NIE received an allowance of £23.59m for metering and spent £16.2m of this. Of this £16.2m, £3.1m relates to the recently agreed supply price control and was therefore not included in the original RP2 proposals. Comparing metering spend on a consistent basis the spend figure is therefore £13.1m. This represents an underspend on metering of some £10.5m or some 44%.

ADDITIONAL CAPITAL EXPENDITURE

The above was just a short analysis of the main areas of capex underspend. As can be seen from the preceding table, Table 3.1, NIE did in fact spend their total capex allowance in spite of the fact that there were these areas of capex underspend. This obviously means that there were areas were NIE overspent their allowance on capex. The main areas of additional capital expenditure or where NIE say they have re-invested the efficiency gains they have made are:

Interconnectors £3.3m;
Line refurbishment £23.5m;
DCC/Scada/Non-Network £18.6m;

Interconnectors

The £3.3m extra expenditure by NIE was spent on enhanced interconnector capacity to ‘enhance regulatory objectives’.

Line refurbishment

Expenditure on line refurbishment increased by £23.5m due to an increased workload this included an additional 1250km of 11kV refurbishment and 2500km of 11kV light refurbishment. NIE have stated that this expenditure has helped storm-proof the network and has provided an enhanced level of customer service. In spite of this additional expenditure NIE now estimate that Customer Minutes Lost (CML), the measure of network availability, for 2001/02 will be 160 per connected customer (160 CML/CC). The MMC allowance for line refurbishment was expected to achieve a CML range of 120-140. In spite of the additional £23.5m of capex we can see that NIE have failed to achieve the target set by the MMC. Indeed the target NIE have suggested for the end of RP3 is 127 CML/CC.

DCC/Scada/Non-Network

NIE spent an extra £18.6m on these categories. This expenditure is primarily attributable to NIE's decision to spend money on a new Trouble Management system and related call handling and messaging systems. The main aim of this expenditure was to develop information systems which provide a higher level of customer service under network fault conditions.

Capex Monitoring

NIE have claimed that they have made over £40m worth of efficiency savings during RP2, and they claim to have re-invested these for the benefit of customers in Northern Ireland. The analysis above shows how difficult it is to measure 'pure' efficiency gains and casts some doubt on NIE's claims.

In the light of the difficulties associated with identifying pure efficiency gains, Ofreg are proposing a more continuous degree of capital expenditure monitoring during RP3. Reporting on key outputs, workload and investment should provide a good measure of progress against planned efficiency targets. The exact nature of this monitoring and the way it will take place will hopefully be agreed with the company. It is important to emphasise here that Ofreg do not want or intend to get involved in the management of the company's capital expenditure budget and we do not want a say in how the budget is spent. What we are suggesting is a monitoring programme which will enable us to see any major changes in actual expenditure from the plan, the reasons for these changes and the ability for us to see genuine capital efficiencies as they occur rather than wait until the next price control review. As well as being an aid to Ofreg, NIE should benefit form this type of arrangement as it should be easier for them to demonstrate efficiency gains.

RP3 EXPENDITURE FORECASTS

Table 3.2 below shows the level of expenditure NIE have incurred during RP2 and the level of expenditure they have requested for RP3. This is followed by an analysis of the main categories of expenditure planned for RP3.

Table 3.2:NIE's RP3 Proposals and RP2 Actual Expenditure

	RP3 proposals (£m)	**RP2 Spend latest estimate (£m)**
TRANSMISSION		
Load related	21.38	36.7
Asset Replacement	31.15	15.9
Sub Total	**52.53**	**55.90***
DISTRIBUTION		
New Business	52.54	59.10
Load related	45.40	47.20
Non-Load Related		
Line Refurbishment	75.72	86.10
Asset Replacement	37.66	28.70
Network	28.40	27.20
Sub Total	**239.72**	**248.30**
OTHER EXPENDITURE		
Metering	11.56	16.20
DCC / Scada	3.50	19.90
Non-Network	20.31	8.40
On-costs	40.0	36.60
Sub Total	**75.37**	**81.10**
Gross Capital Expenditure	**367.62**	**385.30**
Less Contributions	**42.51**	**49.00**
Net capital expenditure	**325.11**	**336.3**

*Includes £3.3m of Interconnector expenditure

Load Related Expenditure (LRE)

When looking at these categories of expenditure for NIE it is useful to split them into two categories i.e. Transmission (TLRE) and Distribution (DLRE), in addition to this DLRE can be broken up into two categories. The first is expenditure on the network to connect

new customers. The second is expenditure on reinforcement i.e. expenditure on general network development to meet overall increases in demand.

NIE has proposed TLRE of £21.38m for RP3. To arrive at their projection of the level of TLRE necessary NIE identified specific project requirements to meet increased demand. An analysis of these specific projects has led our consultants to suggest that £1.8m or 8% of capital expenditure planned for 2006/07 could be deferred to a later period. In addition to this general efficiencies could be applied to the remainder of the Transmission expenditure leading to further savings of approximately £3m.

The DLRE reinforcement expenditure allowance predicted for RP3 is made up of specific project requirements for the 33kV system and using a Load Growth Model to derive expenditure requirements for the 11kV and LV systems. Looking at the 33kV system first we see that NIE has proposed £21.2m of expenditure for RP3. Ofreg consultants have assessed the merits of these scheme specific 33kV projects and have reduced the total workload by £3.8m or 18%. Further capital efficiencies will be applied to this and all other areas of capital expenditure proposed by NIE. The exact level of these capital efficiencies are dealt with later in this chapter.

NIE have proposed an expenditure of £24m to meet load growth need in the 11kV and LV networks. This figure has been derived from a Load Growth Model. Ofreg's consultants were concerned that the Model used was not sufficiently robust to use to derive reliable estimates of capital expenditure. There was no documentation for the model, no evidence of testing and no validation had been carried out. In light of these concerns Ofreg's consultants have suggested a reduction in the workload proposed of £4.2m or 18%.

NIE have proposed £52.54m in DLRE for new customer costs. This expenditure has remained unchanged although efficiencies have been applied to these figures and these will be dealt with later.

Non-Load Related Expenditure (NLRE)

NIE has developed its NLRE projections for all T&D assets, except distribution overhead lines, from an asset replacement model. Again this expenditure can be broken down into Transmission (TNLRE) and Distribution (DNLRE). Distribution expenditure can then be broken down into forecasts provided by the model and overhead line projections. The projections for NLRE relating to distribution overhead lines is driven by achieving a target workload rather than maintaining or reducing service levels to defined targets.

NIE has proposed £31.15m of TNLRE for RP3. This represents a significant increase (96%) on the expenditure quoted for RP2 which totalled £15.9m. One of the key assumptions in relation to the asset replacement model concerns the treatment of deferred assets. The principle of deferred assets is that they continue to be fit for purpose beyond their assumed book life. Thus replacement of assets assumed for replacement in RP2 are now to be replaced in RP3. This is a sound business decision as assets continue to

function effectively without incurring high operating costs or high risk of failure. This statement tells us that a population of assets due for replacement has a longer life than assumed. It would therefore seem reasonable to assume that a similar population of assets in RP3 would show similar characteristics and their replacement could be deferred to RP4. This results in a reduction in the TNLRE allowance for RP3 of £4.1m or 13%, and this is a reduction we propose to make.

The expenditure on distribution assets which have been prepared on the basis of the above asset replacement model total £66.06m. Following the same theory in relation to deferred assets as in Transmission above we propose a reduction in DNLRE expenditure of £23.3m or 35%.

The last category of asset replacement expenditure relates to Distribution overhead lines. As stated above these projections were driven by achieving a target workload rather than maintaining or reducing service levels to defined targets.

The 33kV distribution system comprises some 3137km of overhead lines with wooden poles. NIE assumes a 45 year life for these assets with a refurbishment every 15 years. Over RP3 a total of 1045km is included for refurbishment at a cost of £5.1m. In the RP2 period NIE carried out full refurbishment of about one third of the asset stock and 'light' refurbishment of the remaining asset stock where decayed poles were replaced. The main uncertainties in this approach are the life cycle of the asset and the impact of the light refurbishment in deferring the need for further work. An extension of asset life by 5 years would lead to savings in RP3 workload by around 10%. It is proposed to reduce this refurbishment programme by £1m as well as applying the on-going efficiency gains.

The 11kV Distribution system comprises 20,000km of overhead line with wood poles. NIE have followed similar assumptions as above with refurbishment on a fifteen year cycle. While work was accelerated following the Boxing Day storm NIE propose to revert to the 15 year refurbishment cycle. This suggested refurbishment of 6550km of line comes at a cost of £37.3m. Work on the 11kV system has a marked impact on performance to customers. There is a balance to be struck between the level of refurbishment and system reliability and the expenditure needed to do so. The NIE proposals would result in some 80% of the overhead circuits being refurbished by the end of RP3, over a period of ten years. A detailed discussion on the trade-off between 11kV refurbishment and quality of supply is contained in Chapter four on quality of supply. NIE state that the impact of this programme of refurbishment is to reduce the impact of adverse weather on the network and the risk of faults. The analysis in chapter four shows that NIE's performance in terms of fault outages is very good. Indeed considering that the NIE network is largely overhead the results are somewhat surprising. Ofreg propose to reduce the level of 11kV overhead line refurbishment in RP3 to 1500km at a cost of £8.3m and a saving against the NIE plan of £29m. The main reasons for this are the limited benefit to customers (in terms of CML) from the continuing high level of refurbishment, and the need to take stock of the effectiveness of and value for money provided by the refurbishment programme in RP2. A more detailed discussion of the reasons behind this adjustment can be found in Chapter four on quality of supply.

The LV system comprises 5574km of overhead line and 619km of underground cable. NIE state that 2,400km of line has been refurbished in RP2 and propose to continue at a rate of 739km per annum in RP3, to complete refurbishment. A further 20km will be replaced by underground cable. NIE has made a broad assessment of investment needs based on refurbishing all assets by the end of RP3. This has been based on limited information. The scope of the work proposed for RP3 was a significant increase on the RP2 work carried out. Given the basis on which the projections were made the conclusion we have come to is that there is insufficient detailed project justification and risk assessment for expenditure at this level. We have therefore proposed that half the workload NIE have proposed should be funded in RP3. This will mean that 75% of the LV system will have been refurbished by the end of RP3. The implementation of this proposal will mean that expenditure in this category will be reduced by £16.4m from that contained in the NIE proposals.

