

AW/PW/064

Joanna Whittington
Director – Gas Distribution
Ofgem
9 Millbank
London
SW1P 3GE

25 April 2007

Dear Joanna

Re: Gas Distribution Price Control Review Fourth Consultation Document

I have pleasure in providing NGN's response to the fourth GDPCR consultation. I would be happy to meet with you to discuss any of the content in more detail if that would be helpful. The key points from our response are as follows:

- NGN fully supports the use of benchmarking in this price control but has some reservations about the way that the consultants have applied benchmarking methodologies. The opex bottom up benchmarking suffers from substantive differences in allocation between networks and the danger of "cherry-picking" the most efficient GDN for each activity to create an unachievable composite efficiency factor. Furthermore, we include in our response substantive comments on the methodology employed by LECG and PB Power that suggests that much of their conclusions are unsubstantiated or invalid. Consequently top down modelling at the total cost level is, at this price control, the only viable benchmarking methodology. Eight data points may be insufficient to achieve a good regression model if there are a number of potential explanatory factors. Thus the most appropriate approach would be to use a composite variable which uses an appropriate "real world" view of likely cost drivers, for example the DNO composite variable combining network length, customer numbers and volume. Our modelling suggests that the results of such an approach are relatively insensitive to the relative weights of these three drivers. Furthermore, the analysis should be based on 2006/07 controllable costs excluding shrinkage and pensions.
- The strongest drivers for efficiency, hence benefits for customers, will be achieved by requiring inefficient companies to move immediately to the benchmark. Any alternative approach will benefit inefficient companies to the detriment of customers. Given the inevitable "noise" within the models, the target should be upper quartile, not frontier company and the frontier shift should be achievable by all companies and not set too high. If Ofgem is minded to use a glidepath, it should be recognised that this provides a benefit to inefficient companies and a similar benefit, for example a glidepath

approach to achieving any frontier shift, should be provided to upper quartile companies.

- It should further be noted that singleton companies do not have the economies of scale available to multiple GDN owners and this should be recognised when setting allowances. Any singleton company at the efficiency frontier thus has substantially less scope for achieving future efficiencies than less efficient multiple GDN owners.
- The European Economics analysis of total factor productivity uses an out of date inflation data set and ignores fundamental changes in the divergence of the costs of goods and services since 1999. It is important to recognise the substantive cost pressures on the business whereby utility costs are rising significantly faster than RPI. Furthermore, although there may be a modest benefit at this price review from comparative benchmarking, there cannot be a “privatisation effect” over 20 years after gas privatisation – there is evidence that electricity and water utilities are now struggling to achieve continued efficiencies and our belief is that gas distribution also has no further “privatisation” efficiencies. We attach a substantive report from First Economics that demonstrates that the achievable total factor productivity, when measured against changes in RPI, is close to zero. Achievable efficiencies (including the benefits outlined by Ofgem from comparative efficiency following GDN sales) are offset by the inflationary pressures above RPI.
- Customers would not benefit if NGN moved to the NG proposed zonal approach for repex as NGN does not have the high risk large diameter pipes that NG has in its networks. We believe that our current project sizes are close to optimal and that moving to larger repex projects would increase complexity and would not produce material cost benefits. To maintain the planned risk reduction using a zonal approach would require a 50% increase in annual abandonment volumes.
- There is now a strong likelihood that NGN will lose some or all of its meterwork contracts. Most of NGN’s £40m costs allocated to meterwork in the next formula period are fixed and this fill-in activity has provided substantial benefits to customers to date. The loss of this work is largely outside the control of GDNs and represents a major risk to NGN and a substantial potential increased cost of providing emergency services. Consequently we disagree with Ofgem’s conclusion that the cost magnitude is insufficient to warrant a separate incentive. The likely loss of contracts needs to be recognised by allowing additional opex allowances, via an incentive mechanism or as a potential reopener.
- We will be providing a report to Ofgem within the next week demonstrating that there is statistically valid evidence that the beta of quoted gas distribution companies is higher than that of transmission companies. This needs to be recognised when setting the cost of capital. Furthermore medium and long term interest rates have increased since TPCR by over half a per cent. Consequently, if Ofgem is planning to propose a cost of capital range in Initial Proposals then we would suggest the lower bound being the TPCR proposals and the range sufficiently wide to ensure that it captures any potential results of the analysis of risk differentials between GDNs and transmission and changes in market rates that Ofgem will undertake over the coming months.
- We support Ofgem’s conclusions that the volume driver should be zero (or around 5%) to be consistent with the variability of costs. This would reduce revenue risk for both customers and GDNs.
- NGN supports Ofgem’s existing pension principles and these should not be materially changed. Differences in GDN proposed pension contribution rates can be explained by differences in actuarial valuation dates and minor differences in assumptions. NGN

is supportive of Ofgem's proposed adjustment to the pension correction mechanism providing that it is based on an achievable opex allowance.

Please note that this response can be regarded as non-confidential.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Alex Wiseman', with a stylized flourish at the end.

Alex Wiseman
Regulation Director

Gas Distribution Price Control Review Fourth Consultation Document

CHAPTER: Two

Question1: Do you agree with our proposed accounting adjustments? Are there any other accounting adjustments we should be considering?

NGN agrees with the approach taken by Ofgem. An amendment is required to the accounting policy adjustment in Table 2.1 to reflect the latest data submitted by NGN that is being discussed with Ofgem.

Question 2: Do you agree with our adjustments for related party margins?

Related Party Margins

NGN agrees with the approach taken by Ofgem. The arrangements between NGN and UUOL are fully commercial and the contract was awarded following an OJEU notice and a competitive tender.

The treatment of xoserve margins merits further consideration due to the unique nature of the arrangements. xoserve costs are not pass-through costs and therefore any cost overrun is borne by the GDNs. Customers benefit from the GDNs managing this risk. It is reasonable therefore that GDNs should earn an appropriate margin on this activity reflecting the risk that they are managing.

Connections Margins

NGN generally agrees with the approach taken by Ofgem. We are interpreting Ofgem's statements on the price control treatment of connections as directly relevant to what GDNs are expected to do in charging customers for connections.

The previous 5 year price control has demonstrated the difficulties in forecasting what will happen in the connections market. It is therefore appropriate to use the connections industry survey data to determine the treatment of connection margins for the following year allowing time for any proposed change to be reflected in the GDNs connection charges.

Question 3: Do you think we should change our treatment of non-operational capex?

Non-operational capex tends to be short term in nature and the current treatment of depreciating this over 45 years may not be providing the appropriate incentives to achieve efficiencies.

NGN believes that non-operational capex should be expensed; this would bring the treatment of GDNs more into line with transmission and electricity distribution. Clearly, this approach would have an impact on Po, but as the consultation indicates this could be mitigated by capitalising more repex so that the net effect was broadly neutral for customers.

CHAPTER: Three

Question 1: How should we bring together the various consultants' analysis to establish an efficient cost benchmark and cost allowances? In light of our approach to setting a benchmark, what approach should we take to glidepaths?

Summary

NGN fully supports the use of benchmarking for this price control but has reservations about the way that the consultants have applied benchmarking methodologies. The opex bottom up benchmarking suffers from substantive differences in allocation between networks and the danger of "cherry-picking" the most efficient GDN for each activity to create an unachievable composite efficiency factor. Furthermore, we have substantive concerns about some of the methodology employed by LECG and PB Power, described in detail below. Consequently top down modelling at the total cost level is, at this price control, the only viable benchmarking methodology. Eight data points may be insufficient to achieve a good regression model if there are a number of potential explanatory factors. Thus the most appropriate approach would be to use a composite variable which uses an appropriate "real world" view of likely cost drivers, for example the DNO composite variable combining network length, customer numbers and volume. Our modelling suggests that the results of such an approach are relatively insensitive to the relative weights of these three drivers. Furthermore, the analysis should be based on 2006/07 controllable costs excluding shrinkage and pensions.

The strongest drivers for efficiency, hence benefits for customers, will be achieved by requiring inefficient companies to move immediately to the benchmark. Any alternative approach will benefit inefficient companies to the detriment of customers. Given the inevitable "noise" within the models, the target should be upper quartile, not frontier company and the frontier shift should be achievable by all companies and not set too high. If Ofgem is minded to use a glidepath, it should be recognised that this provides a benefit to inefficient companies and a similar benefit, for example a glidepath approach to achieving any frontier shift, should be provided to upper quartile companies.

