Section 3:

This section contains further detail, supporting analysis and evidence on the issues raised in the Updated Proposals. This section is structured in separate chapters which are aligned to the individual sections in the Ofgem's Updated Proposals.

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Chapter Three – Operating Expenditure Analysis

Question 1: Do you agree with our revised approach to setting opex allowances and the proposed allowances we have derived using that approach?

Question 2: Do you agree with our approach to the additional operating cost items included in these proposals covering the areas where our work was incomplete at initial proposals?

3.1 Introduction

1. We acknowledge the use of the upper quartile benchmark in the top down analysis and various other appropriate changes to the bottom up methodology, including the removal of inappropriate benchmarks. Whilst the Updated Proposals contain a number of incremental improvements, there are a significant number of bona-fide errors and other changes which mean bottom line improvement has been modest. The level of operating expenditure that Ofgem is proposing is not acceptable, as it is below the level required to ensure safe and secure supply.

2. However, assuming the errors and omissions will be corrected in the Final Proposals, and assuming a reasonable settlement on cost of capital, the resulting allowances will still only be at levels commensurate with an 'absolute-bare-minimum' network. It is very unlikely these 'stripped to the bone' businesses would be able to dedicate adequate time and effort to deliver Ofgem's worthy, but non-mandatory, policy headlines. We have concerns that such a decision by GEMA would turn out not to be in customers' interests along any dimension including, in the medium term, price. Ofgem must reflect on the role of networks that it wishes to create going forward.

3. In recently publishing his report on Science and Innovation, Lord Sainsbury addressed the issue of the role of the regulator in setting prices, stating *'….regulators had done a good job in getting prices down…but long term that may not be helpful. The danger is that you keep short term prices down but long term you are not getting the price right'*. [1] Whilst his comments relate directly to R&D, his comments are equally pertinent to the whole price control review at this stage in the evolution of gas distribution networks.

4. As well as undermining progress in public policy areas, NGG is equally concerned that the setting of overly stretching targets that cut to the bone would diminish GDNs capacity to re-act

[1] Quoted by *The Daily "*Telegraph Low utility bills blamed for cuts in energy research" 06/10/2007 – Richard Tyler

to extreme events such as the recent floods, or a severe winter. It must be remembered that Ofgem are setting allowances from a base year that was a 1 in 79 warm year.

Figure 3.1 – Visual impact of different winters

5. When using a complex, multi stage assessment process regulators must ensure they periodically ‘stand back’ from the detailed output to ensure the answer looks right overall. We fear Ofgem have been to a degree beguiled by the analysis at the expense of sense checking for balance.

6. One of the rare examples Ofgem provide where it has attempted such a sense check is in the consistency between the GDNs rankings from both the top down and bottom up work. We are not sure even this limited example provides comfort. It is interesting to note that there is an even better fit between the geographical GDPCR and DPCR4.

GDN Geographical area	GDPCR updated proposals	DPCR4 Final Proposals
Northern	1	1
Scotland	2	2
Southern	3	4
West Midlands	4	5
East of England	5	3
Wales and West	6	5
London	7	8
North West	8	7

Table 3.1 – Rankings in GDPCR Update Proposals and DPCR4 Final Proposals

7. It is not clear why Ofgem's analysis for GDPCR and DPCR4 result in North West and London networks being classed as inefficient and Scotland and Northern as efficient, whilst the remaining four networks are bunched. This is not a function of ownership group because there are different owners in the same area. For example, United Utilities operate the NGN network, but Central Electric (YEDL) operates the equivalent geographical area in electricity distribution. EDF operate the electricity distribution network in London, whereas in gas distribution the owner is NGG.

8. Ofgem's complex, multi-dimensional analysis, combined with only 8 data points and only one full years data, is in danger of misinterpreting analytical error as inefficiency. The DPCR4 correlation, for example, begs the question whether analysis is not accounting for the full cost drivers across geography including factors such as soil condition, local authority vigilance and other historical asset demographics.

9. What is clear is that this, and numerous other examples of unanswered questions mean that Ofgem should ensure that it is error balanced when adding together the various elements of its opex assessment, so as not to set unachievable targets.

10. We have grouped the areas requiring further attention under the following four headings;

- A significant number of remaining and new errors,
- Omissions, including failure to reflect the impact of different investment strategies,
- Unachievable frontier shift assumptions, and
- Other issues with Ofgem's opex assessment.

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3.2 Ofgem Errors in the Updated Proposals

11. Ofgem's proposals are undermined by a number of bona-fide errors that together total over £20m pa. These errors must be corrected in the Final Proposals. We are concerned at the ongoing frequency of significant and relatively basic errors, in the context of getting error-free Final Proposals. There is no remaining chance to correct errors and ongoing mistakes of this magnitude would be material in NGG's decision on accepting or rejecting the proposals.

3.2.1 Errors with Top-Down Benchmarking / Uplift

12. There are a number of errors with the top down benchmarking and the associated uplift that need to be resolved prior to the publication of the Final Proposals. A number of these remain unresolved from the Initial Proposals. There is also a new issue relating to the 2006/7 actuals.

3.2.1.1 Inconsistent Treatment of SGN Marginal Costs

13. In the bottom-up analysis, Ofgem has appropriately made an allowance for SGN's marginal costs relating to particular indirect activities. The lack of a corresponding adjustment to the top-down analysis means that the current uplift is understated. The key safeguard in Ofgem's opex methodology is to uplift bottom-up allowances to the actual costs of a benchmark real network. The size of this uplift is determined by the opex gap between bottom-up and top-down analysis. Whilst Ofgem has adjusted the bottom up analysis for SGNs marginal costs, no corresponding upward adjustment has been made to the top-down analysis. Taking £5.9m for the value of the SGN marginal costing differential in the bottom up analysis (the difference between SGN normalised costs and the upper quartile benchmark) would mean making this adjustment internally consistent within Ofgem's analyses. Ofgem should add £3.6m for Southern and £2.4m for Scotland within the top-down regression analysis.

14. As illustrated below in figure 3.2, this would increase the upper quartile benchmark for all networks up to a sustainable 'real network' benchmark value and, consequentially, increase the uplift from 6.2% to 9%, which under values NGG networks by £7.6m per annum.

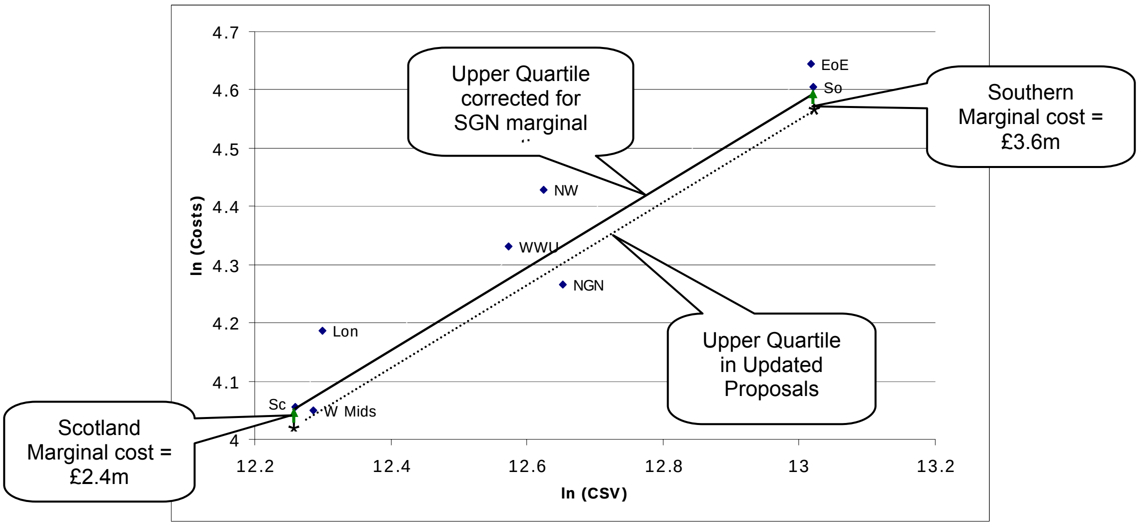

Figure 3.2 - Impact of SGN marginal cost on the Upper Quartile benchmarks

3.2.1.2 Inconsistent customer data across GDN

15. We note the step change in customer numbers between 2005/6 and 2006/7 for both NGN and SGN in the Updated Proposals, shown in Figure 3.3, and query the validity of this information. A GDN customer base is generally stable in nature, with steady levels of growth evident year on year (as seen in the growth in 2005/6). It is for this reason we believe there to be an error within the data used in the Updated Proposals that is likely to have arisen due to an inconsistency in approach to measurement.