Other Expenditure

The main categories covered under Other expenditure are Metering, Network IT, Non-Network IT and On-costs. NIE have proposed expenditure of approximately £75m to cover these categories. Ofreg have decided to make a number of changes to the proposed spend.

Metering; Ofreg has disallowed £3.1m of expenditure that is related to the installation of additional keypad meters. The remaining metering expenditure has been allowed with efficiencies applied.

Network IT; The expenditure proposed by NIE in this category has been allowed with the only adjustment applied related to efficiencies.

Non-Network IT; NIE has proposed a level of expenditure for this category of £20.31m. This has all been removed on the basis that NIE have said that this expenditure would only be undertaken if the benefits outweigh the costs. Ofreg believe that there should be cost savings associated with this expenditure which should make it self-financing.

On-costs; NIE has proposed On-costs of £40m, based on a flat cost of £8m per annum. Ofreg believe that since the size of the capex programme varies year on year the level of On-costs should also vary. On-costs have been limited to 8% of gross capex plus an allowance of £2.5m per annum for procurement costs which were capitalised from 1999/00 onwards.

Capital Efficiencies

All categories of expenditure have had capital efficiencies applied to them. NIE proposed their own level of capital efficiencies of £15.77m gross or £14.1m net of customer contributions. We however have made our own estimate of the level of efficiencies which NIE should meet. These efficiencies reflect the way capital expenditure is planned, assets

are managed and schemes are appraised, designed, specified, procured and implemented**.** There are three main adjustments for capital efficiency:

A 'one-off' reduction which assumes improved strategies, more detailed project appraisal, and asset management processes which provide more effective solutions;

An annual reduction to reflect the impact of the procurement process in delivering projects at lower cost;

An annual reduction to reflect general business efficiencies which we would expect leading utilities to achieve.

The 'one-off' cut has been set at a level of 3.75%. The impact of the other two efficiency categories is likely to be gradual as schemes are implemented. We have assumed 2.25% per annum for efficiencies.

RP3 EXPENDITURE FORECASTS

The out-turn of the adjustments suggested above are presented in Table 3.3 below.

Table 3.3:NIE's RP3 Proposals and Ofreg's RP3 Proposals

	NIE's RP3 Proposals (£m)	**Ofreg's RP3 Proposals (£m)**	**Difference**
TRANSMISSION			
Load related	21.38	16.12	5.26
Asset Replacement	31.15	24.15	7.00
Sub Total	**52.53**	**40.27**	**12.26**
DISTRIBUTION			
New Business	52.54	46.84	5.70
Load related	45.40	31.82	13.58
Non-Load Related			
Line Refurbishment	75.72	26.23	49.49
Asset Replacement	37.66	20.74	16.92
Network	28.40	12.71	15.69
Sub Total	**239.72**	**138.33**	**101.39**
OTHER EXPENDITURE			
Metering	11.56	7.55	4.01
DCC / Scada	3.50	3.18	0.32
Non-Network	20.31	0.00	20.31
On-costs	40.0	26.80	13.20

Sub Total	**75.37**	**37.53**	**37.84**
Gross Capital Expenditure	**367.62**	**216.13**	**151.49**
Less Contributions	**42.51**	**37.89**	**4.62**
Net capital expenditure	**325.11**	**178.24**	**146.87**

The savings we are proposing against the NIE RP3 plan are significant and amount to some £146m or a 45% reduction on what NIE asked for. The vast bulk of the reduction in the NIE programme relates to Non-Load Related Distribution expenditure and within this category 50% of the savings are directly related to the reduction in the 11kV refurbishment programme which was mentioned earlier and is also dealt with in chapter four.

The capex programme proposed by NIE is front-end loaded. The nature of the adjustments applied to this programme means that Ofreg's proposals are also front-end loaded. Ofreg's November paper highlighted the problem of companies back-ending investment. This has enabled companies to make financial gains simply by deferring capex from the early years of the regulatory period to the later years. The fact that Ofreg's proposals are front-end loaded would make back-ending the capital spend more profitable from the company's point of view. To prevent back-ending of expenditure during RP3 Ofreg propose to use the capex monitoring process referred to above. Any significant alterations to the capex programme which lead to a financial gain to the company will be subjected to review by Ofreg with the possibility that allowed revenues could be re-set to remove any back-ending benefits from company revenues. Unless agreement can be reached on this point Ofreg are proposing a flat capex programme. Table 3.4 below shows the profile of the capital expenditure programme for RP3.

Table 3.4: Ofreg's RP3 Proposals

	2002/03	**2003/04**	**2004/05**	**2005/06**	**2006/07**	**Total RP3**
Transmission						
Load Related	8.79	1.87	2.00	3.03	0.43	16.12
Asset Replacement	5.10	5.63	3.34	7.10	2.98	24.15
Sub Total	13.89	7.49	5.34	10.13	3.41	40.27
Distribution						
New Business	10.24	9.47	9.27	9.04	8.83	46.84
Load Related	6.97	8.35	6.45	5.76	4.28	31.82
Non-Load Related						
Line Refurbishment	6.49	5.41	5.27	4.77	4.29	26.23
Asset Replacement	3.95	3.25	4.78	4.52	4.24	20.74
Network	2.58	2.40	2.37	2.47	2.88	12.71

Sub Total	30.23	28.89	28.13	26.56	24.52	138.33
Other Expenditure						
Metering	1.66	1.62	1.46	1.42	1.38	7.55
DCC / SCADA	0.94	1.10	0.49	0.52	0.13	3.18
Non-Network	0.00	0.00	0.00	0.00	0.00	0.00
On-Costs	6.18	5.52	5.17	5.37	4.57	26.80
Sub-Total	8.79	8.24	7.12	7.31	6.08	37.53
Gross Capital Expenditure	52.91	44.62	40.60	43.99	34.00	216.13
Less Contributions	8.09	7.72	7.54	7.36	7.17	37.89
Net Capital Expenditure	44.81	36.90	33.05	36.63	26.84	178.24

Revisions as a result of the updated NIE submission

NIE's August 2000 capital expenditure plan predicted that NIE would spend the complete allowance given to them by the MMC. However NIE have now informed us that delays in the planning process for three major transmission projects and reductions in the distribution programme due to restrictions in gaining access to the network in rural areas following the out-break of foot and mouth disease means that 94% of the MMC allowance is expected to be spent. The effect of this is to add some £20m to capex requirements for the next period. The main components of the deferred capex are shown below.

Load related Transmission capex	£9.5m
Load related Distribution capex	£5.2m
Non-Load related Distribution capex	£7.0m
Asset Replacement	-£0.6m
Metering	£1.1m
Non-Network	-£1.8m

NIE believe that there should be no clawback of the financing costs associated with this £20m deferred capex which was provided for within RP2 regulated revenues. Deferred capex is a contentious issue and normally Ofreg would not support the re-introduction of the same capex projects from one regulatory period to another. In this case however, because of the particular circumstances we are minded to accept that the £20m additional capex should be added into the RP3 budget although this is not included in Table 3.4 above. In the future it is hoped that deferred capex will not be as much of an issue because of the capex monitoring programme proposed above.

Chapter 4 - Quality of Supply

In this section, we consider the availability of supply of NIE and other Electricity distribution companies. Planned expenditure in RP3 is examined and its effect on projected availability is then evaluated and finally guaranteed standards of performance are considered.

Electricity companies in the UK report annually on their performance to customers using an established monitoring framework. NIE also reports to its customers on a similar basis, this allows their performance to be compared with other electricity companies. The following graphs illustrate the performance since privatisation compared with other electricity companies. NIE's performance is compared with that of the GB average, the Comparator REC's, which are Manweb, SWALEC and South Western, and Scottish Hydro Electric which is the most rural of all UK REC's.

However, comparisons between utilities must be treated cautiously. In order to make accurate comparisons we must look for similarities in terrain, weather, customer numbers and environment. For example, London has an availability figure in 1999/2000 of just 39 minutes lost per customer (CML). However, their network is mainly underground in an urban area.