It should further be noted that singleton companies do not have the economies of scale available to multiple GDN owners and this should be recognised when setting allowances. Any singleton company at the efficiency frontier thus has substantially less scope for achieving future efficiencies than less efficient multiple GDN owners.

The European Economics analysis of total factor productivity uses an out of date inflation data set and ignores fundamental changes in the divergence of the costs of goods and services since 1999. It is important to recognise the substantive cost pressures on the business whereby utility costs are rising significantly faster than RPI. Furthermore, although there may be a modest benefit at this price review from comparative benchmarking, there cannot be a "privatisation effect" over 20 years after gas privatisation – there is evidence that electricity and water utilities are now struggling to achieve continued efficiencies and our belief is that gas distribution also has no further "privatisation" efficiencies. We attach a substantive report from First Economics that demonstrates that the achievable total factor productivity, when measured against changes in RPI, is close to zero, and may result in a positive frontier shift. Achievable efficiencies (including the benefits outlined by Ofgem from comparative efficiency following GDN sales) are more than offset by the inflationary pressures above RPI.

Approach to identifying an appropriate efficiency benchmark

NGN agrees with Ofgem's policy of benchmarking costs and welcomes the general approach to considering relative efficiency. However, we recognise the difficulties in implementing such

an approach given the limited dataset available, the availability of consistent data given the short period of time over which the current industry structure has existed and the genuine differences that exist in group structures and underlying costs that can impact activity based analysis.

These issues introduce a significant risk that reliance on the output of the models without applying subjective analysis will result in allowances that may be unachievable and hence could impact the financial viability of the GDNs. This is particularly the case when analysing costs at an individual or sub-activity level.

Analysis carried out at the sub-activity/disaggregated level carries significant risks that companies' treatment and allocations between categories of costs distort the results of the analysis and provide spurious estimates of the benchmark. It is unclear to what extent attempts to 'normalise' the datasets can fully account for these differences and hence remove any bias from the results.

The issue of 'cherry-picking' highlighted by Ofgem within the consultation document is again a difficult one to overcome since it is inherent within the disaggregated analysis. Examining costs at a sub-activity level and identifying a benchmark for each does not identify any real world trade-offs between lower costs in one activity and higher costs in another and runs the risk of creating an overall benchmark on an "ideal" company which cannot be achieved in reality.

Thus the results of the activity analysis may help to inform efficiency considerations and to sense check results but the benchmarks for this review can only realistically be set by using top down analysis.

Benchmarking analysis

As noted above, NGN supports the general approach taken to the measurement of efficiency and in particular the use of the Corrected Ordinary Least Squares (COLS) used in the analysis carried out by Europe Economics, PB Power and Ofgem. However, we have concerns over the detail within the analysis and hence the overall results produced.

Top down benchmarking

GDN expenditure depends upon a large number of factors, including geographical conditions in each part of its operating area, the load characteristics of its customers, the size of the network and the history of load growth over the years. None of these factors could be fully described without using multiple variables.

However, the limited size of the dataset prohibits the use of significant numbers of explanatory variables without compromising the statistical robustness of the models. To overcome this requires the use of a limited number of explanatory variables or the use of composite variables. The use of composite scale variables within the analysis is an appropriate means of modelling the complex nature of GDNs whilst addressing the problems associated with employing multiple variables with a limited dataset.

It is therefore surprising to see the results of the analysis carried out based on composite scale variables excluded from the conclusions in the Europe Economics report. The use of such analysis has been used effectively elsewhere in the UK and overseas in this type of exercise to determine relative levels of efficiency. The scale variables of Network Length, Customer Numbers and Volume Delivered act as reasonable proxy variables for the wide range of factors driving GDN costs including those identified above.

We would suggest that results derived from this form of model has significant benefits over the models favoured by Europe Economics both in terms of their robustness, the ability to capture large elements of the relevant factors in the analysis, their applicability to the 'real world' and reducing the propensity for significant differences of opinion on the inclusion/exclusion of specific factors.

Contrary to the comment in paragraph 3.8, our own analysis does not show a significant level of volatility in results in response to changing the relative weighting of each variable in the analysis and hence the use of composite scale variables should not be excluded on these grounds.

Importantly, this analysis includes Network Length as an explanatory variable. This would appear, objectively, to be perhaps the key driver of costs, for example repairs and maintenance, emergency activity. However it is excluded from the analysis carried out by Europe Economics in examining total operating expenditure and Ofgem in their own analysis of direct operating expenditure. It may be difficult to justify using Network Length in isolation as the scaling variable and so consequently we believe that the methodology used should be an appropriate mixture of the main drivers of costs. Given the statistical limitations of a multivariate model with only eight data points, we would suggest a composite variable constructed from the three common drivers of operating costs: Network Length, Volume Transported and Customers Numbers. At a high level the justification for employing each of these drivers include:

Network Length: Is the main scale variable for GDNs activities. It is directly correlated with the costs of repair and maintenance of the network but also a key driver of the overall cost of emergency work on the network.

Volume Transported: Is a measure of network utilisation and indicates how hard the assets are being worked in each network. This would be expected to impact on the costs of repair and maintenance on the network.

Customer Numbers: Is an indicator of the density of the network and will be a driver of the costs of emergency service on the network.

The weightings between each of the drivers within the composite variable is a relevant discussion to be had when carrying out the analysis but the overall results appear relatively insensitive to changes within the small band of weightings that are relevant. On this basis, we would suggest basing a composite variable on the three main drivers of Network Length, Volume Transported and Customer Numbers. As many costs appear to relate to Network Length, we would suggest the weightings, 50%, 25%, and 25% respectively. This also has consistency with the approach used for DNOs.

Bottom up analysis direct opex

Chapter 4, question 2 provides a detailed analysis of PB Power's approach to benchmarking.

Bottom up analysis indirect opex

The methodology employed by LECG in its analysis of indirect opex places great reliance on the frontier company. As there are only 4 data points being used any outlying company will have a disproportionate effect on the quartile point. At the total level and in 8 out the 9 disaggregated activities the GDN benchmark is set by Scotia. However, these results contrast significantly with the work done by Europe Economics on total opex and by PB Power on direct opex.

This indicates either significant normalisation issues in the cost data or that Scotia is low cost in support services and high cost in direct activities. This may occur because the mix of responsibilities between line managers and support service functions is fundamentally different for example. Whatever the reason, the findings of the report are significantly flawed as it is clear that indirect costs cannot be considered in isolation. Consequently, the quantitative savings identified must be treated with considerable caution.

The approach taken is effectively to take the lowest cost provider in each activity and add them to achieve an overall lowest cost. As a minimum (and as the report itself stipulates) a 'sense check' should be carried out with total cost to ensure that there is no over-estimation of savings. There is no evidence in the report that such a sense check has been carried out.

NGN believes there are significant advantages with benchmarking at the total support service cost level (and total controllable opex level) as it avoids normalisation issues associated with disaggregated activities. It also avoids cherry-picking by setting an efficiency frontier for each disaggregated activity to create the 'perfect utility'.

LECG correctly states in several places that the benchmarking metrics should reflect the underlying cost drivers and has attempted to do this in isolated cases (e.g. IT support costs). However, the main metric in all cases is regulated revenue which ignores the main cost drivers of each activity and instead defines an indeterminate composite variable as the main driver of costs (none of its components may accurately reflect the true driver of costs). This cannot shed any great light on the relative level of efficiency.

The report makes no note of any alternative scale/explanatory variable examined by LECG to carry out their analysis or indeed cross-check their results.

In summary, NGN believes the report is very weak in identifying the correct cost drivers for support service costs and that a better approach would be to consider a wider basket of drivers.

Bottom up analysis indirect opex – xoserve

LECG has made a number of inappropriate assumptions about xoserve's costs, in particular that there is any relationship between xoserve and NG's IS activities. xoserve is a separately managed company with substantially different IS issues. Furthermore the property management costs are based on incorrect data and inappropriate comparisons. xoserve has submitted a response providing further details and this should be considered to substantially revise LECG's proposals.