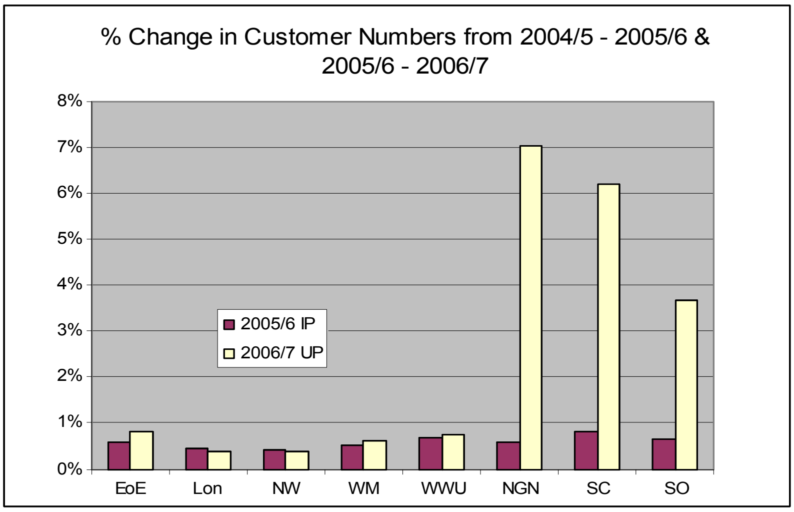

Figure 3.3 – Customer Numbers 2004/5 to 2006/7

16. We suspect that this inconsistency comes from 2006/7 actuals submission, where Ofgem changed the layout of the table to include CSEP as a separate category with no definition. It appears that SGN and NGN have included the number of customers downstream of CSEP exit point, whereas NGG's and WWU's figures are started upstream of the CSEP point. Whilst there is more than one customer downstream of the CSEP meter, this connection is

equivalent to a non domestic customer in terms of GDN responsibility. As such, the NGN and SGN submissions overstate the customer numbers (moving the GDN horizontally right on the regression, with no vertical movement), and thus artificially reduces the Upper Quartile benchmark for NGG and WWU.

17. Ofgem must correct this inconsistency between networks in the Final Proposals due to its impact upon the top-down regression and the associated uplift. To do otherwise effectively undervalues the true level of efficiency for NGG GDNs' by around £1m per annum.

3.2.1.3 East of England Emergency benchmark value

18. There is an error in the "direct costs" tab within the uplift calculation that affects the uplift value. Rather than picking up the correct emergency cost for East of England of £11.7m in the benchmarking spreadsheet, the uplift spreadsheet has a value of £12.3m for East of England 'baseline'. This error should be corrected in the uplift spreadsheet.

3.2.2 Errors with Bottom-Up benchmarking

19. NGG note and, in the main, support the developments in addressing complexities and issues associated with the bottom up benchmarking that were evident in the Initial Proposals. This includes the correction of major errors and the change to exclude external benchmarks. There remain, however, significant errors that require further attention in order to ensure that the bottom-up benchmarking is robust. These are outlined below:

3.2.2.1 No allowance for safety maintenance

20. NGG supports the revised methodology used in the Updated Proposals, but there remain some data errors that cause a material understatement of NGG's allowances, setting them at a level which is actually insufficient to enable safe and reliable service.

21. NGG supports merging the elements of maintenance into a single activity and creating a composite size variable. We also support Ofgem's simplification of PB Power's size variable basing it on the number of pressure reduction stations, NTS offtakes, governors and holders, as these are the dominant drivers of maintenance cost (in contrast to buried lengths of distribution main which are not, routinely 'maintained'). However, there are some errors in the classification of PB Power / Ofgem's identification of routine activities. In a number of cases this has led to inappropriate underfunding of key safety work.

22. NGG has provided extensive evidence on the necessity of our planned non routine maintenance programme. Parts of this evidence appear to have been ignored by PB Power

(including Initial Proposals response Section 3.9.3, and supplementary questions 5.22 NGG 107, 108, 178, 195). NGG believes the following costs, averaging £7m per annum, should be allowed in full on the basis of the evidence provided.

i) ***CP Remediation*** - In 2006, an approach to renew the existing cathodic protection systems on buried high pressure steel pipelines was agreed with the HSE. No expenditure was incurred for this activity in 2006/7 and, because NGG's networks form the upper quartile benchmark, this results in no allowance being given for this mandatory safety critical work which, despite being unfunded, commenced in 2007/8. An allowance of £1.12m per annum is required (see response Main BPQ Supporting Narrative 5.22).

ii) ***Special Crossings –*** Special crossings are typically exposed pipelines, frequently supported by steel structures, which cross unusual features such as canals and railways. Expenditure on special crossings is undertaken as and when required, on a site specific basis. As a result, it should be treated as a non routine activity. Only one of our four networks incurred special crossing expenditure in 2006/7 (£0.6m was spent on pipeline stabilisation in NW at Duddon Estuary). As such, NGG cannot understand why it has been classed as routine expenditure.

By leaving this category in routine maintenance, with the upper quartile networks having no expenditure for this category of work in the base year, consequently no funding of this work has been allowed across the whole period.

These crossings are an integral part of our network and in most cases the consequences of failure could be significant, i.e. supply interruption to thousands of consumers, or even the collapse onto a railway line or road. Maintenance activities minimise the risk these crossings present to the general public and so must be funded.

In 2007/8, NGG has commenced work (unfunded) on this activity as our ongoing surveying programme has highlighted areas of active corrosion on both the pipelines and the supports. In response to the surveys, NGG has developed a remediation programme that is expected to cost £1.0m per annum on average (see response Main BPQ Supporting Narrative 5.22). This programme is designed to address 8 special crossings per annum out of a total population of approximately 2200. The embedded spreadsheet details those crossing that NGG have already identified, following initial surveying, as requiring maintenance or where initial investigations have indicated the need for additional surveying to be undertaken by specialist engineers.

Special Crossings

In summary, this is a non routine activity in nature and should be removed from routine maintenance costs prior to regression, and a specific allowance provided.

iii) ***OLI Defects*** - PB Power has surprisingly and incorrectly assumed that the repair of OLI defects is a routine activity, contradicting their original classification used in the Initial Proposals. Given that OLI defects arise as a result of OLI surveys, themselves an accepted non routine activity, they should be treated consistently by PB Power.

The impact of this inconsistency is that Ofgem has used regression analysis to determine an efficient level of expenditure for OLI defects. In 2006/7 NGG did not need to undertake any of this work and, therefore, no costs were incurred. Since our networks impact on the upper quartile benchmark, this has resulted in a nil allowance for the whole review period.

In the Initial Proposals, PB Power recognised that OLI defects were non routine, and provided an average allowance of £1.6m per annum (see response Main BPQ Supporting Narrative 5.22). No explanation for this change in treatment has been given. We also note that SGN has been allowed £1.9m[2] in 'other maintenance' for unspecified OLI related costs. Since costs associated with OLI work are either associated with inspections (specific allowance already made) or defect repairs (treated as routine maintenance and captured in regression analysis), we cannot understand why NGG has not been provided with an equivalent allowance for this critical maintenance activity.