Figure 4.1: Supply Minutes Lost per Connected Customer

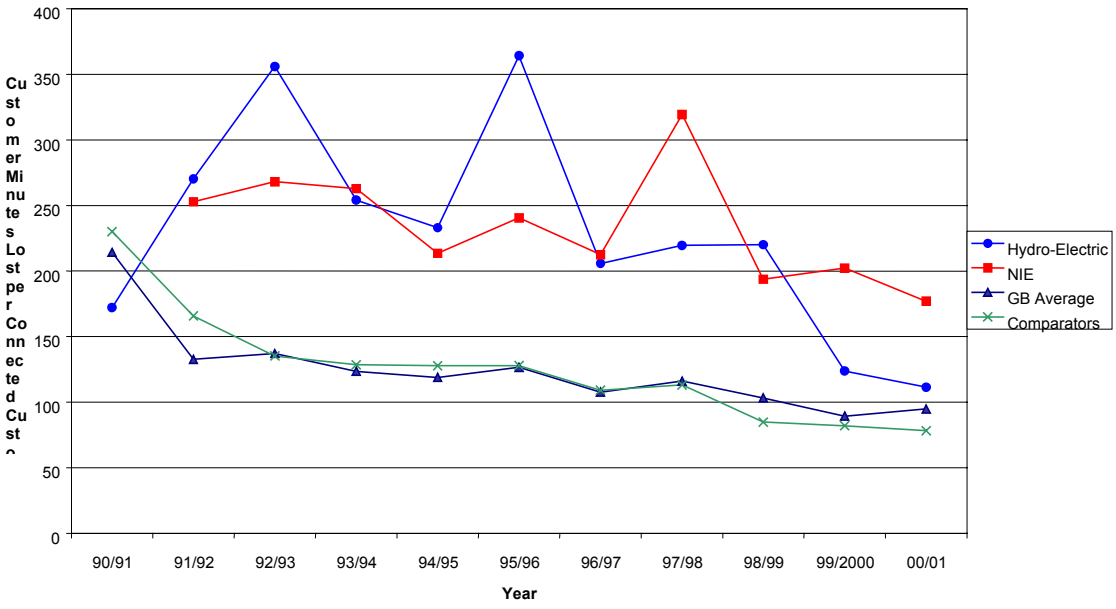


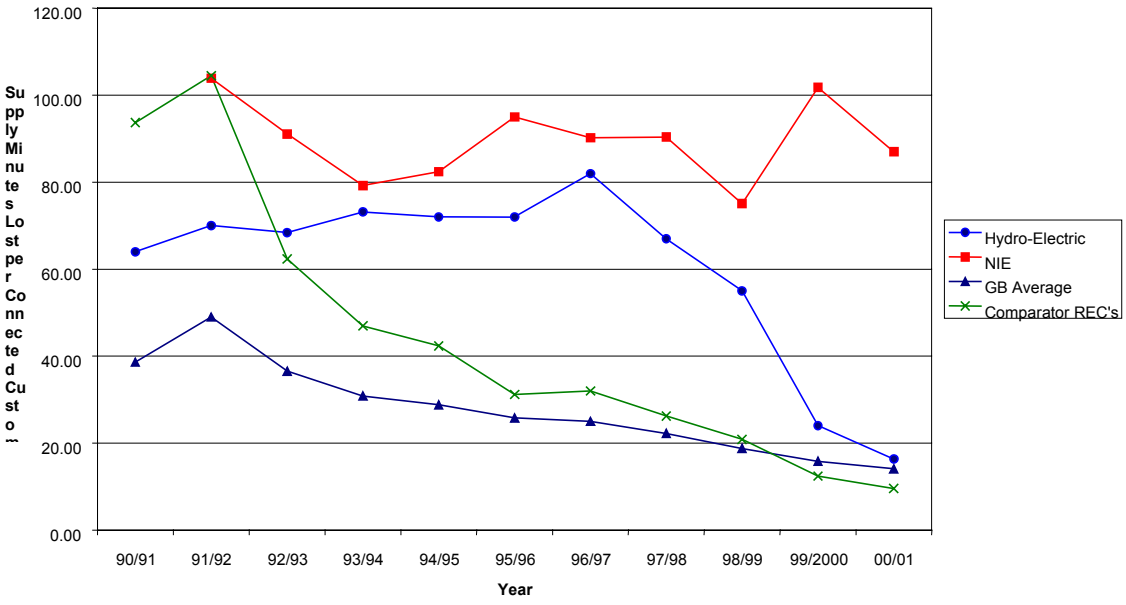
Figure 4.1 shows supply minutes lost per connected customer due to both fault and planned outages. The comparison begins in 91/92 at this point NIE is placed well above the comparator REC's and the average figure with just Hydro placed above it. As the comparison ends in 2000/01 all companies seemed to have improved, however NIE is by far the highest with 177 CML. Loss of supply relating to severe weather conditions are excluded from all these figures.

These availability figures can be broken down into fault and planned interruptions and considered separately. Planned outages are related to planned maintenance and refurbishment

of the network. Fault outages are those connected with bad weather and general faults. As the level of asset refurbishment is a driver for planned interruptions comparisons among fault interruptions are preferred by NIE. However, in order to incentivise the company to keep planned interruptions to a minimum, it is necessary to consider performance on both planned and fault interruptions.

Figure 4.2 shows the availability figure for planned interruptions only

Figure 4.2: Supply Minutles Lost per Connected Customer; Planned Outages Only



In the first year analysed NIE's figure was very similar to that of the comparator REC's.
At the end of the comparison NIE had diverged from all other companies with respect to planned outages. In the year 1998/99 NIE customers were subjected to 75 minutes of planned outages with all other companies falling significantly below this level with the nearest being Hydro- Electric with 55 supply minutes lost. In the subsequent years NIE's figure has risen and by 2000/01 was 87 CML which is well above all other REC's. Up until 1997/98 Hydro-Electric and NIE were continually the worst performers. However, subsequent to 1997/98 Hydro- Electric experienced vast improvements in their planned Outage performance. Simultaneously NIE's planned outages increased.

NIE suggests that the reason for their divergence from the improving trend in planned outages is the extent of the line refurbishment programme during 1999/00.In this year approximately 55% of planned outages were associated with the accelerated refurbishment programme in the aftermath of the 1998 boxing day storms. Even allowing for this high level of refurbishment, NIE's figure still appears high.

Figure 4.3 below looks at fault interruptions.

Figure 4.3: Supply Minutes Lost per connected Customer Fault Outages

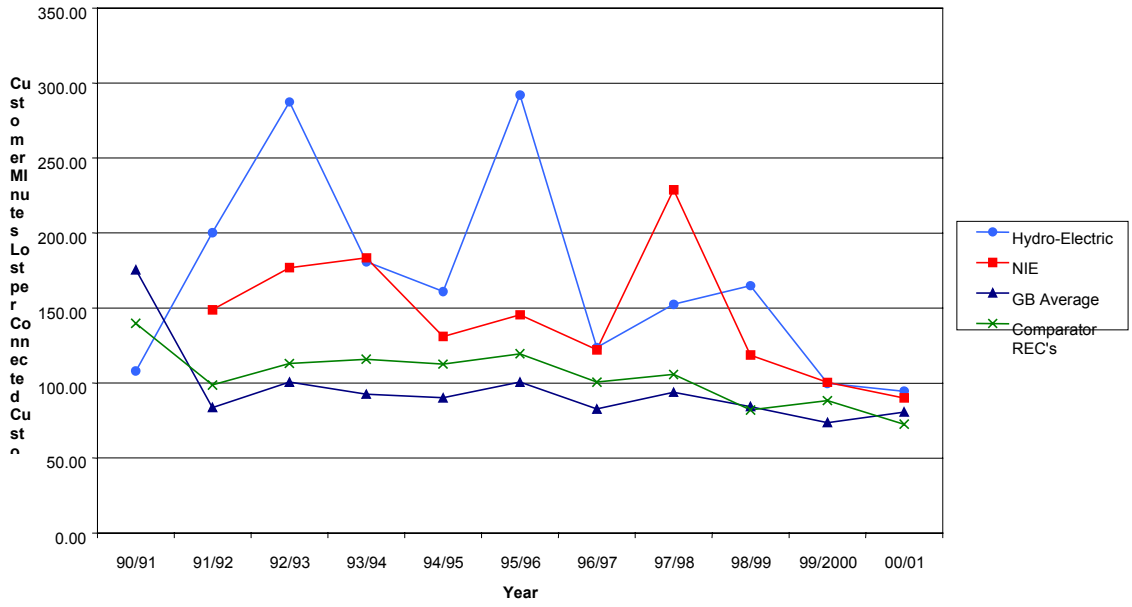


Figure 4.3 looks at all outages excluding planned, i.e. fault outages. In this comparison although NIE figures are generally higher than the others by 1998/99 NIE's performance has begun to converge with both the average figures and that of the comparator REC's. This is an area where significant improvement has been made by NIE; from 1991/92 to 2000/01 there has been a 40% improvement in availability.

One of the underlying factors in the improving Quality of Supply is that NIE has accelerated the overhead line replacement in 1999/00 to 2001/02 by 1250 km; 8750 km was replaced as opposed to 7500 km per the MMC. There was also 2500km of light refurbishment carried out in RP2. As a result of this accelerated refurbishment unplanned CML is expected to fall to 90 CML by 2000/01. This combined with an estimated reduction in planned outages from 102 CML in 1999/00 to 70 CML in 2001/02 means that total CML is forecast to be 160 at the end of RP2.

However, the question remains whether this type of expenditure needs to be continued into RP3. There is a possibility that the savings in fault outages maybe outnumbered by the increase in planned outages.

In RP3, NIE proposes to continue with the overhead line refurbishment programme: 209km of 33kV, 1330km of 11kV and 739km of LV overhead line per annum. NIE tells us that the impact of this programme is to reduce the impact of adverse weather on the networks and the risk of faults. The impact of the programme is to reduce customer minutes lost to 127 CML

by 2006/07, which will be comprised of 70 fault CML and 57 planned CML/cc. NIE proposes to refurbish 1330 km of the 11kV line per annum. Thus at the end of the RP3 period, some 75% of overhead line will have been refurbished in the last 10 years.

The main reason for loss of supply to customers are faults from a company's assets (e.g. ageing), third party damage, birds and animals, and other reasons. The NIE 99/00 data shows that asset faults account for 30% of total CML, 20% unknown, 21% weather and 21% third party damage. While improvements to assets should reduce faults, reductions in weather and third party damage are related to risk management. An improvement in classification is needed to reduce the "unknown" CML category.

Option 1 The NIE proposal; Adopting, the NIE proposal for line refurbishment and reduce the CML figure to 111 by 2006/07. Implementation of the NIE proposal requires capital expenditure of £37m in the RP3 period on the 11kV network.

Option 2 Minimal Refurbishment; the refurbishment we have proposed under this option is 1500 km of 11kV network over RP3. Using this rate of refurbishment we estimate that the corresponding level of CML in 2006/07 would be 104. This is a reduction in CML compared to option 1 and comes about through an increase in fault CML[1] and a larger decrease in planned CML due to the smaller refurbishment programme. This would cost approximately £8m in the RP3 period.

Option 3 50% of the NIE proposal; This would result in the refurbishment of approximately 3300km of 1kV lines in RP3. The resulting level of CML is estimated to be 108. The estimated cost is approximately £18m.

These three options are summarised in figure 4.4 below

Option	Refurbishment 11kV circuits	capex 11kV £m	Performance at 2006/07		
			Fault	Planned	Total
1	6650	37.3	54	57	111
2	1500	8.3	70	34	104
3	3300	18.5	66	42	108

Source: NIE W33E attachment 4 and WSA

This analysis suggests that the output to customers is relatively insensitive to investment in the RP3 period. Continuing a high level of investment in the RP3 period shows little benefit in CML improvement to customers. The issue here is the level of investment to maintain the CML figure with a balance between line refurbishment and reduction in planned interruptions to customers. As these assets are not yet in a steady state it is difficult to justify further major expenditure on 11kV refurbishment until the results of the RP2 programme have been evaluated.