Application of Benchmarking

The process for identifying the benchmark level of costs requires a significant level of care to be employed to ensure that the analysis does not overestimate the levels of efficiency/inefficiency that exist.

We agree with Ofgem's view that setting the benchmark at the lowest cost GDN is inappropriate. The residual gap between the frontier and any observation could, in principle, be due to any factor not contained in the model. Given a small sample size, benchmarking models cannot contain more than a few variables whether they appear explicitly or within a composite scale variable. However, the costs of each network depend on a large number of factors. The regression models cannot capture all these factors in the model specification. Some of the omitted factors or unique factors explain part of the "residual", i.e. the unexplained gap between observed costs and the estimated frontier and hence not all this gap can be assumed to be due to inefficiency. Thus using lowest cost as the benchmark is likely to overestimate the scope of inefficiency. It was for this reason that a benchmark based on

upper quartile was used at DCPR4 for the electricity DNOs where there were no additional problems associated with changing industry structure and company ownership.

On this basis upper quartile should provide the starting point for considering the appropriate benchmark level. It is not clear that using upper quartile adequately accounts for the other areas of uncertainty that surround results of the analysis as a result of the relative infancy of the industry structure, the short time which management teams have been in place and unresolved differences in cost allocations. The consequence is that, if upper quartile is used, the uncertainty should be recognised by setting a low “frontier shift” to ensure that inaccuracies in the modelling do not result in unachievable allowances.

Setting price control allowances

The approach taken to translate the results of the comparative analysis and identification of an appropriate benchmark into price control allowances is key to ensuring the continued incentives for efficiency and that companies can adequately finance their activities.

Scope for future efficiency gains

The three consultant reports commissioned by Ofgem each include assumptions about the scope for future efficiency gains in their analysis and conclusions. However, only Europe Economics provide any explanation and justification for their assumptions; neither PB Power nor LECG provide any supporting evidence for efficiency gains beyond the base year of the analysis. Hence it is difficult to place much credence on the assumptions employed by PB Power or LECG in their analysis.

First Economics has undertaken a comprehensive review of the scope for future efficiency gains and their report is attached as part of NGN’s submission. A summary of the key points from First Economics’ analysis is provided below.

Europe Economics carried out a TFP analysis based on a pre-1999 dataset that estimated the scope for efficiency when compared to other comparable sectors of the economy. Their approach is based on the fact that indexing a company’s costs and prices in line with RPI requires that company to match the rate of productivity improvement and input price control achieved by the firms which sell the 650 (or so) goods and services within the RPI basket. It follows that a GDN will only be able to reduce opex in real terms if it is able to out-perform this benchmark level of productivity improvement and/or this benchmark level of input price control.

This approach has two flaws:

- The analysis focuses exclusively on comparing the GDNs to other UK firms. However, a very large proportion of the goods in the RPI basket are now produced overseas. Globalisation means that the cost of many of these products has been falling in recent years, or at the very least increasing only very slowly, as producers gain access to cheaper foreign labour and more productive working methods. Since this is widely recognised as being one of the key drivers of the UK’s low inflation rate, the narrow focus on UK data causes Europe Economics to misstate the benchmark rate of productivity improvement and the rate of input price inflation that is already captured within RPI; and
- Linked to this, the balance between the different sectors of the UK economy has altered fundamentally during the last 10-15 years. This rebalancing is not something that will be picked up by a pre-1999 data set. Far more recent and up-to-date information is needed about productivity and input price trends in other sectors to inform judgments about whether firms carrying out similar activities to the GDNs are exhibiting above- or below-RPI cost trends.

First Economics' evidence demonstrates a break point around 1998 and 1999 and the emergence of a twin-track economy in the UK. There is clear and compelling evidence that service-sector firms employing a predominantly skilled, UK-based workforce are almost without exception seeing their costs rise on an above-RPI trend. It is this type of 'nature of work' comparison which Ofgem should consider relevant to calculations of frontier shift.

A much more valid approach than that adopted by Europe Economics is to disaggregate the RPI data set and to identify those component parts that can be considered in some sense comparable to the GDNs. First Economics' analysis demonstrates that firms with similar characteristics to the GDNs are currently seeing unit costs rise by on average by 1.8 to 2.1% above inflation. Before applying such comparisons to the setting of frontier shift assumptions, it is necessary to make adjustments for economies of scale/volume growth, quality improvement and capital substitution. As such, the alternative methodology will fall well short of substantiating Europe Economics' assumption that it should be possible for opex to fall in real terms.

Furthermore, it is not credible that 20 years after privatisation, there is any privatisation effect remaining. Both water companies and DNOs are now struggling to achieve the cost targets set at their last price reviews. We do, however, accept that there is a benefit that Ofgem can obtain from benchmarking.

It is worth noting recent regulatory precedent in this area. CAA's initial airport price control proposals, published in December 2006 commented that it should 'be cautious before concluding automatically that an airport company operating at the industry's efficiency frontier will go on continuously achieving real terms opex reductions'. The CAA concludes that it would be inappropriate to assume that frontier shift permits real terms cost reductions over and above the potential efficiencies it identified in its benchmarking.

Also worth noting is Ofwat's reaction to a near identical paper from Europe Economics in 2003. In its final determination, the regulator used frontier shift assumption of 0.3% for water and 0.5% for sewerage when fixing opex allowances rather than the much higher Europe Economics numbers. The regulator also made separate allowance for rising pension and energy costs. Taken together, the effect of these assumptions was to give the leading water and sewerage companies from the comparative efficiency analysis an overall efficiency target of roughly zero.

Compared to the CAA, Ofgem's indicative 2% per annum frontier shift assumption appears far too demanding. The only obvious way for an already efficient GDN to live within such allowances would be to cut wages and/or eliminate staff that would otherwise have important roles to play. In the short term – perhaps even in an entire five-year control period – this might be achievable. However, in the long-term, attempts to match the sort of cost control seen in the goods sector of the economy will have serious implications and undermine the requirement for appropriate long term stewardship of assets.

NGN concurs with First Economics that the achievable frontier shift is an upwards adjustment of between 0% and 0.5% consisting of:

Price movements against RPI	+1.8 to 2.1%
Diseconomies of scale	small upwards adjustment
Capital-labour substitution	-0.6 to 0.75%
Privatisation effect	0%
Comparative competition	<u>-1.0%</u>
Frontier shift	0% to 0.5%

Setting Operating Expenditure Allowances

Ofgem sets out three options for bringing together the opex analysis. For the reasons discussed above we do not believe that either a mechanistic approach or a focus on disaggregated benchmarking is appropriate given the substantive flaws in the bottom up analysis. The third approach proposed is “judgment based on evidence”. We believe that only a top down approach can be used to judgmentally set allowances. This should be based on controllable opex excluding shrinkage and pensions as shrinkage and pensions are dealt with separately. Furthermore, the basis of analysis must be on 2006/07 costs as this is the first full year after sale for a number of reasons:

- 2005/06 includes inappropriately includes an element of allocated central NG costs, the basis for which is difficult to understand.
- The sold GDNs were continuing to ramp up their operations and the costs included are not the long term sustainable level of cost expected.
- Some GDNs may have included costs incurred during the sale process, again distorting the benchmarking.

Ofgem then discusses three approaches for applying benchmarks:

- full gap closure;
- glidepath; and
- allowances based on historic costs.

The appropriate approach to setting allowances is based on finding a balance between rewarding efficient companies for achieving or exceeding the frontier whilst providing strong ongoing incentives for all companies to at least achieve benchmark performance and continue to extend the efficiency frontier throughout the next price control period.

Against these criteria, we agree with Ofgem that basing allowances on historic base year costs with no efficiency catch up creates perverse incentives as it rewards the companies with the highest costs in the base year whilst providing no reward for those companies that have already made significant efficiencies. This approach distorts the long term incentives for efficiency.