Consistent with OLI surveys, Ofgem should treat OLI defects as non routine and set an appropriate allowance for this activity.

iv) ***AGI painting*** **-** NGG does not agree with PB Power's view that AGI painting will become a routine activity, following assessment at major overhauls. The most efficient programme is based on addressing specific sites as the need arises. Moving to a time-based programme, as articulated by PB Power (Section 6.3.7) would actually lead to increased costs in the long run. NGG's requested expenditure of £11.5m (of which £7.2m has been allowed) is the efficient level required, given the current condition of our assets, to move them to steady state. Consequently, NGG's maintenance allowance should be increased by £0.8m per annum (see response Main BPQ Supporting Narrative 5.22).

v) ***Gasholder repairs*** **–** To ensure the most efficient expenditure levels, driven by the 'whole life costing' principles of PAS55, NGG undertakes gasholder repairs as and when

[2] PB power Gas Distribution Price Control Five Year Control Update Report, page 18, table A4-13

required. However, PB Power has included these costs within 'routine expenditure' and they are therefore included within the regression analysis. 2006/07 actuals were significantly lower than the usual underlying level of cost required which has the effect of artificially lowering the 5 year allowances. NGG's maintenance allowance, as set out in the Updated Proposals, is £1.2m per annum (see response Main BPQ Supporting Narrative 5.22) below the efficient and necessary level.

vi) ***Gasholder Demolitions*** – Ofgem has not provided allowances for gasholder demolition within the Updated Proposals, based upon the premise that all holder demolitions will be self funding. This is not always true, as the demolition of gasholders is often the most effective way of completely removing the safety and environmental risks associated with deteriorating assets and, consequently, it does not always precede sale, e.g. Nechells, Birmingham and Southall, London.

Whilst the proceeds from land sales in the South East of England may be sufficient to offset the associated costs, it is not usually the case in the rest of the UK. For example, the sale of Oswald Street in North West network and Bishops Bridge in East of England network, both resulted in net costs to NGG.

Ofgem's incorrect view that demolition costs will be funded wholly by land sales will therefore leave NGG with inadequate funding to the value of £1.2m per annum (see response Main BPQ Supporting Narrative 5.22).

vii) ***Inconsistent treatment of HP revalidation costs*** - PB Power acknowledges that these costs should be allowed in full[3] . However, an error in PB Power's analysis has led to the reclassification of costs associated with HP storage at Partington and Pimbo sites from capex to opex. PB Power removed the costs from capex (table A7-5) but did <u>not</u> allow them in opex (table A7-29). Consequently, NGG's maintenance allowance is £0.3m short in 2008/9 and £0.6m in 2010/11 (see response Main BPQ Supporting Narrative 5.22).

3.2.2.2 Error in roll forward of IS frontier shift

23. There is an error in Ofgem's methodology of applying LECG benchmarking and 2.5% productivity assumption. In 2012/13, NGG is subject to a disallowance of 28% from the efficient benchmark level, whilst other GDNs, who have been deemed as being less efficient than NGG, are receiving increased allowances or even no disallowance. This is illustrated in Table 3.2 below. Clearly, there is an error Ofgem's roll forward of the LECG IS benchmark.

[3] Gas Distribution Price Control Review, PB Power Update Report, Section 6.3.8, p.32.

£m, 2005/06 real	NGG	NGN	SGN	WWU
LECG Efficient Costs	27.1	6.2	13.6	5.9
Ofgem allowance (average annual)	21.2	6.3	12.3	5.9
Average % disallowance	28%	-1%	11%	0%

Table 3.2 – NGG allowance vs iDN allowance

24. We understand that in setting the allowance for IS, Ofgem has undertaken the following process:

- Calculated an average cost from forecasts for 2005/6 to 2012/13 and then benchmarked, using the second best network (NGG), average costs as % percentage of average revenues;
- This benchmark allowance has then been adjusted to remove any under-spend from 2006/7, and subsequently profiled to reflect the cost profile of the original business plan submission for the price control period. As a result, a decreasing expenditure profile towards the end of the period will result in a reduction in the allowance. The converse is also true;
- On top of this, a productivity assumption of 2.5% and real pay of 1% has then been included.

25. This methodology is flawed for a number of reasons:

a) Ofgem has incorrectly assumed in setting NGG's IS allowance that the under-spend for 2006/07 against the BPQ, of approximately £3.6m, will be repeated in all years of the plan. This is incorrect as most of the 2006/07 under-spend is due to the application of non formula overheads that were not included in the analysis for the Initial Proposals. This was £3.5m in 2006/07, but the non formula overheads reduce over the price control period to only £1.4m in 2012/13. This is due to the ending of NSA contracts and a drop in the level of meterwork.

The table below sets out the forecast non formula overheads attributable to IS over the plan period. Ofgem should adjust the allowance for the true level of non-formula overhead.

2008/9	2009/10	2010/11	2011/12	2012/13
2.8	2.0	1.6	1.4	1.4

Table 3.3 - IS non formula overheads

b) Ofgem has incorrectly applied a 2.5% pa. cumulative productivity reduction to each year of the IS allowance. NGG's IS profile already includes challenging cumulative cost reductions of 4% per annum (pre-non formula overheads) and, as NGG has been deemed efficient, it is not appropriate to apply a further reduction. NGG is effectively being hit twice with it's own savings. Should Ofgem wish to apply this further reduction, then NGG's cost profile must be discounted and the reduction applied year on year to the 2006/07 efficient base year.

c) The use of the GDNs' base plans to assess the scope for GDN savings over time results in a perverse outcome. Those GDNs seeking an increase in costs over the price control period have been allowed this despite being deemed to be inefficient. NGG on the other hand, with substantial efficiencies built into its plan, has been penalised and receives a much greater disallowance. This issue is further exacerbated since NGG is expected to deliver the same level of cost from a lower level than the original business plan. This is shown in Figure 3.4 below.

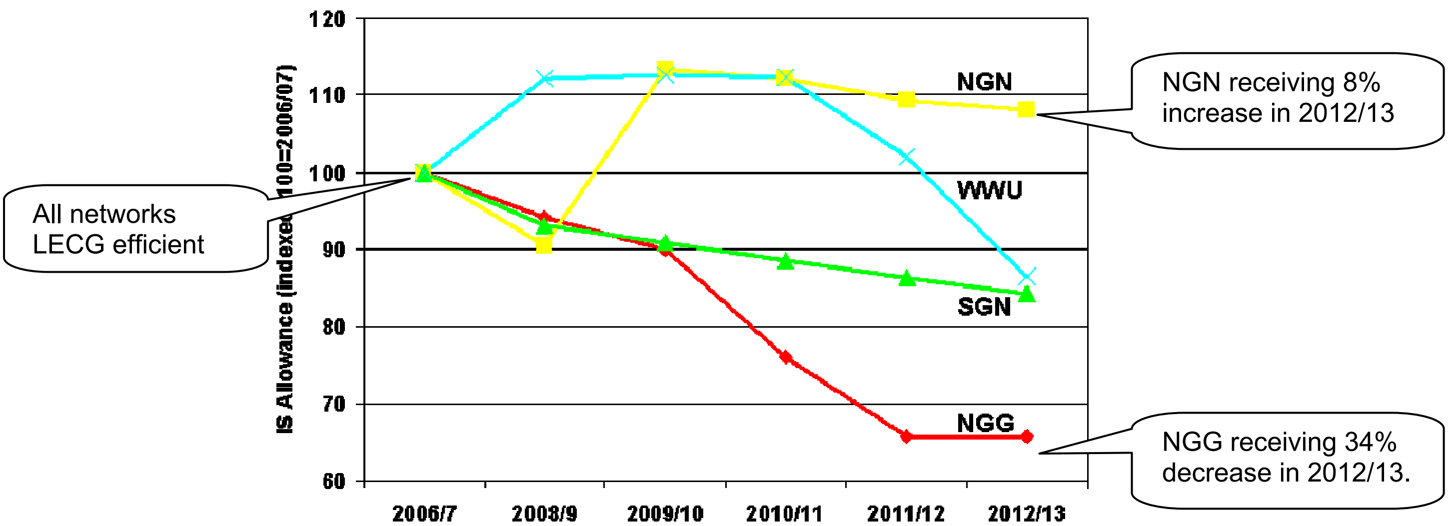

Figure 3.4 - Trend in IS allowances

26. Ofgem should modify their roll forward methodology to work from the benchmarked allowance with appropriate real price and productivity factors, recognising the fact that the benchmark already has built-in significant efficiency savings.