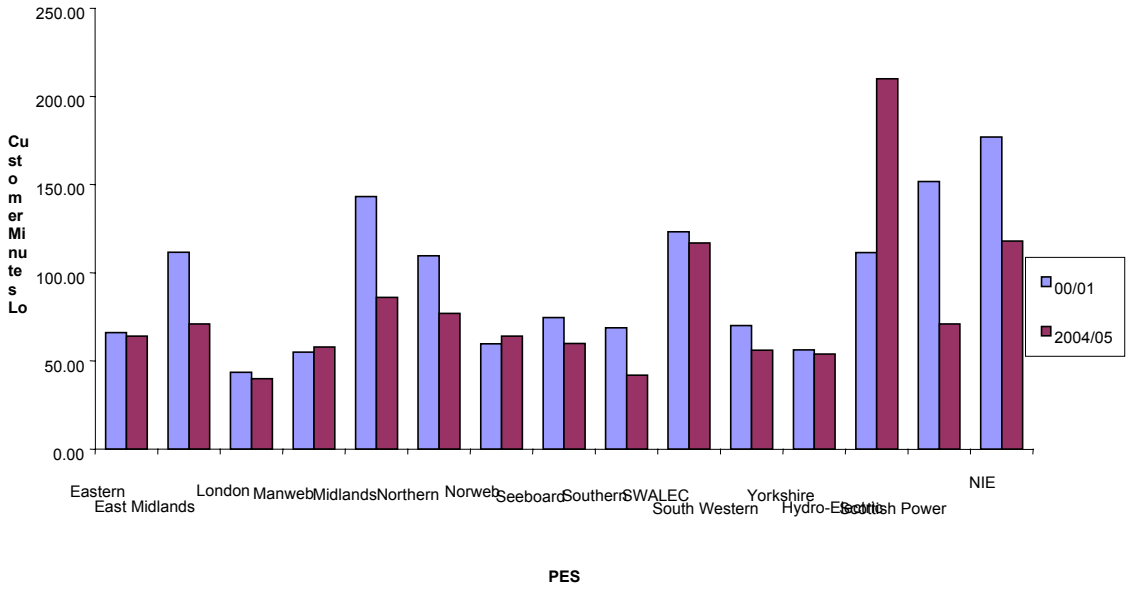
Adopting a lower level of line refurbishment for the 11kV overhead network would reduce capital expenditure in the RP3 period by £28.7m

NIE has projected targets for RP3 for availability these figures can be compared with other REC's for the same period as given in December 1999, by the OFGEM Distribution Price

[1] This is based on the NIE assumption that their level of refurbishment (1330 km per annum) brings about no improvement in the performance of the 11kV network. It is possible that this assertion is incorrect and Ofreg intend to investigate this further.

Control Review.

Figure 4.6: Projected Availability



PES	Availability for 00/01	Availability target for 2004/05
Eastern	66	64
East Midlands	112	71
London	43	40
Manweb	55	58
Midlands	143	96
Northern	110	77
NORWEB	60	64
SEEBOARD	75	67
Southern	69	55
SWALEC	123	117
South Western	70	56
Yorkshire	56	54
Scottish Power	152	71
Hydro-Electric	111	195
NIE	177	104

Source: OFGEM Price Review final Proposals

Standards of Performance

Ofreg issued a consultation paper in March 2001, which reviewed NIE's Standards of Guaranteed and Overall performance. The Guaranteed and Overall Standards that are currently in place (Figure 4.7 & 4.8) came into operation in October 1999 following a review of the original standards which were first set in 1994.

Figure 4.7

Guaranteed Standards of Performance 2001

Service	Performance Level	Penalty Payment
1. Replacement of NIE main fuse after failure	Within 3 hours on a working day Within 4 hours on any other day	£25
2. Restoring supply after distribution faults	Within 24 hours of supplier becoming aware of fault	£50 domestic customers £125 non-domestic customers plus £25 for each additional 12 hours
3. Install meter and turn on electricity supply	Within 2 working days domestic customer or within 4 working days non-domestic customers	£25 plus £50 domestic or £125 non-domestic for failure to keep appointment
4. Providing you with an estimate for changing the position of your meter or for a new electricity supply	Within 7 working days for connections to existing lines and 15 working days for others	£50
5. Notice of planned interruption to supply	3 days	£25 domestic customers £50 non-domestic customers
6. Investigation of voltage complaints	Within 7 working days	£25 plus £25 for failure to keep an agreed appointment
7. Investigation of meter accuracy disputes	Within 7 working days	£25 plus £25 for failure to keep an agreed appointment
8. Responding to queries on charges or payments	Within 5 working days	£25
9. Morning and afternoon appointments to be offered and kept	Between 8.30am - 1.00pm or 12 noon - 5.00pm, Monday - Friday	£25
10. Making of payments owed under the standards	Within 10 working days	£25
11. Dealing with pre-payment meter problems	Within 4 hours	£25

Figure 4.8

Overall Standards of Performance 2001

Service	Performance Level
1a. Reconnection within 3 hours 1b. Reconnection within 24 hours	87% within 3 hours 100% within 24 hours
2. Correction of voltage fault	100% within 6 months
3. Provision of new low voltage supplies	100% within 30 working days domestic 100% within 40 working days non-domestic
4. Reconnection after default	100% the next working day after arrears are paid
5. Meter relocation	100% within 15 working days
6. Changing meter	100% within 10 working days
7. Meter reading	99.5% at least once a year
8. Response to letters	100% within 10 working days.

The consultation paper also included a summary of customer research that was undertaken by Ofreg in October and November 2000. In this research customer responses suggested there was overall satisfaction (88%) with NIE's current reliability of supply.

Only a small percentage, 6% of those customers surveyed, were willing to pay more for improvements to quality of supply. In the light of the survey and the price divergence with GB, I emphasised my interest in identifying low-cost improvements.

In its response to the consultation paper NIE provided estimates of the additional costs likely to be involved in the implementation of possible new and revised targets.

1. **Restoration of supply**

Guaranteed Standard 2 (GS2) and the corresponding Overall Standards OS1a and OS1b relate to the length of time it takes to restore supply after the company becomes aware of a fault. Payment of GS2 is presently due after 24 hours. In GB OFGEM has now reached agreement to set GS2 and OS1b at 18 hours. Ofreg sought views about whether greater protection should be offered to customers by the Standards and was told by NIE that the recurring costs associated with reductions would be in the region of £750, 000 per annum.

2. **Automatic Guaranteed Standards Payments**

At Present all Guaranteed Standard payments, with the exception of GS2 and GS5 are made automatically. A valid claim from the customer must be made for GS2, which relates to restoration of supply and GS5 relating to notice of planned interruption of supply. In its Consultation Paper Ofreg expressed the view that making all payments automatic would create a system which did not favour particular classes of customer. NIE has pointed out that to facilitate these, two levels of detail could be considered. Premises to phase connectivity would incur set up costs of £3.9m with recurring costs of approximately £25 000 per annum.

The less accurate premises to circuit model, which would have shortcomings leading to overstatement of the numbers of payments due, would involve set up costs of around

£675 000 and recurring costs of £25 000 per annum.

3. Multiple Interruptions

Frequency of interruption can be a problem for some customers. Ofreg has suggested that additional Guaranteed and Overall Standards should be introduced to protect customers where they have suffered more than a set number of interruptions in a fixed period. NIE has estimated the initial costs of introducing such a standard would be £20m with recurring costs of £3m per annum. This is based on customer interruptions of 5 per annum of greater than 3hrs in length.

4. Minor Interruptions to Supply

In GB OFGEM has considered protecting customers suffering frequent transient interruptions described as those lasting less than one minute. There is a lack of information on numbers and frequency of transients in both GB and NI with the result that before appropriate Standards of Performance could be introduced systems of monitoring would need to be put in place. NIE has informed Ofreg that this would involve set up costs of £112 000 and ongoing costs of £20 000 per annum.

5. Telephone Response Standards

OFGEM originally held the view that there is wide spread support for a telephone standard which would require 90% of calls to be answered in 15 seconds in normal circumstances and 80% of calls to be answered within 30 seconds in exceptional circumstances. OFGEM now takes the view that this requirement will be dealt with through its Information and Incentives Project, which aims to strengthen the financial incentives on companies in GB to improve supply services, and that a Guaranteed Standard on telephone responses does not need to be introduced. The set up costs involved with the implementation of such a standard in NI have been estimated by NIE at £1.4M and £225 000 per annum thereafter.

6. Guaranteed Standards Payments

No increase to the existing levels of payments has been suggested. As a result of the 1999 renegotiations most payments are around 25% higher than that of equivalent payments in GB.

Summary

In the March 2000 consultation paper I expressed the view that I was not minded - unless responses to consultation provided compelling arguments to the contrary - to seek further improvements to the quality of performance Standards. Ofreg's customer survey showed that levels of customer satisfaction with quality of supply were generally high and that correspondingly only a small proportion of customers would be prepared to pay extra for improvements. NIE has since provided estimates of the costs involved in implementing or progressing the Standards under consultation. These are set out in the table below:

Figure 4.9

SERVICE	SET UP COSTS (£k)	RECURRING COSTS (£k pa)
Restoration of Supply		750
Automatic Payments Option 1 Option 2	 675 3950	 25 25
Multiple Interruptions	20 000	600
Minor Interruptions	112	20
Telephone Response	1400	225
Totals: with Automatic Payments Option 1 Option 2	 22 187 25 462	 1620 1620

Connectivity model: Option 1 - Circuit and Option 2 - Phase

Source: NIE O93E

Although the most costly of these standards are expected to be required of companies in GB in the near future I am not minded to look for changes in Standards of Performance bearing in mind the costs to customers, which would be involved.

Chapter 5 - Financial Issues

The Cost of Capital

Introduction

The November 2001 consultation document established a framework for the assessment of financial issues. The basis for the analysis of the cost of capital was the Capital Asset Pricing Model (CAPM).

For the purposes of this review Ofreg will draw on recent regulatory precedent and financial market analysis in coming to a conclusion on the key issues affecting the generic elements of the cost of capital (the risk-free rate and the equity risk premium).

The CAPM framework

The cost of capital is the level of return required by the financial markets in order to provide capital to a firm.

Most cost-of-capital models are built on the assumption of efficient markets. According to the efficient market hypothesis, in an efficient market all relevant available information is reflected in the current price. Therefore the information embedded in prices can be used as a signal for the allocation of capital.

One of the advantages of an approach based on the CAPM is that it is an industry standard specifically in the context of estimating appropriate return benchmarks for regulated industries.