Likewise the use of glidepaths that allow companies to achieve a benchmark level of efficiency over an extended period of time provides less efficient companies with the ability to earn greater rewards than those who are already at or beyond the efficiency frontier. This does not provide the correct long term incentives for efficiency and extends the period of time over which benchmark efficiency gains are returned to customers. Additionally it requires a far more complicated approach to determining and setting targets and allowances

Thus an appropriate approach is to move all companies to the efficiency frontier in the first year of the price control period and then apply a common efficiency target for all companies going forward. The common efficiency target needs to take into account the likely errors in the modelling and hence it is essential that it is not too demanding and hence unachievable. This provides less efficient companies with a clear immediate target for improvement in efficiency whilst rewarding those companies who have successfully reduced costs in the base year. This provides the correct long term incentives for efficiency improvement and hence should ultimately benefit customers.

However, it is not clear that the ‘drawback’ to this approach identified by Ofgem in paragraph 3.71 is appropriate or equitable. Providing an additional allowance for less efficient companies to finance efficiency savings gains provides perverse incentives for the less efficient

companies. To the extent that there is concern that efficiency improvements can only be achieved if an allowance is made for the costs of achieving these improvements a more equitable treatment would be to increase the return for all companies for achieving efficiency improvements. One obvious mechanism to achieve this would be to extend the period over which efficiency gains can be retained by companies, for example through the introduction of a simple opex roller that allows opex efficiencies to be retained beyond the price control period. This is discussed further under chapter 5 question 3.

If Ofgem is minded to use a glidepath, it should be recognised that this provides a benefit to inefficient companies and a similar benefit, for example a glidepath approach to achieving any frontier shift, should be provided to the frontier companies. For example, if inefficient companies have three years to achieve the frontier than efficient companies should be allowed three years to achieve any frontier shift targets.

It should further be noted that singleton companies do not have the economies of scale available to multiple GDN owners and this should be recognised when setting allowances. Any singleton company at the efficiency frontier will thus have substantially less scope for achieving future efficiencies than less efficient multiple GDN owners.

Question 2: Is there a case for making adjustments to allowances for real price effects, specifically direct labour, contract labour or materials?

It is clear that there have been substantive real price increases for these items in the past few years and that these real price effects will continue. NGN has included the impact of real price effects within its forecasts of operating expenditure in the BPQ that reflect both the price increases that are presently being experienced and the price increases that are forecast to occur over the plan period given the specific supply and demand conditions in the market for GDN goods and services.

In particular we are forecasting:

- **Real increases in Contract Labour costs** – EPC rates are forecast to increase by RPI+4% pa driven primarily by predicted shortages of engineers and manpower as a result of several large infrastructure programmes in the UK.
- **Real increases in Direct Labour costs** – Direct labour costs forecast to increase at RPI +2% pa. Shortages of experienced gas personnel due to an ageing workforce resulting in investment in apprentice schemes. Also increases in both staff levels and level of training (eg. 2 years training for network control and 3 years for safety).
- **Real increases in Material costs** – General increase in material costs of RPI+2% pa from rising commodity prices in particular oil and oil based goods.

All the GDNs are experiencing increases in prices in these areas and are forecasting similar increases over the price control period.

Contract Labour Costs

The forecast EPC rate increases are a reflection of the market evidence drawn from discussions and negotiations with contractors in the NGN region.

The demand for contract labour is expected to be particularly high over the period to 2012 as a result of several very large infrastructure investment programmes:

- the substantial water investment programme in the UK;

- terminal 5 at Heathrow Airport;
- a significant increase in electricity transmission investment to meet the demand for increased renewable energy generation connections; and
- the 2012 Olympics which is anticipated to attract a significant amount of the contractor resource up to 2012.

This increase in demand for contract labour is coupled with a general shortage of experienced gas personnel, driven primarily by the higher levels of training and competence required to carry out works with respect to gas. These requirements attract a premium to costs to ensure the appropriate level of qualified personnel is available to meet the planned investment programme.

There is no index that specifically tracks contractor labour costs for the gas industry in the UK. However, general indices exist that attempt to monitor prices across broad categories of industry and construction projects. These indices can provide some information on the level and trends in costs and indicate the poor relationship that exists between construction projects and the retail price index. Ofgem quotes historic indices showing real contractor growth of 2.8% - 4.02% over the last 6 years. Our evidence based on negotiations with our contractors suggests increases going forwards of 4% per year or more. This is exacerbated by the shortage of gas engineers, by the continued pressure on contractor availability from the large capex programmes in water and transmission and from the pull to London that will result from Heathrow terminal 5 and the London Olympics.

Direct Labour

There are several industry specific factors that are driving wage increases for GDNs:

- Skills shortages
- Aging workforce
- Historic trends

As with contract labour costs these specific factors affecting the supply of appropriate direct labour is placing significant upward pressure on salaries. It is correct to outline the fact that general wage inflation is captured by RPI. However, this does not capture the extent to which specific market conditions in an industry can cause real price effects when compared to economy wide wage inflation and the general measure of price inflation provided by RPI. Furthermore wages represent a substantially higher percentage of GDN's cost base than the UK average. In considering the appropriateness of an allowance for a real price effect of Direct Labour full consideration needs to be given to the current and forecast fundamental market conditions that impact salary costs and their likely impact upon price increases over the plan period.

Recent evidence suggests that wage inflation in the private sector is increasing at a significant rate. In March 2007, IDS (pay specialist) reported that pay settlements in the UK spiked up in January to a six-year high, primarily because private sector pay is rising at twice the rate of that in the public sector. This was followed by a report from the Recruitment & Employment Confederation (REC) and consultancy firm KPMG who found that rising demand for staff and shortages of skilled candidates drove inflation of permanent staff pay to an eight-month high in February, and temporary/contract staff pay to a 27-month high.

Materials Costs

The basket of goods and services purchased by GDNs is not a representative sample of the 650 goods and services that make up the RPI calculation. The extent to which this basket of

goods is clearly different from the basket of goods purchased and consumed by GDNs will show itself as a real price effect.

Significant differences in the growth in different categories of costs has been particularly evident over the last 8 or 9 years with the growth rates for services costs being significantly higher than for goods in the UK economy. The mix of goods and services purchased and consumed by GDNs imply that their costs are increasing at a rate far greater than RPI at present.

The cost of oil, raw materials, energy and services are continuing to rise at a significantly faster rate than RPI and it these input prices that largely determine the costs of materials purchased and consumed by the GDNs.

On the basis of specific market information NGN believes forecast real price increases in materials costs of 2% per annum is a realistic assumption.

Question 3: Is there a case for making adjustments to allowances for regional factors and if so what approach should be adopted?

The intention to identify any significant differences in key costs is valid as not accounting for these differences would impact the results of any efficiency analysis or provide a GDN with an inadequate allowance. However, the practice of identifying an appropriate methodology that adjusts for these differences is difficult. There is little evidence of regional differences at present and consequently adjustments should not be used in this review. This is particularly the case for direct labour; there is more validity in adjusting for contractor prices as external indices are available for comparing third party organisations.

Contractor Prices

It is not clear that there is a readily available source of information on differences in regional contractor prices that accurately represents the gas industry in the UK.

This is the case with the adjustments made for contractor prices in the PB Power analysis. PB Power has employed an index of regional construction costs as a proxy for differences that may exist between regional prices for operational gas contracts. This can be viewed as a useful comparison of regional contractor prices but caution should be used in applying this.

Direct Labour Costs

NGN is still suffering from the legacy of national pay bargaining and this is likely to continue for some time to come. There is continuing strong pressure from trade unions not to move away from the conditions of service and bargaining approach that existed under NG. Settlements across the gas sector are continuing to act as strong influences on the settlements that NGN is able to achieve and there is little evidence of regional differences. Yorkshire Forward has analysed pay rates for utility staff in Yorkshire compared to the national average and has concluded that the pay rates for skilled and semi-skilled operatives are fractionally higher in Yorkshire than the national average. Consequently there should be no regional adjustment factor for direct labour.

Question 4: Should we adapt our pension principles to address the forecast defined benefit pension contributions, which are both extremely high and vary widely across GDNs, (despite funding very similar benefit packages)?

It is not appropriate to change the pension principles that were agreed during the DNO review and that Ofgem has been proposing for GDNs. It is noteworthy that Ofgem has found no

evidence that actuarial assumptions are not reasonable and in line with normal actuarial practice, and no evidence of a failure of stewardship.