3.2.2.3 Invalid calculation of HR benchmark

27. NGG is pleased to see that Ofgem recognises the flaws in the LECG analysis of the GDN HR and Finance functions. However, NGG does not agree that Ofgem's revised methodology to benchmark GDNs' HR functions is actually any more robust.

28. The benchmark is not appropriate in the Updated Proposals; Ofgem used the ratio of 'HR full time equivalent employees (FTEs) to Total (ie organisational) FTEs'. LECG discarded this approach stating *"Low HR FTEs may mask the true workload of an HR department if the functions were outsourced. The FTE metric may conclude that a heavily outsourced HR department with a low number of employed FTEs may be efficient, whereas the HR costs could be either efficient or inefficient…………..the HR FTE benchmark would not ……assess the true efficiency of HR costs*.[4]

29. We find it inexplicable that Ofgem should now undertake crude FTE analysis, without consideration of the impact of the different operating models which they know are present[5]. The use of a metric that is affected by the GDN's chosen method of service delivery results, for example, in SGN HR allowance being higher than NGG's, despite SGN HR department delivering to half the number of networks and half the number of employees. This is clearly unfair.

HR allowance	NGG	SGN
Number of networks	4	2
FTEs	6059	3191
Ofgem allowance (average annual)	£1.2m	£1.4m

Table 3.4 – NGG allowance vs SGN allowance

30. To overcome this, we believe that HR costs as % of total FTEs would be a more appropriate benchmark to use. This measures the efficiency of all HR costs against the number of employees, and is not impacted by HR insourcing / outsourcing differences.

3.2.2.4 Misunderstanding of London factor case

31. The regional allowance provided in the Updated Proposals in relation to London fails to fully account for the additional unavoidable costs. Ofgem has incorrectly calculated the additional regional cost of London as though the analysis NGG presented in our response to the Initial Proposals (section 3.10.1) was <u>absolute,</u> when it was in fact calculated as the <u>difference</u> to the average of all non-London networks.

32. Within the Updated Proposals, in paragraph 3.59, Ofgem explain that it had not allowed NGG's claim for additional costs because the factors that NGG cited were also experienced in many of the other large conurbations of the UK and therefore did not require an additional allowance. From this, it is clear that Ofgem has misunderstood the basis upon which we

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[4] LECG Report 16th April 2007, para 11.12
[5] Updated Proposals, para 3.34

undertook our analysis, which explicitly did take into account the fact that all networks have urban areas. Ofgem should correct the allowance for additional costs so as to reflect the full amount included within our BPQ for the following reasons.

33. Firstly the highly congested nature of London's underground infrastructure (illustrated in Figure 3.5 means that the average excavations needed is larger than the average excavations in the other networks, simply to enable access to the equipment and the work to be undertaken.

Figure 3.5 - Repair of a gas escape in the highly congested underground environment of London

34. To quantify the impact we measured the area of 100 excavations in each network and the depth of over 14,000 excavations (in 2004/5). The results, shown in figure 3.6 below, show that London excavations need to be over 40% larger than the average non-London excavation.

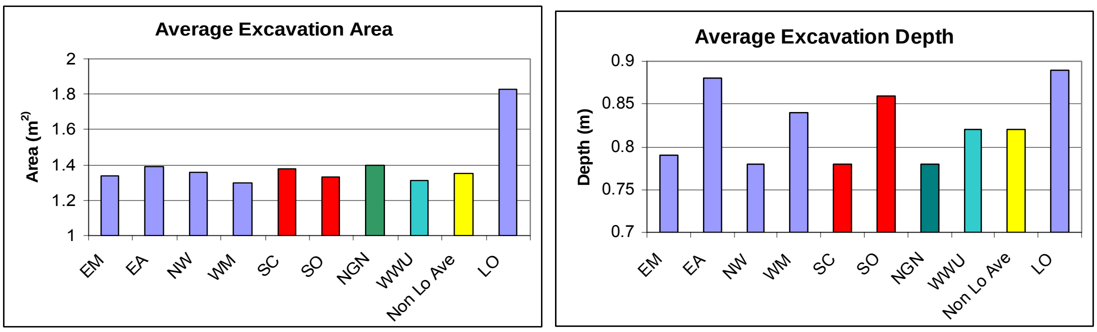

Figure 3.6 - Average excavation area and depth

35. Over a typical year this means that London GDN needs to excavate and dispose of an additional 20,000 tonnes of material, compared to a typical network of a similar size.

36. Secondly, the scale of the metropolitan area in London means that the availability of landfill and reinstatement material is very limited. As a result, the unit cost of reinstatement materials and disposal are 16% higher compared to the average of other networks owned by NGG, as illustrated in the Figure 3.7 below.

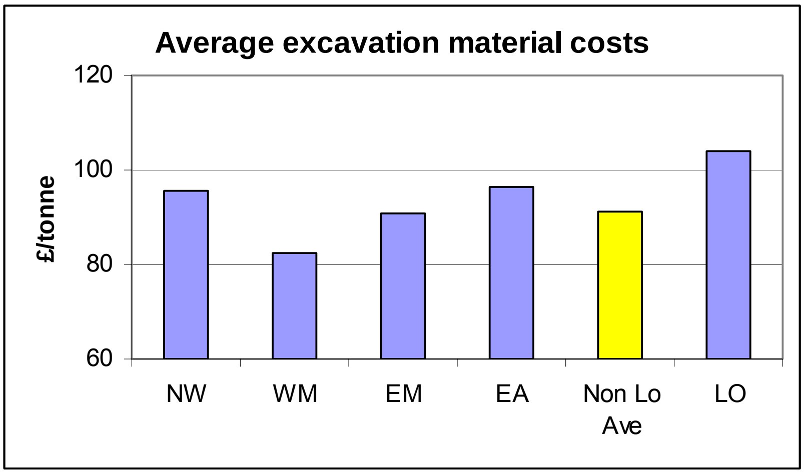

Figure 3.7 - Average excavation material costs

37. When these additional unit costs are applied to the workload within London, excluding rechargeable work, an additional £2.7m is required. Together with the £0.3m for London congestion scheme, and £0.5m for London emergency work profiles means that an additional £3.5m (£1.9m allowed in the Updated Proposals) is required for London over and above the costs borne by other networks' urban areas.

38. It should also be noted, that, when establishing the scale of the additional costs associated with working within London, only those costs which could be accurately quantified were included, in other words, our submission in this area is conservative. There are a number of other aspects of working within London that do incur additional costs. However due to the difficulties in quantifying these we did not include them within our BPQ submission. Examples include;

- Additional trench support associated with the larger excavation required when working in London,
- Additional personal protection equipment required due to the more difficult working conditions, and
- Increased management costs associated with greater supervision, required as a result of more complex jobs.