A drawback of the CAPM approach is that it is based on unobservable variables. Another problem is that the data used for the estimation of a CAPM exhibits high variances. As a result, a considerable amount of judgement is involved in an approach based on CAPM.

The CAPM is used to estimate the Weighted Average Cost of Capital (WACC) which is the sum of the company's cost of debt and equity, weighted by the level of gearing.

The WACC formula requires the cost of equity, cost of debt, tax rate, and capital structure as inputs. The cost of equity is estimated using CAPM, and requires the risk-free rate, beta, and equity risk premium (ERP) as inputs. The cost of debt is determined by the comparable-securities method. Whereas the risk-free rate and to a lesser extent the debt premium can be estimated using current market data, the ERP and beta are estimated using historical data.

The final input needed to calculate the WACC is the level of economic gearing. The WACC approach assumes a stable capital structure, measured at market values.

One of the issues involved when determining the gearing level is whether an optimal gearing level or actual/projected gearing levels should be used as inputs.

Under the standard CAPM, a firm can potentially lower its overall cost of capital by increasing its gearing. This is because debt is generally cheaper than equity as a result of tax advantages to debt and lenders' prior call on a company's cashflow. However

as gearing increases, the riskiness of a firm's equity increases and lenders are likely to raise the risk premium charged on borrowing.

It is widely acknowledged that firms with too low a level of financial gearing might carry too high a cost of capital and hence optimum gearing levels should be established. Ofreg shares this view but is not aware of any adequate models available to allow regulators to take a view on the optimal gearing level. Ofreg is currently developing a model of optimal capital structure which may inform on the efficient level of gearing in the current review.

Cost of Capital Components

Risk-free rate

The risk-free rate is an input both in the cost of equity and the cost of debt. The redemption yield on UK index-linked gilts provides a direct estimate of the real risk-free rate for different maturities.

At present, the yield curve for UK gilts is downward sloping. It has been argued that due to the Minimum Funding Requirement (MFR) increased demand has driven up the price of government securities whilst affecting their liquidity. The abolition of MFR might see a decrease in demand (resulting in higher yields).

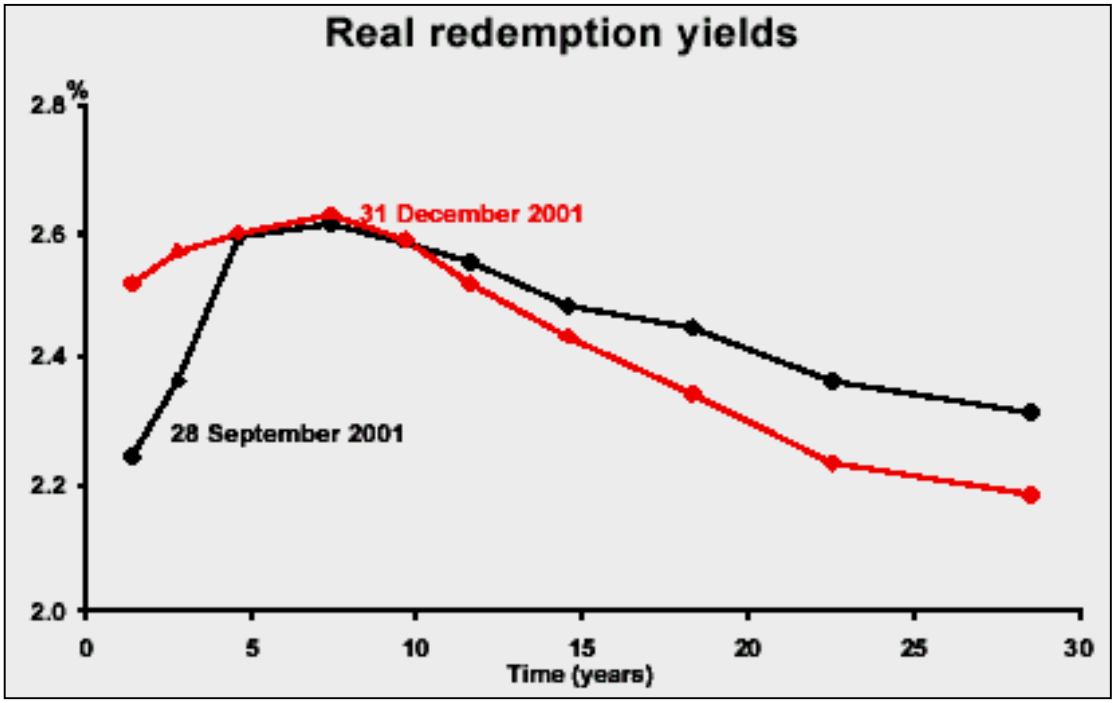
However, according to Philips and Drew[1] the recent progressive shift out of equities into bonds has been motivated primarily by a desire to match liabilities and is unlikely to be reversed by scrapping the MFR.

In addition, as Ofgem[2] point out in its recent review of Transco's price control, if the yields on index-linked gilts (ILGs) was artificially low the implied inflation rate vis conventional bonds would be artificially high. This is not borne out by evidence from the Bank of England on current and forecast inflation rates which are in line with the implied market expectations of future inflation backed out of the bond markets via the difference between yields on ILGs and conventional bonds.

Average yields on ILGs over the year to December 2001 ranged between 2.0 and 2.7% with an average of 2.4% while currently they range from about 2.2 to 2.6%.

[1] Philips and Drew (2001), *Pension Fund Indicators 2001.*
[2] OFGEM (2001), *Review of Transco's price control from 2002*, September 2001.

Index-linked Gilts



Source: Debt Management Office

The return on index-linked gilts since the mid-1980s has been higher than ex-post (historic) returns on government bonds over the twentieth century as a whole. Jenkinson (1999)[3] estimates the real return on Treasury Bills from 1919-1998 at 1.7% (average annual) to 2.1% (average 10 year holding, annualised). The LBS Millennium Book[4] estimates a lower return of 1.0% p.a. over the century.

The most recent Competition Commission decisions have used a (real) risk-free rate range of 2.75%-3.25% with a mid-point of 3.0%[5]. The Competition Commission has determined this risk-free range by correcting for specific UK liquidity factors (mainly MFR) that might have reduced the real yield on longer-term gilts.

Ofwat[6], the Office of the Rail Regulator[7] and Ofgem[8] use a forward looking basis in their reviews by focusing on current market rates on ILGs. Oftel[9] use an approach based on the current estimates of yields on nominal gilts as a proxy for the risk free

[3] Jenkinson, T.J. (1999) "Real Interest Rates and the Cost of Capital" in *Oxford Review of Economic Policy*.

[4] Dimson, E., Marsh, P. and Staunton, M. (2001), *Millennium Book II: 101 years of Investment Returns*, ABN AMRO/London Business School.

[5] Competition Commission (August 2000), *Sutton and East Surrey Water Plc, A report on the references under sections 12 and 14 of the Water Industry Act 1991*, London: The Stationary Office.

[6] OFWAT (1999), *Final Determinations, Future water and sewerage charges 2000-05*, Birmingham: OFWAT

[7] Office of the Rail Regulator (ORR) (October 2000), *Periodic Review of Railtrack's access charges: Final conclusions*, Volume 1, London: ORR

[8] OFGEM (2001), *Review of Transco's price control from 2002*, September 2001.

[9] OFTEL (2001), *Effective competition review: mobile*, September 2001.

rate, and estimate a nominal risk free rate of 5.1%. In its 1999 Periodic Review, Ofwat[10] proposed a real risk-free rate in the range of 2.5%-3.0%. The Office of the Rail Regulator[11] proposed a risk-free rate of 3% for Railtrack, which is based on the Competition Commission's central estimates of the risk-free rate for Mid Kent Water plc and Sutton and East Surrey Water plc. Ofgem estimated a risk free rate of 2.5% in the 1999 electricity distribution price control review and a range of 2.5-2.75% in the 2000 NGC review. In its September 2001 paper on Transco's price control review, Ofgem[12] proposes a real risk-free rate of 2.75%.

Taking all the recent evidence into account Ofreg considers a risk free rate of 2.75% to be appropriate.

Equity risk Premium

The equity risk premium (ERP) is the expected return on equities over and above the risk-free rate to compensate for the additional risk associated with investing in equities rather than risk-free securities. The ERP is a market-wide parameter and is not affected by firm specific factors. The debate over the appropriate method of estimating the equity risk premium has been well rehearsed.

As expected returns cannot be observed, two different approaches might be taken to obtain an estimate of the ERP: past returns as a proxy for future returns or surveys of investors' views. Ofreg has not had access to any recent surveys in order to judge the relevance and reliability of survey results and therefore favours the first approach in estimating the ERP.

Long-run time series tend to suggest an ERP for the UK in the range 4.7%-6.5%[13] relative to bills and depending on whether geometric or arithmetic means are used. Over the same time period, but relative to bond returns, the ERP for the UK has a slightly narrower and lower range of 4.4%-5.6%[14] again depending whether geometric or arithmetic means are used.

Barclays Capital[15] estimate the average annual excess return from equities compared to gilts. The ex-post equity risk premium over 101 years to 2000 has been 4.4% but has declined in recent years, and was 2.4% for the last decade.

Credit Suisse First Boston[16] (CSFB) considers estimates of the equity risk premium on three different bases — two using ex post returns and one ex ante. The first ex post approach considers the excess return achieved from equities compared to gilts over a variety of time periods. Over the past ten years, the real equity return stands at 11.9% against the corresponding gilt return of 9.9%. This implies a 2.1% historical equity risk premium. Over the past 20 years, however, equities have outperformed gilts by an

[10] Ibid.
[11] Office of the Rail Regulator (ORR) (October 2000), *Periodic Review of Railtrack's access charges: Final conclusions*, Volume 1, London: ORR.
[12] Ibid
[13] Dimson, E., Marsh, P. and Staunton, M. (2001), *Millennium Book II: 101 years of Investment Returns*, ABN AMRO/London Business School.
[14] Ibid.
[15] Barclays Bank PLC (2001), *Equity Gilt Study 2001.*
[16] Credit Suisse First Boston (Europe) LTD. 2001, *Equity Gilt Study 2001.*

average of 4.4% per year, and over the past 50 years this rises to 6.5% per year. CSFB analysis of historical trends and forward-looking approach point to an equity risk premium in the UK of currently around 3.5 to 4%.