There is a range of funding bases that could be used to assess the liabilities of a pension scheme and calculate the contributions required to meet accruing benefits from targeting insurance company buy-out to making an aggressive allowance for future expected investment returns with no allowance for improvements in longevity and so on.

Based on actuarial advice, the NGN Pension Scheme funding basis as set out below is nearer the middle of this range. It provides a balance between providing a reasonable level of member security (which is an important aspect) and not being overly aggressive. Aggressive assumptions could lead to a requirement for large deficit recovery payments and associated volatility of cost - this makes it difficult to maintain equity between different generations of customers.

The funding basis applied by NGN is within the range set by the Pensions Regulator and is not overly prudent, but yet not too optimistic such that it would raise alarm with the Pensions Regulator to proceed to further investigation of the trustees' approach to funding. It is also in line with the bases adopted by the accounting professions under FRS17 and IAS19 for company accounting for pension schemes.

In terms of variations between the GDNs, it is worth noting that not all the contribution rates were calculated at the same date. Data was requested from the other two sold GDNs to aid benchmarking and analyse the apparent differences. Benchmarking the contribution rates and funding levels to a calculation date of 31 March 2006 and adjusting for NGN's current views of salary inflation as well as a move to using a yield curve approach to derive financial assumptions gives revised figures for NGN as follows compared to the other sold GDNs in the same format as your previous table:

	NGN 7 Dec 2005	NGN 31 Mar 2006 re-calibrated and normalised	Scotia	WWU
Future accrual contribution rate	31%	39%	37%	39%
Past accrual funding level	85%	73%	77%	82%

These updates have the effect of increasing the future contribution rate and reducing the past funding level compared to the original NGN 7 December 2005 valuation position.

The re-calibration gives future and past rates that are in fact reasonably similar between the sold GDNs, especially given the range of possible funding bases that could be adopted. Please note that there will always be differences caused by Scheme specific factors, which would include the likes of differing membership profiles and national demographic variations of mortality rates.

As a consequence of the above by aligning valuation dates and prevailing actuarial assumptions based on a yield curve approach NGN believes it's future contribution rate would at 31 March 2006 be around 39.2%, which broadly compares to the 37% and 39% quoted in the Ofgem document for Scotia and WWU as shown above.

NGN's Pension Advisers will undertake an up-to-date valuation of the scheme on behalf of the company in the first half of 2007 to determine the future contribution rate required based on current market conditions and prevailing actuarial assumptions which NGN expects will be broadly comparable with the future contribution rates of the other networks as currently presented. A copy will be submitted to Ofgem once available.

NGN supports Ofgem's general principles in granting total cost allowances which vary to reflect actual pension contribution rates consistent with actuarial valuations, where if actual pension costs differ from allowed pension costs then these are allowed through an ex-post adjustment within the subsequent price control.

Options Suggested by Ofgem

Ofgem has proposed three options for determining ex-ante allowances on which responses are sought; and NGN's views on the three options are discussed below:

Option 1 – the ex-ante operating cost pension allowance should be based on a benchmark contribution rate derived from analysis of GDN and comparable company contribution rates.

As Ofgem says, this option represents a divergence from the established pension principles of actual costs and actuarial valuations and is not an option supported by NGN as set out currently with reference to comparable schemes. It does not seem appropriate to expect companies to diverge from actuarially approved contribution rates.

Furthermore, it is not possible to benchmark the GDNs against comparable schemes as no comparables actually exist outside of the GDN schemes. The GDN scheme benefits cannot be reduced without the consent of two thirds of the members and as a consequence the benefits cannot realistically be changed by the companies.

Option 2 - ex-ante allowance to be made with reference to a notional GDN with comfortably investment-grade financial position.

NGN believes that the sold GDNs will have broadly similar future contribution rates and does not believe that those with more aggressive financial profiles will necessarily have higher contribution rates. We would repeat that it does not seem appropriate to expect companies to diverge from actuarially approved contribution rates.

If Ofgem was to pursue this option, NGN strongly believes that an independent Actuary, with knowledge of UK GDN businesses would need to be appointed by Ofgem to best estimate the benchmark contribution rate of such a notional GDN.

Option 3 – the ex-ante approach would be maintained as at present, but to the extent that a surplus arises in future, there will be an ex-post review of whether that surplus has arisen as a result of high contribution rates. If so, then that surplus will be used for the benefit of consumers to reduce future pension allowances, regardless of whether the Trustees agree to reduce future cash contribution rates.

NGN believes that, under this option, an exercise would need to be performed ex-post to establish in instances of any surplus generation, what had actually generated the surplus – the contribution rate or other factors, and this may not be a simple exercise to perform.

NGN would support this option providing an independent actuarial valuation also approved a reduction in pension contributions in the event of a surplus. However, NGN believes that it is not fair to transfer the risks entirely to the GDNs, given the fact that it is nearly impossible for an employer to utilise the surplus. The defined benefit schemes maintained by the GDNs are now closed, and, as Ofgem states, the surplus could effectively become stranded. Given this risk, such an option may result in companies adopting the wrong behaviour which may actually result in the incomplete removal of a deficit, as Trustees would be unlikely to agree to reduce future cash contribution rates.

In summary, NGN is supportive of allowances which reflect actual contribution rates with an ex-post adjustment. NGN supports Option 3 providing that, in the event of a surplus, reduced allowances are consistent with actuarial recommendations for contributions.

Question 5: Should we change our pension recovery mechanism in order to avoid distorting incentives between making salary and non-salary cost savings?

Ofgem has put forward two alternative pension correction mechanisms (PCM) within the consultation document for DB schemes: -

- i. PCM allowance = (Actual Cash Contribution) – (Cash Allowance); and
- ii. PCM allowance = (Actual DB cash contribution) – (Actual DB pensionable salary * allowed contribution rate)

Under the current principles (formula (i) above) a GDN actually has to give back any pensions' savings it generates through efficiency but is funded for the cash it contributes, and there is therefore little incentive for reducing pension costs but also little risk.

Formula (ii) above carries more risk to a GDN but also incentivises the GDNs to reduce pensionable salaries.

NGN supports incentive-based regulation and, provided that the outcome of this review is an achievable opex target, supports option (ii) which appropriately shares risk between customers and shareholders.

CHAPTER: Four

Question 1: What are your views on PB Power's adjustments to the GDNs' forecast capital and replacement expenditure?

NGN disagrees that any adjustments should be made to capex and repex forecasts and presents detailed arguments below.

Repex (£26m adjustment)

Despite NGN being benchmarked by PB as the most efficient GDN on repex costs, having the best lay to abandonment ratio of any GDN and the lowest service work per mains km of any GDN, PB states that significant ongoing efficiency improvements of 1.75% per annum can be made to our repex costs. This would appear to be applied to all GDNs irrespective of current levels of efficiency and seems to be driven by a view that zonal replacement as promoted by NG will deliver these savings.

It is understood that NG is achieving the equivalent reduction in risk by adopting a zonal replacement policy ("20/80") supplemented by the inclusion of a significant amount of very high-scoring large diameter (> 12") pipes which have not yet been abandoned. NGN has managed the risk profile of its > 12" diameter pipes in a broadly similar way to that of its ≤ 12" stock. Thus NGN does not have a large volume of very high-scoring pipes it could abandon to "top up" zonal schemes to achieve equivalent risk reduction.

Using NGN's current population and risk profile, modelling has been carried out to determine the length of main which would need to be decommissioned using the "20/80" rule to match the level of risk removed by decommissioning 528km / year under "20/70/10". To remove an equivalent amount of risk it would be necessary to increase our total repex workload by around 50%. This would be a significant challenge to physically deliver.

PB appears to have made an uninformed judgment based on circumstances pertaining in another GDN and not specific to NGN. Thus the claimed productivity improvements are not credible. The question of what would happen if risk was removed entirely from the selection criteria is theoretical at the present time. The HSE has shown no inclination to move away from a risk based approach to the repex programme. Furthermore, it is unclear that NGN would be able to achieve materially lower costs with larger project sizes as larger projects would result in greater complexity and a substantial ramp up in the project planning. Local councils may not be amenable to the longer periods of disruption that would inevitably result.