3.2.2.5 Not understanding OuterMet area workloads

39. As directed by Ofgem, East of England's BPQ is 'outer met' adjusted, thereby ensuring that our operating costs reflected regulatory boundaries. Not allowing a regional uplift for real factors to East of England, for costs that are borne in London, is inconsistent with Ofgem's application to Southern networks, where only part of the network is within the M25.

40. In the Updated Proposals, Ofgem state that ''we do not consider that a regional adjustment is appropriate for East of England GDN even though a small proportion of its work is carried out within the M25. A number of other GDNs have a proportion of their work within major metropolitan centres'[6].

41. We disagree with this view. The vast majority 'outer met' area, <u>is</u> undertaken within the M25. NGG does not agree with Ofgem's assertion that this represents a "small proportion" of East of England's workload. At 7.8%, this is a material element of East of England's emergency workload. Figure 3.8 below shows the geographically area managed by London but within the East of England for price control purposes, and its relative position to the M25.

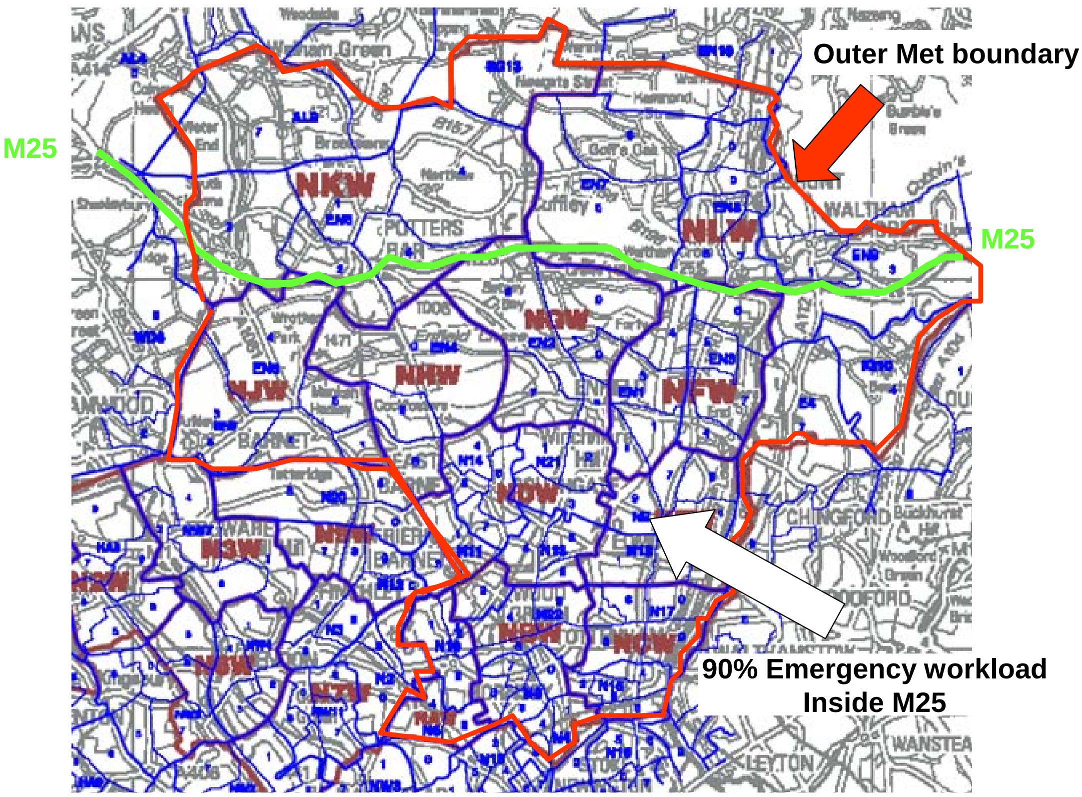

Figure 3.8 - The position of the 'outer met' area relative to the M25

[6] Gas Distribution Price Control Review, Updated Proposals Document, Section 3.29, p.13.

42. Whilst Ofgem's statement that other GDNs have a proportion of their area within major metropolitan area is undoubtedly true, the 'outer met' area only extends north of the M25 by 4 miles and, for all aspects of the area's economy, cannot be differentiated from that within the M25. The 'outer met' area is located at the southern end of Hertfordshire and Outer London. Ofgem's technical consultants, PB Power's own data shows that Hertfordshire has a County Factor of 1.06[7] and Outer London 1.10, confirming that labour costs in these areas are higher then the national average.

43. Given the above we consider it would be reasonable for Ofgem to adjust East of England's real price effects for the additional costs associated with 'outer met' area.

3.2.2.6 Incorrect Pensions Uplift

44. We have reviewed Ofgem's methodology to adjust normalised opex benchmarks - which include normalisation of all GDNs to a 31% pension contribution rate - to actuarially recommended rates and broadly agree with the methodology applied. However, in their calculations, Ofgem has not recognised the step-up in actuarially recommended rates to 32.8% from 2010/11 (see B4 pensions table October BPQ submission row 13). Ofgem should amend their calculations to include the correct rates. This would increase NG's pension adjustments by circa £0.5m over the 5 years which on average is 32.04% and not 31.82% as used in the Updated Proposals.

3.2.2.7 Insurance Claims Are Not Cyclical

45. Claims, which represent over 30% of NGG's insurance costs, are not influenced by the factors affecting the insurance market cycle. To assume that the frequency of road traffic accidents or other physical events that drive claims level are somehow connected to the vagaries of an insurance cycle is simply wrong. Insurance specialists, Marsh, specifically make this point in the report, that was submitted as part of our Initial Proposals response.

46. Additionally, evidence supports the application of appropriate indices. Finally, by reference to the International Underwriting Association index for injury claims, and the UK RPI for property claims there would appear to be sound logic in adopting a linear approach to uninsured claims to reflect appropriate indices. Personal injury claims have been consistently rising at 10% plus per annum since 1989 and this is set to continue for the foreseeable future. This is confirmed by the data collated for the Third UK Bodily Injury Awards Study (the IUA/ABI Study), published in March 2003. The study is the biggest exercise of its kind ever undertaken, it covered more than 90% of the UK insurance market, and looked at all claims

[7] Gas Distribution Price Control Review, Report 5; East of England, prepared by PB Power, April 2007, Appendix 5 – Regional Factors, table A5-6, p.126.

going back to 1989, and is the most robust data available. Marsh quotes an increase of 10% per annum. Ofgem should make this change in the insurance allowance.

3.2.2.8 Contractor RPEs missed from indirect categories

47. In a change in methodology from the Initial Proposals, Ofgem has not applied real price effects to non wage cost in the Updated Proposals. This change means that the average real price influence on networks is now less than the 0.9% quoted in the Initial Proposals (and consequentially the frontier shift is even greater than the 1.6%).

48. NGG understands that it may not be correct to apply the engineering contractor real price percentage, but it is appropriate to apply category specific factors.

49. In addition, Ofgem has failed to look at the evidence of real price on indirect costs. Two significant elements of non wage indirect costs are Information Services and Property, both of which are subject to real price pressures, as outlined below:

a) Information Services - NGG utilises the services of Indian Offshore Development Company (ODC) wherever appropriate, to minimise the cost of IS application development and support. These ODC services are supplied via competitively tendered framework agreements. There is considerable upward pressure on Indian wage rates, and wages have risen by between 7% to 15% over the past two years as discussed in the attached paper by Forrester Research.

Indian IT Service pricing tren...

On 1st July 2007 the annual increase in rates charged to NGG by its ODCs was 6% for onshore resources and 4% for offshore resources. This trend is forecast to continue over the price control period and therefore the expectation is that costs will rise at around 1.5% to 2% real per annum.

b) Property - NGG has seen significant pressures in rental costs, which are expected to continue to rise in the future. GVA Grimley's (external property specialists) view on rental growth was equivalent to 2.6% real growth in rent per annum. This was submitted as part of the TPCR (DJ1008) and in our response to LE-NGG-082.