These figures confirm that long-run returns are sensitive to the sample used and support arguments by regulators and the Competition Commission that ERP estimates may be over-stated as the best indicator of the forward-looking ERP because of the very high returns over the last two decades.

While acknowledging the importance of stability in regulatory decisions, recently the Competition Commission[17] argued that a reduction in ERP was justified by the fact that long-term averages are lower than previously thought.

Following recent precedent set by Ofgem in the NGC, PESs and Transco price control reviews and estimates by financial institutions, Ofreg deems a point estimate of 3.5% appropriate for the equity risk premium.

Beta

Under CAPM the cost of equity is defined as the risk-free rate plus the product of the equity risk premium and equity beta. The equity beta coefficient is an adjustment to the equity risk premium based upon the risk perception for the firm in question, i.e. it can be characterised as a measure of the non-diversifiable risk of the firm (it measures the cash-flow risk to the firm's equity holders). The asset beta[19] measures the underlying business risk faced by the whole firm independent of its level of gearing.

Where a firm's shares have a track record of being traded in a liquid stock market over time, historical estimates of the firm's equity beta can be estimated using movements in the firm's share price and dividend payments relative to the entire stock market. Such data is available for Viridian group as a whole, including its non-regulated activities.

The latest London Business School Risk Measurement Service (LBSRMS) estimates Viridian's equity beta as 0.55 (to March 2001). This is a reduction from a beta of 0.98 in 1998.

It is interesting to note that the estimated beta for the Viridian group has been falling even as its level of gearing has been rising running counter to the argument of the positive relationship between equity risk and the level of gearing.

In the view of Ofreg the risk faced by a regulated monopoly must be lower than that faced by commercial businesses facing competition. Regulated utilities or companies whose core business is a regulated utility are inherently less risky than non-regulated companies due to the guaranteed return on assets which is paid for by a captive customer base.

Other regulated firms may be used as comparators, e.g. PES's and NGC, LBSRMS estimate equity betas of 0.59 for Scottish Power and 0.66 for the National Grid Group down from 1.03 in 1998 in the case of the former.

[17] Competition Commission (August 2000), *Sutton and East Surrey Water Plc, A report on the references under sections 12 and 14 of the Water Industry Act 1991*, London: The Stationary Office

It seems that, despite considerable increases in gearing levels, the equity betas of regulated utilities have been on a downward trend. SBC Warburg argue that the gearing adjustment suggested by conventional finance theory might not be applicable if the starting level of debt was low[18] and increased gearing levels might have less effect on the firm's equity beta than suggested by conventional theory.

Owing to the revenue cap regulatory regime faced by NIE and the greater threat of competition in the supply for the GB PESs, NIE is likely to be less risky than GB electricity companies.

Having taken the various factors into account, Ofreg suggests, that given the level of uncertainty surrounding the estimation of beta the equity beta for NIE T&D business is unlikely to exceed unity and propose a range of 0.7-1.0 for cost of capital calculations. Using the Miller transformation this suggests asset betas[19] in the range 0.35-0.5 at a gearing level of 50%.

Debt premium

The cost of debt consists of the risk free rate plus the debt premium. Financial markets require a premium on corporate debt over equivalent gilts to allow for the greater risk of default on corporate debt.

The debt premium of regulated firms is likely to be lower than that of non-regulated firms due to the protection provided by regulation and the limited competition faced by regulated firms.

The debt premium will vary depending on perceived risk with gearing being a major factor. Ofgem considered a spread of 140 basis points appropriate for the PESs with debt ratings BBB and Baa. This spread is consistent with the spread on NIE's outstanding corporate bond and comparable –maturity conventional government gilt.

Companies in GB have an obligation under the terms of their licence to maintain an Investment grade credit rating. NIE has hitherto been reluctant to subject its business to rating. Ofreg would like to discuss with the company the need to seek a rating and to maintain it within an agreed band.

Acknowledging that this spread varies over time but taking into account that future debt will likely be a mixture of maturities, Ofreg consider a range of 1.4 – 1.8% as appropriate for the debt premium.

Suggestion that investors are likely to demand extra premium for the political risk present In Northern Ireland was rejected by the MMC at the time of the last review.

Gearing

[18] NERA (2001), *Aer Rainta's Cost of Capital, A Final Report for Aer Rianta*, June 2001

[19] The LBS beta estimates reflect both the underlying business risk and the financial structure of the company. In order to adjust for differences in gearing we calculate the asset beta as follows;
$\beta_a = \beta_e(1-g)$
where $\boldsymbol{\beta_a}$ is the asset beta, $\boldsymbol{\beta_e}$ is the equity beta and $\boldsymbol{g}$ is the level of gearing.

Gearing can be calculated in various ways. In the view of Ofreg, for the purpose of price regulation gearing should be calculated as economic gearing, i.e. economic value of debt divided by the regulatory asset base (RAB), that is, debt is valued at market rather than book values (data supplied by NIE to Ofreg for the November consultation paper was based on book values).

Gearing can have positive as well as negative effects. Up to a certain level, increasing gearing reduces costs through exploiting the tax shield (i.e. interest payments are tax deductible), however, a too high level of gearing might result in increased risk. Hence it is often argued that firms should aim to achieve an optimal capital structure.

Both theoretical and empirical evidence seem to suggest that the firm's capital structure does matter. However Ofreg is not aware of an adequate theory or model that would enable a regulator to establish this optimal gearing level. Ofreg will therefore use the actual gearing (50% as reported by NIE) as an input into calculating the cost of capital.

If the firm decides to change its financial structure, this should not result in a higher future cost of capital for the assets in the regulated business.

Tax

The treatment of tax is an important issue in the determination of a firm's cost of capital:

The pre-tax approach is used by other regulators such as ORR and Ofgem, applying a gross up to the post-tax cost of equity based on the corporation tax rate.

Convention to date has been to allowed for full adjustment of the cost of capital by the tax wedge to allow companies to finance corporation tax payments. Ofreg proposes to follow this convention using the mainstream rate of corporation tax of 30% giving a gross up factor of 1.429 to the post-tax cost of equity.

Summary of cost of capital estimates

The WACC has been calculated based on actual gearing and the marginal corporation tax rates. The real pre-tax WACC estimate is between 5.79 and 6.74%. These figures are consistent with recent regulatory precedent particularly for close NIE comparators companies.

Taking the estimates and assumptions specified above, Ofreg has estimated the WACC as set out in the table below.

Summary of cost of capital

Component	Low	High
Real risk free rate %	2.75	2.75
Equity risk premium %	3.5	3.5
Gearing	0.5	0.5
Asset beta	0.35	0.5
Equity beta	0.7	1.0
Post-tax cost of equity %	5.2	6.3
Debt risk premium %	1.4	1.8
Pre-tax cost of debt %	4.15	4.55
Tax rate %	30	30
Tax wedge on equity	1.429	1.429
Pre-tax cost of equity %	7.43	8.93
Pre tax cost of capital %	**5.79**	**6.74**

Initial value of the T&D business

The November consultation paper questioned whether the previous approach to valuing privatisation assets was correct given that the burden of past mistakes will fall on customers.

Ofreg has identified some defects in the original valuation of assets and businesses within NIE plc that inflated the share of NIE's market value attributed to the T&D business. The main area of concern relates to the value of the new Viridian capital companies established out of former NIE profit centres – such as SX3, Open and Direct and Powerteam.

In the November consultation paper, Ofreg indicated that it was carrying out a review of these valuations. Ofreg has examined the structure of the businesses and the nature of the assets transferred from NIE to form the new companies.

As a result of this analysis, and in order to underpin regulatory commitment to the basis of valuing the RAB, Ofreg is not minded to seek any adjustment to the asset base in respect of SX3, Open and Direct and Powerteam. However, the value of services provided to the regulated T&D business, included within T&D's operating expenditure by these companies have been adjusted (see chapter 2).

Adjustments to the RAB for sold and transferred assets

During the course of the current control period, NIE has disposed of or transferred a number of assets that formed part of T&D's asset base. An adjustment must be made to the rolled forward RAB to account for the removal of such assets, but how should the adjustment be calculated? Should the book value be used (an accounting estimate of depreciated replacement cost, possibly adjusted for the ratio of the initial market value of the company to the aggregate book values of its assets) or should the fair value of disposal proceeds be used? To inform this choice, Ofreg has referred to three competing objectives:

- an approach that would encourage NIE to optimise its asset base by disposing of assets where it is efficient to do so;

- an approach that was previously signaled, to depart from which would undermine investor confidence in regulatory consistency;

- an approach that would retain a relationship between the value of the RAB and the aggregate book value of the individual net assets.

Of these three objectives, Ofreg believes the third would be the least relevant except in a potentially competitive activity (where maintaining prices according to a current cost valuation may be relevant to an objective to attract investment from potential competitors). That is clearly not the case for T&D activities.

Since there were no material disposals during the first control period (RP1), Ofreg considers that the only meaningful signals about the treatment of disposals might be inferred from the allocation of initial market value by the MMC, which was made by reference to assessed market values.

Analysis carried out on behalf of Ofreg has shown that using book values (MAR adjusted or otherwise) to adjust the RAB tends to distort incentives. The company would have incentives to dispose of assets that were under-valued in its fixed asset registers and retain assets that were over-valued, incentives that would be liable to conflict with efficiency objectives. In contrast, using fair or market values (adjusted for any disposal costs, including DETI clawback arrangements) to adjust the RAB provides an incentive for the company to manage its capital programmes to minimise the net investment required to provide regulated services. This applies to all properties bought by shareholders at privatisation and not just those nominally attributable to T&D. This is dealt with in more detail below. This is also the approach proposed by the Civil Aviation Authority in its review of airport charges.

However, if this value were deducted from the RAB immediately there may be limited incentive for the company to dispose of surplus or redundant assets, especially towards the end of the control period. (A similar difficulty applies to savings in capital expenditure.)

To deal with this difficulty, Ofreg is minded to adopt a mechanism that would have similar properties to mechanisms adopted by other regulators, notably Ofwat in its 1999 water price review. These mechanisms would permit the company to retain the benefit of unanticipated disposal proceeds (or expenditure savings) for a reasonable period, say 5 years. Such a rolling five-year incentive mechanism identifies at the end of each control period a value of 'unutilised' incentive reward to be accounted for in the price calculations for the following period.