Capex

LTS (£7m adjustment)

NGN does not agree with the adjustments PB is proposing to NGN's LTS capex. PB has applied generic cost curves which do not recognise the impacts of network length or the specific factors applicable to the affected projects to derive their estimated project costs. NGN's forecasts are based on identifying project specific costs using a building block approach to provide more reliable and robust estimates.

The specific factors affecting the two projects affected include crossing several railway lines (including the East Coast mainline), crossing a site of special scientific interest, crossing a major river, avoiding a steep escarpment and the need to lay a large diameter pipeline in a built up area because no suitable route for a cross country pipeline is available. It is important that PB Power as gas engineering experts reviews (selected) specific projects rather than adopting a generic approach.

In addition, PB has assumed that LTS unit costs are unaffected by the length of pipeline being laid and are only impacted by the diameter of the pipeline being laid. This is not the case as the length of pipeline being laid is a significant factor due to the high (fixed) mobilisation costs associated with such projects. As a result smaller length projects have higher unit costs, however, PB's methodology would show smaller length projects with the same unit costs as longer length projects. PB's use of generic cost curves has ignored the effect of special factors and network length and therefore they are significantly underestimating the cost of these projects.

Connections (£13m Adjustment)

NGN does not agree with the adjustments PB is proposing to NGN's connections capex. PB uses arbitrary productivity improvements (e.g. 5% in 2008/09) which are unsupported and not achievable to derive most of their proposed adjustments. Connection work is the area where the upward pressure on contractor costs is most acute because it is the least attractive work for contractors. This is because it consists of numerous, geographically dispersed, small value jobs which have to be planned at short notice, involve work in individual customer premises and incur significant costs in working in unmade ground. NGN is currently challenging a very significant increase in these costs proposed by our contractors of up to 13% which demonstrates the testing nature of containing costs in this area.

NGN has submitted forecasts that it expects will be extremely challenging to achieve in its BPQ submission which show no increase in real terms in connection unit costs over the price review period. This takes account of the savings from the change of connections provider. PB appears not to have accounted for this in their analysis.

Other Operational Capex (£5m adjustment)

NGN does not agree with the adjustments PB is proposing to NGN's other operational capex. PB has disallowed any investment related to land decontamination costs. NGN has provided

full details of each of its contaminated sites and the costs associated with the clean up of these sites. Our BPQ forecast is based on a probability assessment that there will be a requirement to act during the five years of the price control period. We have judged this probability at 15% based on an expert assessment and driven by evidence of increasing environmental monitoring and legislative changes. We do not agree with PB's statement regarding the justification of our forecast expenditure. PB has judged this probability as zero based purely on historic levels of expenditure; a probability of zero is clearly incorrect; in particular there are existing contaminated sites that are likely to require decontamination. We would question whether PB has the necessary expertise to make an assessment. The probability is clearly greater than zero and NGN believes that 15% is a prudent assessment.

NGN currently has at least two contaminated sites where there is a threat of imminent migration in relation to contamination of pollutants. In light of the evidence we have to date 15% is a reasonable assessment of the likely work over the next price control period but this is based on informed judgement.

Non-Operational Capex (£7m adjustment)

NGN does not agree with the adjustments PB is proposing to NGN's non-operational capex which appear to relate to SOMSA exit and GTMS. The requirement for SOMSA exit is driven by a regulatory requirement and is not an investment decision that would have been taken by NGN if was not obligated to exit the current arrangements. If Ofgem believes that exiting SOMSA will be for the long term benefit of customers through efficiencies and allowing a clearer comparison between GDNs then the exit costs should be allowed.

The replacement of GTMS is complex in nature, and whilst recognition of the costs attributed to the replacement application has been considered the true cost of replacing GTMS with SCX6 has not been allowed. The allowances provided do not recognise that many aspects of previous costs are being driven by the replacement of GTMS, and not as a result of SOMSA exit, as seems to be suggested.

The basis of replacement has been considered as like for like at minimum cost, with agreement to collaborate with NG and the other IDNs on the replacement product, this has driven best value, but added additional complexities to the programme beyond those allowed.

Development of interfaces for other dependent products, facilitation of amendments to suitable infrastructure arrangements and associated training seems to have been disallowed, but some of this is clearly directly attributable to GTMS replacement.

Additionally, whilst collaborative in nature, it is now clear that some elements will be more expensive than was assumed at the time of the BPQ submission. The overall solution for SCX6 is now likely to be £1.1m higher for NGN alone. We believe our forecast costs of £4.5m are a reasonable estimate of the likely costs and should be allowed in full.

Question 2: What are your views on PB Power's general approach to the assessment of costs?

The general approach adopted by PB has been based on regression modelling using an explanatory variable which is a composite of the different types of workload that make-up the particular set of costs being considered. This is a fairly standard approach for identifying the true drivers of costs. However, it appears that PB has not applied the methodology correctly and there are significant flaws in PB's approach which invalidate the conclusions. Our key concerns are:

- The evidence provided does not suggest that normal practice has been followed in constructing the econometric models. The specification of the models does not appear

to have been tested and there is no evidence of any academic/statistical rigour in the analysis. There is nothing to suggest that PB started with a theoretical concept or concepts of the drivers of different types of expenditure then statistically tested these hypotheses to prove them correct or incorrect.

- When using composite scale variables it is normal to attempt to weight them to reflect the impact that each variable theoretically has in driving costs. PB Power has attempted to do this by scaling by unit costs. There are several problems with this, both in terms of theory and the way in which it has been employed:
 - PB has constructed the composite variable by taking workload and simply multiplying it by a PB view of the appropriate notional unit cost for that activity. This they say is weighting the workload volumes when in fact what it is doing is creating a notional cost function of the form $\text{Cost} = (\text{Workload A} * \text{Price A}) + (\text{Workload B} * \text{Cost B})$. The PB modelling then regresses this on actual costs. What the model therefore says is the driver of actual total costs is notional total costs and any deviation from driver is inefficiency. It is in effect a tautology but it importantly excludes anything else as a driver of costs except costs themselves! Including a cost function as an explanation of costs in this manner implicitly builds into the model an assumption of efficiency/inefficiency rather than allowing the model to indicate the level of efficiency which is the purpose of using this approach in the first place.
 - There is no explanation as to how PB has derived the relevant notional unit costs in the analysis so they cannot be validated to justify their derivation. PB's assertion that the level of these unit costs does not affect the analysis is not correct. The relative size of the costs will affect the results and hence getting them wrong will produce incorrect results using PB's own logic.
 - The use of simple unit costs in this way across all workload sizes overlays the assumption of constant returns to scale with respect to workload which may be acceptable as a starting assumption but the results should be adjusted for any evidence of economies or diseconomies of scale. Several of the models suggest that there are economies of scale which are then not discussed or taken into account in the results.
- The regression analysis reported does not reference what if any statistical tests have been carried out to qualify that the final model used is robust and fit for purpose. However, there are several issues with this approach:
 - Reliance on R^2 . As PB is effectively regressing cost on cost (whilst using the same workload numbers) it is inevitable that unless they have made some very different assumptions about unit costs there will be a reasonable relationship between the two variables. In addition, use of composite variables often leads to results that are apparently more robust than multi-variate analysis (e.g. results that have a higher R^2), due to strong correlation between the explanatory factors (and in the case of the PB report correlation between the explanatory and dependant variables). However, that result does not mean that these equations are better at identifying residual costs due to inefficiency. The multiplicity and increasing complexity of these size measures shows the difficulty of trying to encapsulate something as complicated as "network size" in a small number of variables. Regression equations may identify a significant relationship between the chosen factors and network costs, but these significant relationships do not rule out the existence of other factors with a significant impact on the costs of one or more companies. Thus, even a regression with a high R^2 does not provide any basis for claiming that the remaining costs (as represented by a residual

difference between observed costs and the regression line) represent inefficiency.