50. Lastly, most of the remaining indirect non wage costs are associated with outsourcing work, which is labour intensive, in either a transaction or professional capacity. As such, these costs will be subject to the same real price pressure on real earnings as direct labour.

51. Given these additional real price impacts NGG would ask that Ofgem allow 1.5% per annum on the indirect cost base for non wage real price pressures.

3.2.2.9 Normalisations

52. Since the publication of the Initial Proposals, significant improvements have been made to remove a number of errors, including NGG atypicals, NGG treatment of indirect, and SGN work management costs. However, we are still concerned that there are more material areas where normalisation is required, including:

a) In the LECG report it states that some corporate centre costs for SGN are charged to repex, inconsistent with NGG's allocation[8] which is zero. As such, the bottom up and top down benchmarks for SGN should be increased by £0.7m, the value SGN allocate to repex.
b) NGG's finance activity includes £1.9m for a specialist finance IS section (SAP competency centre). To be consistent with the other GDNs, this cost should be transferred to IS. This was done by LECG in their September report but was not reflected in the Updated Proposals.
c) In arriving at an HR FTE figure of 131 for NGG, Ofgem has not excluded 21 FTEs from our skills, competency and development centre that should be included within the learning and development FTEs for any benchmarking[9].

3.3 Omissions

53. There are also a number of omissions in the Updated Proposals which need to be addressed. The largest of these is the ongoing absence of any accounting for interactions between GDN capital investment and operating costs.

3.3.1 Failure to Account for Interactions between Capex and Opex (£15m pa.)

54. Ofgem has assessed GDNs' capex requirements, primarily, on a network specific basis and this has led to a large spread of unitised capex allowances. Opex on the other hand has primarily been determined using a uniform methodology, which effectively sets everyone's opex allowances at the same underlying level. Crucially, Ofgem continues to make no

[8] LECG Report, page 80, note 68
[9] LE-NGG-141

attempt to investigate, and if necessary compensate for, interactions between capex and opex. This 'silo' approach punishes NGG by setting opex allowances based on benchmarks from businesses that will have invested, on average, 56% more capex per customer each year over a period of 16 years, and that are therefore benefiting from consequential lower opex requirements.

55. NGG has highlighted this omission in its public responses to Ofgem's consultations since April 2007 and is surprised therefore at the ongoing lack of assessment in this area by Ofgem in general, and in the Updated Proposals in particular. We have therefore recently submitted detailed information to Ofgem which:

- Highlights how Ofgem's cost assessment at GDPCR has, in contrast to previous regulatory reviews, effectively approached opex and investment as totally separate, non-interacting cost silos;
- Describes the large number of GDN activities and mechanisms where trade-offs between capital investment and operating expenditure occur;
- Shows that that iDNs have on average invested 51% more capex per customer over the last 10 years than the networks retained by NGG and that going forward this differential increases to 66% under Ofgem's proposals;
- Identifies that the majority of this capex differential is likely to be caused by different investment strategies. NGG is the only PAS55 certified GDN, strictly following a whole-life approach to asset management which is likely to be the most efficient for customers in the long term. It is important therefore that opex allowances are set having taken capex trade-offs into account;
- Provides robust analysis demonstrating that Ofgem's opex allowances - after normalisation for legitimate size and other regional differences - rather than provide additional opex to NGG's 'low' capex networks, actually provides £10m pa. **less**.
- Concludes that NGG is being systematically disadvantaged by this approach and that adjustments to NGG's base and future opex should be made by Ofgem in the Final Proposals. Using a range of techniques we estimate that NGG's opex has been understated by this significant omission in Ofgem's cost assessment methodology by at least 4%.

56. It is important to note that the correct way to apply an adjustment for capex/opex trade-offs would be to increase NGG's opex, not reduce iDN opex or capex allowances. This is because a key safeguard in Ofgem's opex methodology is to uplift bottom-up allowances to the actual costs of a benchmark real network. The whole principle of this safeguard would obviously be undermined if the actual costs of that benchmark network were overwritten with some notional lower value. Similarly, we do not believe it would be appropriate to make overarching cuts to iDN capex to bring them closer to NGG levels, as Ofgem and their

consultants have, over the course of GDPCR, undertaken a thorough and detailed assessment of specific iDN capex needs against their chosen investment strategies.

3.3.2 Sparsity Factor for East of England Networks (£1m pa.)

57. We have always considered that East of England has a similar or higher level of rural areas as Scotland (excluding the SIUs). The Updated Proposals allowed specific regional allowances for Wales and the West and Scotland on the basis of sparsity. As such, NGG thinks Ofgem should consider a similar allowance for East of England, based on the following evidence.

58. To determine the customer density within the gas supply area (as opposed to the networks' physical territory) we divided the UK into 100km^2 blocks. The number of blocks that contained gas supply infrastructure serving customers were then counted allowing a customer density, as shown in Figure 3.9, to be calculated by dividing the number of gas customers by the number of blocks containing gas supply infrastructure.

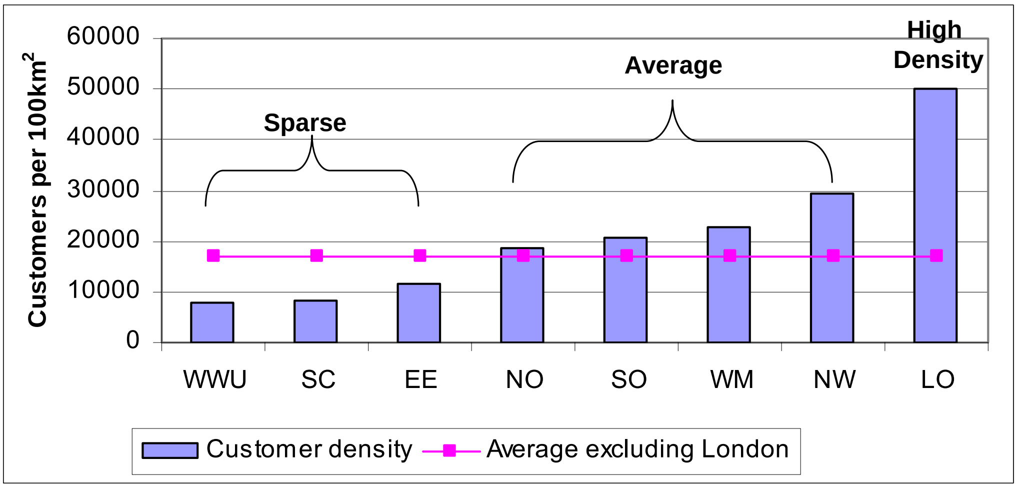

Figure 3.9 - Customer density within the gas supply area

59. The chart shows that there are three categories of GDN customer density; sparse, normal and high density, and that East of England sits within the sparse category.

60. However customer density is not the complete measure of the need for a sparsity factor as it only measures overall customer density. For example, a network may have a large territory but contain a small number of large conurbations. It is the prepondency of truly rural supply areas within a network that also need measuring.

61. As a proxy for this measure we have looked at emergency engineer productivity. It would be expected that productivity in sparse networks is lower than that in average networks, given that the level of resources is determined by the need to fulfil our regulatory obligations, i.e. attend 97% of all gas escapes within 1 hour.

62. The productivity of resources is related to the workload available within the geographic area, which is a function of the number of customers and size of the unit. In 2004/5, prior to network sales, the UK was divided into 163 emergency 'units', each sized such that an engineer could attend a job in any part of the unit within one hour. Using 2004/5 productivity data we have determined the average productivity of engineers in each unit, as a way of identifying the number of truly rural zones within each GDN.