- The subject of disposals arises during this review in respect of the following:

- four properties have been sold/transferred to Open and Direct, a group affiliate company, and leased back to T&D;

- premises in High Street, Belfast were sold outside the NIE group following transfer to Open and Direct;

- telecommunications assets have been transferred to a joint venture between Energis and Viridian, trading as Nevada Tele.com.

- the transfer/disposal of the Danesfort complex.

NIE has proposed that the four properties currently being used on a lease back arrangement remain in T&D's RAB with the rent charged for the properties disallowed from operating expenditure. This should leave T&D, and therefore customers, in the same position as if the properties had not been transferred. Ofreg is minded to accept this proposal provided that this condition applies for as long as each property remains within the group and is used for the benefit of the T&D business. In the event that a property becomes surplus to the requirements of the T&D business or is disposed of to a third party, its valuation and RAB adjustment should be as detailed above.

Ofreg proposes to make an adjustment to the RAB for the sale of the premises in High Street Belfast transferred from T&D during the financial year 1997/8. These premises were subsequently sold for £5.0m during the financial year 1999/0. Applying the above mechanism, the RAB should be reduced by £5.0m less any agreed expenses while the resulting effect on the required return over the next period would be partly offset by an allowance of an incentive value for the unutilised portion of five years' financial savings from unanticipated disposal proceeds.

The November consultation paper also raised the issue of the transfer/disposal of the Dnaesfort complex. NIE has supplied additional information in support of its treatment of certain properties as corporate. This analysis lists Danesfort as a corporate property. Ofreg is not persuaded by the argument submitted by NIE that the Danesfort building was not an operational building in terms of the regulated business, primarily T&D. At privatisation it housed all management, engineering, purchasing IT etc. associated with the T&D business. I have asked my consultants to carry out some further analysis prior to the issue of Final Proposals.

Ofreg has stated that the fibre optic and microwave links transferred to Nevada Tele.com fall within the definition of Relevant Assets in NIE's Transmission and Public Electricity Supply Licence. Relevant Assets may not be disposed of by the regulated business without the permission of the Director General of Electricity Supply. Ofreg appointed WS Atkins to value the assets proposed for transfer.

On the basis of the valuation report delivered by WS Atkins, Ofreg have adopted a valuation of £7.1m (1999/00 values) for the relevant assets under consideration. This value is at the bottom of a range estimated using a DCF approach and towards the lower end of a range estimated using P/E ratio valuation [the basis used by NIE to arrive at a valuation of £5.25m (transferred at £5.08m in August 1999)]. This value should therefore be deducted from the RAB.

Ofreg calculates an incentive value of £1,586,587 - £1,817,535 at the end of the current control period to be recovered in the calculation of regulated T&D revenues. This comprises £655,614 at 5.80% cost of capital and £751,048 @ 6.75% based on proceeds of £5m for the High Street disposal and £930,972-£1,066,487 based on the estimated market value of £7.1m for the telecoms assets transferred.

Use of the grid charges

WS Atkins derived user charges using a number of different approaches giving estimates in the range £1,155 - £6,975 per km per annum. The current NGC (April 2001) charge to Energis is £1,284 per km per annum but based on the revised approach proposed by OFGEM in its September 2000 Transmission Price Review for NGC[20] would increase to £2,275 per km per annum. Ofreg considers the latter estimate to be appropriate charge to Nevada for use of T&D grid since transfer of assets and effective over RP3. Based on 120 km of overhead and 15 km of buried optical fibre cable the per km charge equates to a total user charge of £307,125 per annum.

Depreciation

The November consultation paper questioned the validity of the adjustment to the RAB determined by the MMC for depreciation over the first control period.

On privatisation, NIE was acquired at a discount to the current cost accounting value of the group. The MMC based the value of the RAB on an uplifted initial market value rather than the higher accounting value and made adjustments to current cost depreciation before determining a value of the RAB at the end of the first control period. Ofreg has undertaken analysis that demonstrates that the net effect of the adjustments that the MMC made to the value of the initial RAB and its depreciation led to a greater value of the RAB at the end of the first control period than would have occurred had no such adjustments been made. This result arises because the adjustments to the current cost depreciation figures were greater than the net discount the MMC calculated for the initial value of the RAB (see table below). It is not conceivable that this was the intended result.

[20] Ofgem proposed that rental fees should in the future be based on the market price of leasing fibre optic cable as dark fibre.

Analysis of MMC valuation adjustments	*June 93 prices*	*96/97 prices*	*99/00 prices*
	£m	*£m*	*£m*
Current cost valuation of T&D, £402.9m at March 1993 rolled forward and inflated to June 1993	403.41	439.75	476.08
Initial valuation of RAB, June 1993		404.00	437.38
Resulting discount on initial valuation		35.75	38.70
CCA depreciation on pre-flotation assets: June 1993 to March 1997 per MMC	109.35	119.20	129.05
RAB depreciation included in MMC roll forward calculation		81.80	88.56
Under-provision for depreciation		37.40	40.49
Net RAB uplift over CCA basis at 31 March 1997		1.66	1.80

Ofreg concludes that there was an error in the calculation of the RAB at the start of the current control period. The root of this error was inappropriate accounting: a failure to reflect in the rolling forward calculation of the RAB the amounts that customers (or investors) would reasonably have concluded were charged in respect of depreciation in the first control period. Unless the error is remedied, it would lead to customers paying for depreciation and then continuing to pay a cost of financing it. This would simply be double charging and has no justification.

RAB based RPI-X can accurately be thought of as a periodically applied financial capital maintenance mechanism. In financial capital maintenance terms, there should be symmetry between depreciation allowed for in a price calculation and depreciation used to reduce the RAB. At its simplest level, the RAB should be reduced by the amount of depreciation allowed for in relevant price calculations – allowed depreciation is compensation to investors for the diminution in value of the RAB; the diminution in the value of the RAB is recognition of the amounts customers have paid. Any difference between these two amounts will lead to an investor gain or loss (to the detriment or advantage of customers).

It is arguable that a legitimate difference might arise from savings in capital expenditure that lead to lower depreciation than was allowed in the price control. This was the approach taken by Ofwat in the 1999 water price review. It is a relatively marginal effect that is also complicated by inherent difficulties in controlling for consistency in application of depreciation lives. Ofreg considers that the rolling incentive mechanism referred to above would be a more sensible place to effect any necessary enhancements to incentives for savings in the capital programme.

If not remedied, the error would be to the continuing disadvantage of customers and to the undue advantage of investors. Ofreg is minded to effect a remedy in the form of an adjustment to the RAB to correct the relative position of customers and investors.

Although Ofreg has had other significant concerns about the MMC determination, it holds to the principle that adjusting the initial regulatory valuation in the light of subsequently revealed information could have perverse incentive effects and undermine investor confidence. In this case, however, the issue is not subsequently revealed information but an error. In order to avoid an undue and unjustified double charge to customers, Ofreg proposes to make an adjustment to the RAB of £56.8 million as at 31 March 2002, representing the present value of the error identified (£40.5 million x 1.07^5).

Uplift

The uplift applied to the opening value of the RAB for the first price control was a pragmatic decision based on the MMC's judgement to adequately reward investors in the RP2 period. The MMC made it clear that this was a matter of judgement which was finely balanced. Its justification was that without uplift, shareholders might not enjoy sufficient returns on their investment. The justification for the uplift was therefore to be validated after the event by what actually happened in RP2.

It is clear that shareholders did not require the uplift - which was only worth about £3.0m per annum - to make an adequate return during RP2. However, the additional profit which uplift brought in RP2 is not in contention. The critical issue for RP3 is whether shareholders will require uplift to give them an adequate return in RP3. The value of uplift is declining as the pre-privatisation asset base is depreciated. It would be worth about £2.0 m per annum.

There are two issues here. The first is are shareholders entitled to Uplift as of right because it was felt in the face of uncertainty in and for an earlier period that they should have it? The second is: do they need it in RP3? With regard to the first question, it is hard to see what right shareholders should have in perpetuity to any additional income which had no contractual basis and for which no ongoing service is proffered. Nor is it likely that the MMC intended their pragmatic and hence essentially time bound conclusion to be interpreted as an eternal judgement.

On pragmatic grounds a case could be made for the continuation of Uplift but the onus of proof must be on those who wish to make the case. They would have to show that on the balance of evidence an Uplift is necessary to enable shareholders to continue to get reasonable return on their original investment. I will examine that evidence if it is presented.

Chapter 6 - Price Control Calculations

This chapter sets out how Ofreg has derived the proposals for the NIE T&D price control over regulatory period 3 (RP3) (April 2002 – March 2007). The T&D business is subject to an RPI-X price control, under which allowed revenue is a function of projected customer numbers and the volume of electricity transmitted and distributed.

Table 6.1 Customer and Volume projections for RP3

	02/03	03/04	04/05	05/06	06/07
Customer numbers	716,700	726,750	736,900	747,200	767,650
Units GWh	8,015	8,200	8,380	8,560	8,730
Units per customer kWh	11,183	11,283	11,372	11,456	11,372

Price controls can be designed so that the allowed revenue varies with changes in volumes while being indexed to RPI. In NIE T&D price control allowed revenue is weighted 25% on units distributed and 75% on a predetermined projection of customer numbers. These weightings are currently under review by Ofreg. The weightings are intended to avoid any artificial incentive on NIE T&D to promote increased sales of electricity. A weighting greater than zero on units is intended to maintain normal commercial incentives on the company to search for and meet the needs of customers.

Setting RPI-X price controls requires an estimate of the revenue that would be required to finance an efficient business.

Ofreg have used a building block approach to determine allowed revenue over RP3 based on:

- Efficient operating costs
- Capital expenditure forecasts and hence a path of regulatory asset values
- The cost of capital to use as the appropriate return
- Incentives payments with respects to efficient asset management (disposals).

The level of operating costs and capital costs are as set out in chapters 2 and 3 respectively. The cost of capital is assumed to be in the range 5.80%-6.75% the calculation of which is set out in chapter 5. The initial opening asset value has been adjusted in line with our assumptions on disposal values, depreciation analysis and Uplift as set out in chapter 5.