- The small sample size of only 8 observations makes it challenging to derive statistically significant results. One option that can be considered to overcome this problem is to use panel data drawn from several years. Europe Economics in their analysis of total opex costs use 2005/6 and 2006/7 data to derive their estimates of efficiency. PB power does not mention whether they have examined this option and whether it might improve their analysis. There is an inconsistency of approach here between consultants.
- It is not clear that PB Power has run the full range of tests that usually accompany this type of analysis, for example tests for autocorrelation, heteroskedasticity, model misspecification etc. Without confirmation that the models have passed these tests, results of the model cannot be considered robust. Our expectation is that tests for autocorrelation in particular could fail.
- PB has used the approach of Corrected Ordinary Least Squares (COLS) which has become a standard approach in recent times to analyse efficiency. However, PB has differed in a few ways in which they have interpreted the results.
 - PB's methodology assumes that small companies can make exactly the same monetary improvement in efficiency as large companies which implies a higher percentage efficiency gain for the smaller companies. Most analyses only apply this methodology for the base year and thereafter apply a percentage reduction to the baseline costs. However PB continues to adjust the constant term in the regression analysis for their assessment of efficiency for each year to 2012/13. This has the effect of compounding the impact on smaller cost v larger cost companies of the percentage reduction. There are ways to remedy this effect which interestingly PB has applied in the opex study but not capex. Europe Economics has taken a different approach in their report by adjusting for COLS in year 1 and then applying their efficiency targets to these corrected base year numbers.
 - Efficiency Assumptions. PB provides no analysis of how the proposed level of productivity/efficiency has been derived. Europe Economics has been very explicit as to how they have derived their estimates via their TFP analysis etc. The regression analysis is an aid to identifying the relative efficiency between companies and the extent to which any individual company has to increase efficiency to achieve the defined measure of the efficiency frontier (often referred to as the 'catch up' element of efficiency). Equally if not more important is the scope for continuous efficiency improvement often referred to as the 'frontier shift'. Any rigour and detail that is put into identifying relative efficiency must be at least matched by the rigour applied to identifying the appropriate level of efficiency assumptions. The report provides no explanation of how PB has identified this scope for efficiency. This limits our ability to provide an effective response.

In summary, PB uses statistically unsound regression modelling to derive efficiency savings. Unit costs in capex (a key building block in PB's approach) are very difficult to compare on a like for like basis due to the number of variables that can impact upon them (e.g. type of equipment, location of work, length of job, ground conditions etc). This results in significant normalisation issues in undertaking capex comparisons though this should be less of an issue in repex. In addition, there is little statistical validity in much of the modelling used by PB (e.g. R^2 of 0.3) and no evidence of the normal statistical testing. PB's approach of regressing costs against costs provides no information about inefficiencies.

The combined effect of these factors leads to PB overstating the level of efficiency savings that can be delivered as a result of their comparative analysis.

Question 3: What are your views on PB Power's approach to the cost assessment for each activity?

In areas where PB has deemed that regression analysis is not appropriate it has attempted to carry out a 'true' bottom-up analysis of costs. However, in most instances this analysis has been restricted to some simple, high-level comparative analysis between GDNs. Our key concerns over and above the general points on the regression methodology contained in the response to the previous question are provided below.

LTS Capex

The simple process of taking the median or lower quartile of a basket of projects on each diameter of pipe band misses many of the key factors that will drive the costs of a particular project as we have already pointed out in the main text of this response. The use of the median to calculate efficient costs for all but 1200mm diameter pipes, but lower quartile for 1200mm pipes at best only presents a passing reference to the true factors driving costs of any project. Without evidence to suggest that these indicative costs are appropriate for all projects within a particular diameter size they introduce a significant risk that they will over or underestimate true costs.

The high level nature of much of this type of analysis has not been carried out at a detailed enough level to achieve a proper bottom-up understanding of the underlying costs.

Connections

There are obviously some fundamental differences in the way connections costs are being recorded by GDNs. It is noticeable that when total connections costs are considered the wide variations between GDNs are not visible indicating that total connection costs are reasonably comparable and consistent. It is at the disaggregated levels that differences in allocations emerge.

PB indicates that comparison between mains and services is not possible because of wide variation in unit costs. It is also clear that such wide variations in unit costs appear in the comparisons between the various types of connections work (existing, new and non-domestic). NGN for example is benchmarked as the most efficient in new housing work and the least efficient in non-domestic work. This does not make sense as it is the same organisation and processes that are delivering both types of work.

The disaggregated analysis is therefore not identifying inefficiency it is merely indicating differences in cost allocations. The only comparable data is at the total level and it is the findings of this analysis that we would have expected PB to use.

Question 4: Is it appropriate at this time to reconsider the approach to prioritisation within the risk model for the mains replacement programme and should the approach to encroachment and diversions be amended?

NGN has no objections to reconsidering the methods used for selecting pipes to be included within replacement projects, but this can clearly only be undertaken with the full co-operation of the HSE.

However, if NGN were to move to, say, a zonal approach to replacing iron pipes, we believe that there would be minimal scope for unit cost savings. This is because the current size of

NGN's repex projects is broadly optimal. Larger projects would result in increased complexity and in some cases may not be accepted by local authorities because of the length of time of disruption.

We have carried out a significant amount of analysis based on our current remaining risk profile to model the effect of moving to "20/80" zonal replacement, and have calculated that to remove an equivalent amount of risk compared with "20/70/10" it would be necessary to increase our annual abandonment workload by approximately 50%. This modelling was repeated looking five years ahead with similar results. This increase in workload far outweighs any efficiency savings available by the use of "20/80" zonal replacement, and would significantly increase the annual cost of the mains replacement programme.

In summary, it is unclear that any move towards zonal replacement would provide benefits for customers within NGN's region.

Pipes abandoned due to Encroachment or Diversion

Currently, iron risk pipes within 30m of property which are abandoned due to encroachments or diversions do not count towards the HSE target length for the year. NGN does not believe that it would be beneficial to include these within the HSE target length for the following reasons:

- Encroachment and diversions are largely driven by third parties, with a relatively short lead time (a few weeks to a few months). To maximise efficiency in terms of allocation of resources, grouping of projects, etc. replacement projects are identified and designed with much longer lead times. Even if they counted towards the HSE target, encroachment and diversion projects would still be planned and delivered as they currently are, with no resulting increase in efficiency.
- At the beginning of the planning cycle, a fixed workload budget is allocated for HSE qualifying abandonment, and an estimate is made of abandonment driven by third parties. If this was to be included in the overall HSE target length and the requests were not forthcoming it would be necessary to produce additional HSE projects at short notice towards the end of the year to avoid a shortfall against the target. These could not be as efficiently planned and incorporated into packages of work as those planned further in advance.
- Including encroachments and diversions in the HSE target would not reduce annual workload. At the start of each annual planning cycle, the total remaining scoring iron population is re-assessed, and long-term annual workloads recalculated to deliver abandonment of all scoring iron by 31 March 2032. This takes into account scoring iron abandoned (for any reason) in previous years, and also includes an estimate for future years of non-HSE iron abandonment (including encroachment and diversions). If these were to count towards the HSE length, the annual HSE target would have to be increased by an equal amount to ensure completion of the programme by 2032. There would therefore be no reduction in overall workload.

CHAPTER: Five

Question 1: Is it appropriate to retain the current volume driver?

Throughput related costs excluding shrinkage (which is already treated separately under the price control) are around 5% of total costs. The current 35% volume driver has resulted in a substantive reduction in allowed revenue for NGN (about £10m in 2006/07 alone) with no commensurate cost reduction. Consequently the volume driver in the future should be

reduced to around 5% but NGN has no objection to Ofgem's proposal, for simplicity, of removing the volume driver altogether.

Question 2: Is it appropriate to implement any of the revenue drivers discussed in the chapter and are there any other drivers that we should consider that we have not included in this chapter?

Ofgem has suggested several other potential revenue drivers:

- **Capacity**, but the actual cost driver is peak capacity and this may be difficult to measure.
- **Customer numbers**, but there is little evidence of customer numbers being a strong cost driver, and, furthermore, customer numbers are relatively stable.
- **Connections volumes**, but the impact on total revenue is small, and this is already partly accounted for via the capex mechanism.

As a consequence, NGN suggests that the calculation of allowed revenue is kept simple and that other revenue drivers are not considered.

Question 3: Is it appropriate to strengthen the capex rolling incentives?