63. Figure 3.10 shows normal distribution of this productivity data for the three sparse networks (Wales and the West, East of England and Scotland). Using a normal distribution allows comparisons between actual unit productivity and the level expected in the UK as a whole, i.e. an average network/unit.

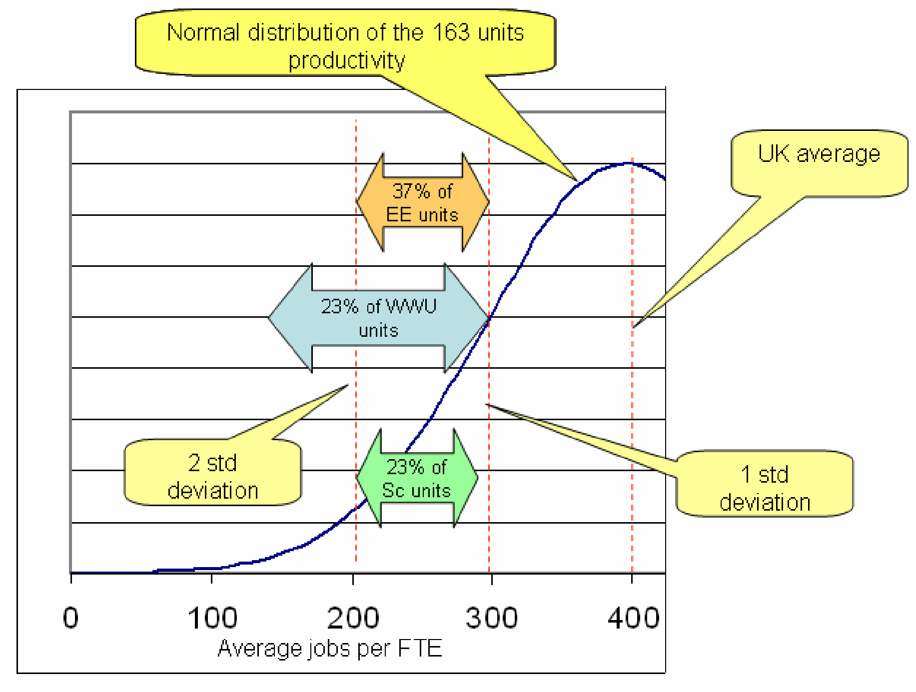

Figure 3.10 - Emergency engineer productivity per Unit

64. Figure 3.10 shows that the average emergency engineer (in 2004/05) in the UK completed 400 emergency jobs per annum with a standard deviation of 100 jobs. Based on this distribution, the table below shows the expected distribution of unit productivity in an average network.

Average productivity per FTE in a unit	Range of standard deviations	Expected percentage for an average network
101 to 200	2 σ plus	2.2%
201 to 300	1σ – 2 σ	13.6%
301 to 400	Mean to 1σ	34.1%

Table 3.5 - Theoretical productivity distribution

65. Our hypothesis that ‘productivity in sparse networks is lower that in average networks is confirmed by the analysis represented in Figure 3.10;

a) Wales and the West’s productivity is lower than expected for an average network. This is demonstrated by it having more within 1 to 2 standard deviations than the average productivity (15%) compared to an average networks (13.6%). It also has 8% (2.2% expected) of its units with greater than 2 standard deviations. This probably relates to the low productivity associated with, for example, the Cambrian coast.

b) Scotland’s productivity is also lower than expected for an average network. This is demonstrated by it having more units within 1 to 2 standard deviations than the average productivity (23%) compared to an average networks 13.6%. This probably relates to the low productivity associated with, for example, the Borders and North Grampian.

c) East of England’s productivity is also lower than expected for an average network. It productivity is <u>lower</u> than Scotland’s but actually higher than Wales and the West. This is demonstrated by it having more units within 1 to 2 standard deviations than the average productivity (37%) compared to an average networks 13.6%. This probably relates to the low productivity associated with, for example, Norfolk / Cambridgeshire and the Peak District.

66. The analysis described above and illustrated in Figures 3.9 and 3.10 demonstrates that East of England is impacted by sparsity to at least the same extent as Scotland. Given that Ofgem has proposed regional allowances of £1m pa for Scotland, a specific regional allowance for East of England of this magnitude is also justified.

3.3.3 Mandatory Safety Training (£3m pa.)

67. An allowance of £0.2m per GDN for training costs would cover less than 20% of basic mandatory safety training requirements, such as CORGI re-accreditation which ensures our engineers remain competent to work on appliances within customers’ homes. NGG has already submitted information regarding the levels of mandatory training but we acknowledge this was too late for Ofgem to consider it in time for inclusion in the Updated Proposals.

3.3.4 Graduates (£1.4m pa.)

68. We note that no specific allowance has been identified for Graduates and Other Trainees. Graduates and other trainees are an essential component of our resourcing and skills strategy for the future. Our efforts in these areas are necessitated by the age profile of our staff and the industry-wide difficulty in recruiting skilled staff, particularly in engineering disciplines.

69. NGG currently has an age profile which poses challenges for our future skills needs. Specifically, a quarter of NGG employees are 50 years of age or older. The NGG age profile is shown below.

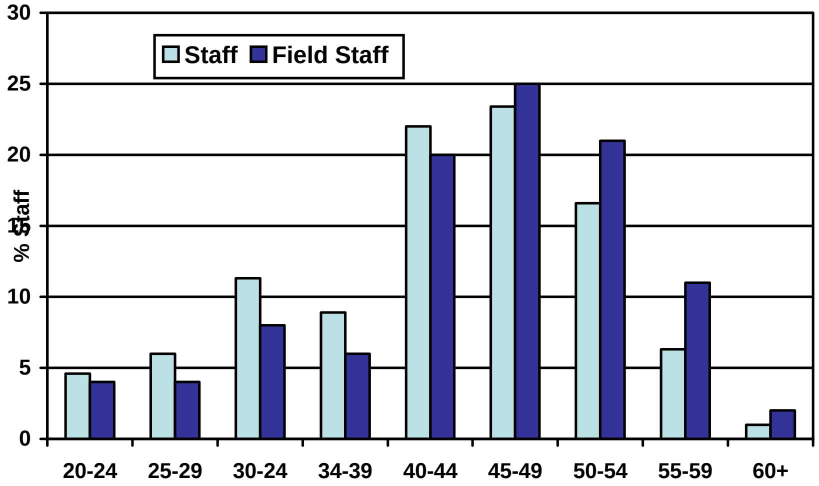

Figure 3.11 - Age Demographic Profile

70. Just as an apprentice intake is needed to counter the future age related field force cliff face, we need a planned graduate intake to ensure appropriate succession of management and engineering roles in the future. Our submission included provision for an NGG graduate intake of 4 per network per annum, significantly below the number of experienced engineers and managers that will be leaving the business over the coming years, but the minimum needed to ensure adequate succession.

71. In addition to graduates' salaries and training costs, it is necessary to fund costs of pre-graduate programmes, i.e. year in industry, sponsored students, vacation placements. Given the industry wide difficulty in recruiting suitable graduates from engineering disciplines, NGG considers these programmes an essential way of tapping into the shallow talent pool. This necessary expenditure is one that NGG has already initiated and incurred. Ofgem should consider that an additional allowance be given for graduate and pre-graduate programmes averaging £0.35m per network per annum for NGG.

3.4 Frontier Shift

3.4.1 Introduction

72. We believe Ofgem's productivity assumption of 2.5% pa. is excessive and essentially unsupported. We continue to believe that the case put forward by GDNs, including the work done by First Economics, remains a far stronger basis for a balanced settlement.