Box: Summary of adjustments to opening RAB (1999/00 prices)

£56.8m deducted for MMC depreciation error.
£17.9m worth of uplift now subtracted i.e. £32.8m at vesting minus depreciation over RP1 and RP2 (and pre vesting asset depreciation profile adjusted going forward).
£5m subtracted from capex for High Street disposal (incentives payments added to opex).
£7.1m subtracted from capex for Telecoms transfer to Nevada (incentives payments added to opex).

Adjustment to the RAB for the Moyle interconnector is considered outside these initial price control calculations.

Having determined the total revenue requirement there is then the question of how to sculpt that revenue over the period, thus generating annual price reductions. The price in the first year of the price control period is referred to as P_0. The subsequent annual reduction in prices is referred to as X.

The draft proposals are expressed as a possible P_0 reduction compared to prices in 2001/02 together with an X factor of 2 per cent per annum in the following four years.

At this stage proposals are expressed as ranges, based on estimated range for the cost of capital, to be refined in light of responses to this consultation and further analysis, before final proposals are announced.

The following tables set out price controls based on assumptions on costs and rates of return.

Table 6.2: Calculation of Price Control for CoC of 5.80% & 6.75% (£million 1999/00 prices)

	01/02	02/03	03/04	04/05	05/06	06/07	Total
1 Capex		44.81	36.9	33.05	36.63	26.84	178
2 Disposals		-12.1	0	0	0	0	-12
3 Net investment		32.71	36.90	33.05	36.63	26.84	166
4 Opening asset value*		584.97	585.51	589.94	590.13	593.30	
5 Depreciation		-32.17	-32.47	-32.86	-33.46	-33.26	-164
6 Net investment		32.71	36.9	33.05	36.63	26.84	166
7 Closing asset value	659.47	585.51	589.94	590.13	593.30	586.88	
8a Return @ 5.80%		32.99	33.13	33.26	33.35	33.26	166
8b Return @ 6.75%		38.21	38.38	38.53	38.64	38.53	192
9 Depreciation		32.17	32.47	32.86	33.46	33.26	164
10 Operating costs		46.10	44.90	44.30	43.80	43.30	222
11a Total @ 5.80%		111.26	110.50	110.41	110.62	109.82	553
11b Total @ 6.75%		116.49	115.75	115.68	115.90	115.09	579
12a PV of totals @ 5.80%		108.21	101.58	95.94	90.84	85.25	482
12b PV of totals @ 6.75%		112.80	105.00	98.31	92.26	85.83	494
							0
13a Base price control revenue @ 5.80%	153.13	111.26	110.81	110.33	109.84	110.38	553
13b Base price control revenue @ 6.75%	153.13	116.55	116.08	115.57	115.06	115.63	579
14a PV of totals @ 5.80%		108.21	101.86	95.86	90.20	85.68	482
14b PV of totals @ 6.75%		112.86	105.30	98.21	91.59	86.23	494
15a Revenue reduction @ 5.80%		41.87					
15b Revenue reduction @ 6.75%		36.58					
16a $P_0 - P_4$ @ 5.80%		-27.3%	-0.4%	-0.4%	-0.4%	0.5%	
16b $P_0 - P_4$ @ 6.75%		-23.9%	-0.4%	-0.4%	-0.4%	0.5%	

In each table the totals of operating costs, depreciation and return are discounted at the cost of capital to give a present value for each year and a total of these present values, shown in the final column of the table.

T&D revenue is then sculpted to give the same total present value. Price control revenue is profiled between years by assuming X of 2 and making the residual adjustment to P_0.

Line 16 shows the difference in revenue between 2001/02, the last year of the existing price control and its level in 2002/03.

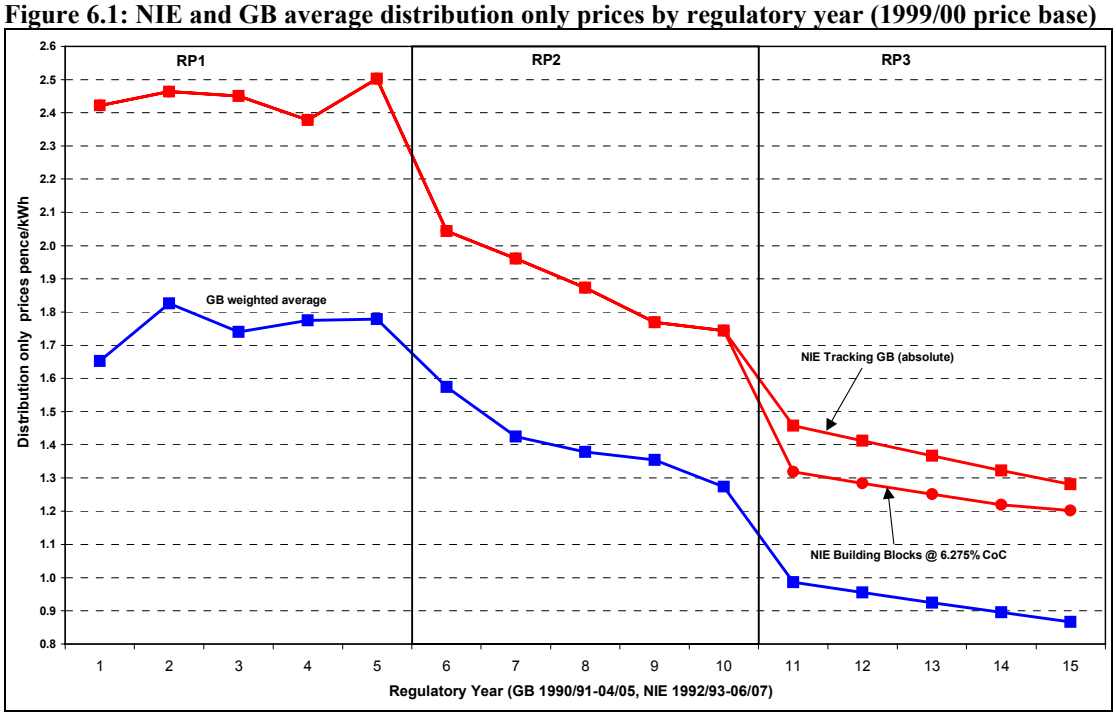
The transfer of costs and revenues to the supply business increases the overall reduction in price control revenue in 2002/03.

Tracking

Having determined the price control for RP3 using a building block approach we now compare how NI distribution prices have and will move relative to GB. The comparison is based on distribution only prices rather than T&D prices so as to eliminate distortion due to the significantly different transmission systems in GB and NI. We adjust NIE T&D prices (including those derived for RP3) downward by 10% to give a proxy for prices less transmission costs. The comparison is based on regulatory years (RY) or regulatory cycle. That is GB prices are lagged two years so that regulatory years in GB and NI coincide.

We show in figure 6.1 the profile of GB distribution prices and NIE distribution prices based on price control revenue derived from the building block approach and tracking GB.

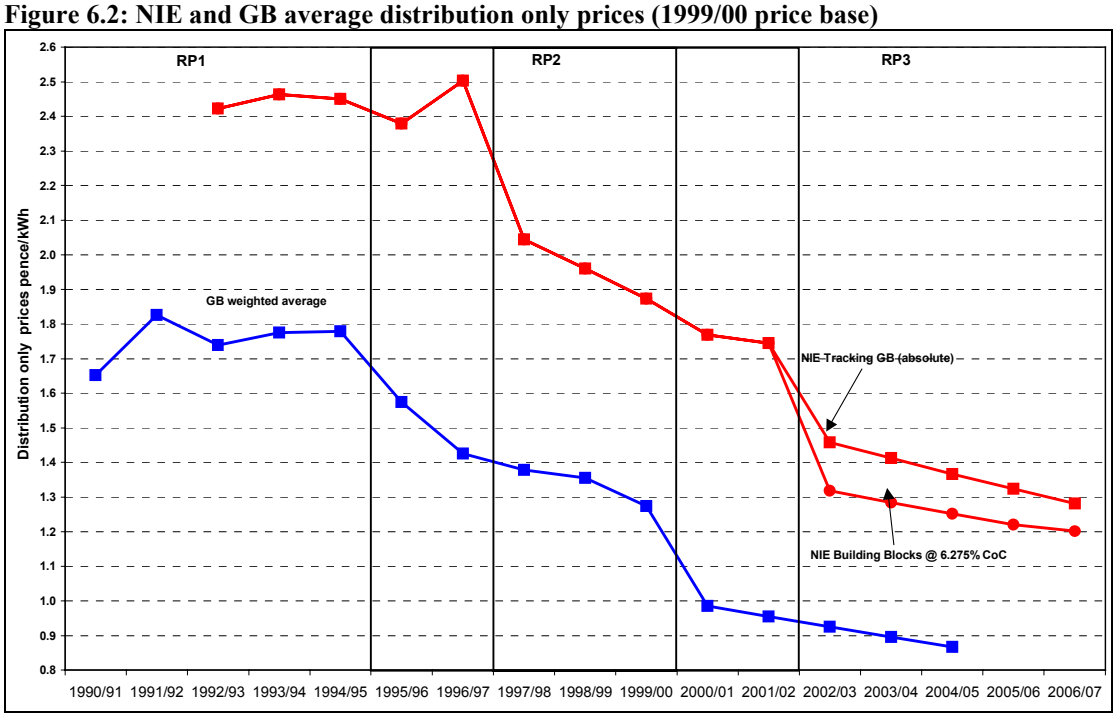
Figure 6.1: NIE and GB average distribution only prices by regulatory year (1999/00 price base)



The figure shows that the gap in RY10 was 37% or 0.47p/kWh. Using our building block derived prices the gap falls to an average 34% in RY11 (based on the midpoint of the estimated cost of capital range for indicative purposes) and averages 36% over RP3. The absolute gap is reduced by 0.14p/kWh and remains at around 0.33p/kWh through RP3. We show what the profile of prices would look like if, for example, NIE distribution prices tracked GB distribution prices in absolute terms. That is if the gap in p/kWh existing in RY 10 was maintained into RP3.
This tracking methodology results in distribution prices 7-11% higher than those derived through the building block approach.

Figure 6.2 shows distribution prices unadjusted for regulatory cycle.

Figure 6.2: NIE and GB average distribution only prices (1999/00 price base)



Conclusion

While customers would benefit most from a building block approach Ofreg accepts that there may be benefits to both customers and shareholders from a more stable longer term arrangement based on an Adjustable Tracking Mechanism which would offset the lesser immediate benefits of tracking compared to the building block approach.