NGN agrees with the view expressed in the consultation that relatively strong incentives will incentivise GDNs to make efficiency savings and is thus ultimately in customers' interests. Ofgem suggests that there is a risk that GDNs may cut necessary capex and jeopardise network integrity. It is our belief that HSE and Ofgem requirements together with the medium and longer term consequences to network owners of insufficient investment on appropriate stewardship of assets mitigate this risk. The rewards for opex savings are greater than for capex but the ability to present capex costs as opex will be minimised by the cost reporting project. Furthermore NGN agrees that there is currently too low an incentive to make opex savings towards the end of a price control period.

NGN's proposal to provide a better balance between opex and capex incentives, to provide strong incentives to ensure that benefits are delivered to customers and to remove the disincentive to make savings at the end of the price control period is:

1. Strengthen the capex roller to the 40% that exists within electricity distribution.
2. Introduce a (modified) 5 year opex roller. Savings (or overspends) will be retained in full within the price control period as now. For the years beyond the price control, savings (or overspends) would accrue at a rate of, say, 40%. For example an outperformance of £5m in year 3 would be retained during the price control and would also attract an additional revenue allowance of £2m in years 1 and 2 of the subsequent control period.

Question 4: Are our proposals for the treatment of offtake reform related costs and mains replacement costs under the IQI appropriate?

Offtake Reform

This is a complex area but the key focus should be on equalising incentives for capex and opex in relation to interruption and offtake costs rather than trying to equalise capex incentives associated with offtake and interruption reform with those for other capex. This is because the key trade offs that GDN's will have to make are between investment on their network (capex) and cost of purchasing NTS offtake capacity / interruption rights (opex) rather than other types of capex.

We therefore agree that offtake/interruption reform related costs should be excluded from the IQI and be subject to separate incentive arrangements in the next price control period.

Mains Replacement Costs

NGN supports inclusion of the whole of repex costs (including mains replacement) within the IQI but retaining a mechanism for volume correction to maintain the incentives for replacing larger as well as smaller diameter pipes.

CHAPTER: Six

Question 1: Do you agree with our proposed plan of work to determine the cost of capital? Are there other key areas of analysis that we should be carrying out?

In general we agree with the proposed approach to assessing the appropriate cost of capital.

The use of long term averages for the key elements of the risk free rate and debt premium as key elements of weighted average cost of capital calculation is consistent with the low risk, long term nature of the GDN's activities. This approach to estimating the cost of capital is essential to maintain the perceived stability of the regulatory framework and the low risk nature of the activity.

Using spot rates introduces a significant element of uncertainty into the framework and hence risk. It is also inappropriate given the long term nature of the assets which have been funded over the past 20 years using the then prevailing rates.

However, this approach is seemingly at odds with the suggestion by Ofgem to take advantage of the small levels of embedded debt within the sold GDNs to place greater significance on shorter term or spot rates. This is not consistent with the approach adopted by Ofgem elsewhere and such a change to the hereto consistent framework adopted by Ofgem would increase regulatory risk.

Ofgem suggests in paragraph 6.6 that it is difficult to find evidence of betas for gas distribution companies. However, the GDNs will be presenting a report to Ofgem within the next week or so that analyses quoted betas for energy distribution and transmission companies in Europe and America. It demonstrates the statistical validity of the hypothesis that the beta of gas distribution companies is higher than that of energy transmission companies. The differential identified in beta values should be applied to the TPCR value of beta to establish the implied GDN beta.

Furthermore, there is much empirical evidence that GDN activities and its regulatory framework are riskier than other comparable activities. Specific evidence of the riskier nature of gas distribution includes:

- There are no price reopeners in gas distribution whereas there are in water.
- The Northern Ireland regulator set a higher cost of capital for distribution than for transmission because of its higher risk.
- Safety issues are greater within gas, require a separate HSE safety case and have the potential to significantly impact reputation.
- The licence is revocable at 10 years' notice compared to 25 years for water and electricity.
- The repex programme is a larger, riskier programme than any electricity equivalents.

- Security of supply is of fundamental importance, and insufficient supply has more serious financial and reputational consequences than in electricity.
- Gas will eventually run out providing a greater risk of stranding of assets than for electricity companies.

A further consideration is that interest rates have increased since TPCR – medium term index-linked rates are up by about half a per cent since the end of November 2006. Hence it is apparent that the cost of capital to be set for GDPCR needs to be higher than that used in TPCR. Consequently, if Ofgem is planning to propose a cost of capital range in Initial Proposals then we would suggest that the lower bound is the TPCR proposals and the range upwards is sufficiently wide to ensure that it captures any potential results of the analysis of risk differentials between GDNs and transmission and changes in market rates that Ofgem will undertake over the coming months.

Question 2: Is the range of key ratios we have identified adequate for carrying out an assessment of financeability?

NGN does not believe that the range of key ratios identified is adequate, primarily due to the absence of the PMICR measure within the key ratios identified by Ofgem. There is a substantive danger that a poor PMICR could lead to a rating downgrade for a GDN that would push up future and actual funding costs and therefore PMICR needs to be included in NGN's view in Ofgem's package of measures.

Also, Ofgem seems to ignore the fact that PMICR is actually embedded currently in tests of financeability in the sector as well as in existing financing facilities of the GDNs, and therefore it needs to be considered. It is important to recognise that the market was focussed on PMICR at the time of the original leveraged structures and is still a financeability measure used by bank lenders. Ofgem should continue to give the measure continued consideration as it is likely to continue to be included in future market debt packages.

NGN accepts that there are clear differences between how Ofgem and credit rating agencies, such as Moody's and Fitch, look at the finances of GDNs. Whilst Ofgem considers a notional GDN using defined financial parameters, the credit raters assess the projected financial performance of real businesses whose capital structure and financial performance do not match the regulatory assumptions. The standpoints of the two are quite different. NGN understands that Ofgem has to steer a course between conflicting interests allowing GDNs to make acceptable returns whilst ensuring that end customers get a fair deal. Credit raters, on the other hand, are interested in a 3-5 year financial profile of a company and its ability to service its debt.

NGN understands that Moody's still views PMICR as a valid key ratio. NGN believes that Ofgem is correct in identifying a range of financial and non-financial considerations in assessing financeability. NGN, however, is firmly of the view that the PMICR measure has to form an element of that package of measures given its entrenched position in existing financing facilities within the sector and it still being one of the primary measures of credit rating agencies.

It is important that Ofgem continues to liaise closely with the rating agencies to identify the appropriate indicators and the required level of these indicators to avoid downgrades. The target credit rating should be BBB+ or better to ensure sufficient margin above investment grade.

It is important to recognise that some GDNs, including NGN, have bank covenants that require some of the indicators under consideration to be within specified bounds. NGN's

covenants include six-monthly assessments of indicators. Although it is unlikely that Ofgem's modelling will enable six monthly assessments, this means that financeability must be confirmed for each annual forecast in isolation and is not just assessed by averaging over longer periods. Furthermore, indicators must be above and not exactly at the targeted levels. Breach of a loan covenant would have an immediate impact on the financing of the GDN.

In addition, lenders and credit rating agencies require forecasts of future profitability and indicators and consequently it is important that Ofgem undertakes some modelling to confirm that indicators do not deteriorate beyond the end of the price review period by modelling forwards, say, 10 to 20 years.

Question 3: Is our approach to the issues raised by adjusting interest cover ratios appropriate?

NGN agrees with the principle that Ofgem should not make judgements about the financial structures to be used by network utilities. NGN believes that Ofgem should continue to look at the financeability of a notional GDN with a notional level of debt financed at a notional nominal interest rate and a notional dividend policy consistent with equity market practice. However, NGN is firmly of the belief that Ofgem cannot ignore the choice of ratios currently used by the rating agencies and given weight to by lenders, as is set out in the above response to question 2.

Based on the above principle that Ofgem should not make judgements about the financial structures of GDNs, NGN believes that no change in modelling assumptions should be made regarding index-linked financing within the review.

NGN agrees with Ofgem's comments that a range of financial ratios need consideration and believes, given the relative profile and importance currently placed upon PMICR within the sector, that it is worthy of continued consideration.

NGN is firmly of the view that extensive dialogue and consultation with both credit lenders and raters needs to take place to even begin to consider moving the focus gradually away from PMICR within the sector.