73. In summary our key points are:

a) Ofgem are not considering valid economic theory by setting the productivity assumption from a selective subset of data.

b) Ofgem's application of the productivity assumption is poor in that it;

- adds in a 'comparative competition' factor when, the market sample used already includes sectors influenced by the introduction of competition,
- double counts capital substitution,
- applies a labour productivity factor to the whole costbase, and most importantly,
- double counts market productivity by closing the gap from GDN benchmarking and then adding a market productivity factor.

c) Ofgem have not sense checked for practical deliverability, by not accounting for the divergence in the UK economy, facts from DNO latest performance; and evidence on the level of fixed costs in GDNs.

d) To compound the imbalanced position, Ofgem are expecting companies to fund 100% of the costs to deliver frontier shift, which is inequitable and cuts across economic principles.

74. The rest of this section outlines our case on each of the above four points.

3.4.2 Unsound Economic Evidence

3.4.2.1 First Economics approach remains the most credible

75. After listening to the GDNs' criticisms of Europe Economics' March 2007 report, Ofgem's current productivity assumptions have been based on an updated and slightly different analysis produced by Reckon LLP.

76. The GDNs commissioned First Economics to review the Reckon report and the validity of its approach. First Economics' report is attached.

First Economics report.pdf

77. In brief, in response to the concerns raised in the Updated Proposals and the Reckon report, First Economics state that;

a) The concern about profit growth is a red herring. First Economics are able to use Reckon's profit data to show that profit margins have fallen since 1998, implying that the trend in prices slightly understates the trend in costs.

b) Growth in capital employed is a potential issue, albeit one that Ofgem must deal with in its methodology. NGG recognises that there is some subjectivity to each of the consultants' assumptions around capital substitution and, for this reason, has provided in its response to the Initial Proposals quantified and detailed evidence that shows a reasonable level of capital substitution for GDNs to be 0.5% pa. We are disappointed to see that the Updated Proposals make no reference to this evidence. A fuller explanation is given in section 3.4.2.1 of NGG's Initial Proposals response.

c) Although GDNs do not sell their services directly to households, First Economics can think of no reason why the trend in our costs cannot be benchmarked against firms that do, provided that the nature of their cost bases are broadly similar.

d) Finally, hourly wage rates are just one determinant of unit costs – when one considers bonuses, training expenditure, R&D, utility costs, business rates, rents, redundancy and restructuring costs, and a whole host of other factors, there are all manner of reasons why total costs might increase more quickly than hourly wage rates. We note that First Economics explicitly pick out bonuses and redundancy/restructuring costs as two specific items of expenditure which might be expected to increase more rapidly during periods of high productivity growth.

3.4.2.2 Issues with Reckon's methodology

78. First Economics also identify a number of issues with the Reckon report:

a) There is a major error in Reckon's calculation of 'capital-adjusted labour productivity growth'. First Economics contest that capital-adjusted labour productivity growth is equivalent to attributing all out-turn TFP growth to labour productivity improvements alone. This is unrealistic and we do not think that Ofgem should rely on this concept in its proposals.

b) Correcting this error by using a TFP measure as detailed in the First Economics report, the comparator sectors would be considerably lower. Table 3.6 shows the figures corrected for the Reckon error, i.e. TFP growth, and shows a more feasible selection of comparators, including removing the cherry-picked *manufacture of chemicals, chemical products and man-made fibres.*

Sector	***First Economics TFP %***	***Reckon %****
Construction	*1.4*	*1.5*
Finance, insurance, real estate and business services	*(0.8)*	*0.1*
Transport and storage	*1.9*	*2.4*
Wholesale and retail trade	*0.5*	*2.0*

*Reckon's percentages apply to the comparators it selected in Table 1 of the Reckon report, not the First Economics comparators selection.

Table 3.6 - TFP growth in comparator industries, 1973 to 2004

c) Following this correction, Ofgem's selection of 1.4% can no longer be deemed 'towards the lower end of the range'[10]. In fact, it comes out at the high end of the comparators.

d) Further, although the evidence is not inconsistent with annual productivity improvements of 0.75% (the average of the figures in Table 3.6), the same assertion could also be applied to any figure roughly between 0.5% and 1.5%.

79. First Economics conclude in their executive summary:

"*After comparing the robustness of our work with the robustness of the Ofgem/Reckon analysis, we have no hesitation in again putting forward our top-down analysis as giving the best available insights into the rate of frontier shift affecting the GDNs. We believe that we are able to deal with all of the points that Ofgem and Reckon have raised, and we know that our work consistently comes up with the same results no matter what way one looks at the cost trends. Ofgem, by contrast, has been misled by Reckon in certain areas and is forced to choose its frontier shift*

[10] Para 1.33 pg 29, Gas Distribution Price Control, Review Updated Proposals Appendix 6

assumption from a very wide range of possible alternatives. We therefore believe that we have shown successfully that it would be wrong to expect the GDNs as an industry to go on reducing opex in real terms indefinitely – i.e. to out-perform the rate of productivity improvement and input price control exhibited by the firms whose goods and services appears in the basket – and we have not seen any convincing evidence from Ofgem to contradict this."

3.4.2.3 Arbitrarily selected comparators

80. The comparators used by Reckon for gas distribution were agreed with Ofgem[11], and focus on sectors which are 'similar in terms of their use of labour and materials to the operating activities of GDNs'[12]. Firstly, NGG does not accept that the selection of manufacturing of chemicals is of similar nature to gas distribution. It is far more capital intensive. In addition, there seems to be an element of cherry-picking applied to the selection of comparators. It is unclear, for example, why when considering manufacturing Ofgem agreed that only the manufacture of chemicals, chemical products and man-made fibres were deemed similar in terms of labour and materials, whereas the other sectors of manufacturing shown in Table 3.7 of the Reckon report were not. This possible cherry-picking is evident below:

Comparator sector	Capital-adjusted labour productivity (1973-2004)
Manufacture of chemicals, chemical products and man-made fibres	4.8%
Manufacture of electrical and optical equipment	4.6%
Manufacture of transport equipment	3.0%
Manufacture of basic metals and fabricated metal products	2.2%
Manufacture of rubber and plastic products	2.0%
Manufacture of textiles, textile products, clothing and footwear	1.7%
Manufacture of other non-metallic mineral products	1.6%
Manufacture of pulp, paper and paper products; publishing and printing	0.7%
Manufacture of machinery and equipment not elsewhere classified	0.7%
Manufacture of food products, beverages and tobacco	0.6%
Manufacture of wood and wood products	0.4%
Manufacture of coke, refined petroleum products and nuclear fuel	-2.0%
Manufacturing not elsewhere classified, including recycling	-4.2%

Ofgem's selected comparator

Table 3.7 – Capital-adjusted labour productivity growth in manufacturing sectors[13]

[11] Para 1.33 pg 29, Gas Distribution Price Control Review Updated Proposals Appendix 6.
[12] Para 1.30 page 5, Gas Distribution Price Review: Update analysis of productivity improvement trends, Reckon LLP
[13] Table 3, Page 18, Gas Distribution Price Control Review: Update of analysis of productivity improvement trends, Reckon LLP

81. The selection of manufacturing sectors as a whole, with average productivity of 1.2% less real price effects, supports the First Economics view of frontier shift in line with RPI.

82. Table 3.7 also shows that the GDN outcome is very sensitive to the comparators selected. For example, the range in manufacturing is -4% to 5%. This level of sensitivity we believe makes this approach far less robust a basis for making assumptions about GDN productivity than the work done by First Economics. To emphasise this point, changing the comparator sectors within the First Economics analysis does not markedly change the overall outcome of productivity improvements, in contrast with Ofgem's approach.

3.4.2.4 Conclusion on Economic Evidence

83. NGG contends that Ofgem must consider all the economic evidence. The exclusion of First Economics' work and the issues around selection of comparator sectors from Reckon's analysis has led to the setting of a productivity assumption (and hence frontier shift) at the high end of the plausible range.

3.4.3 Incorrect Application

84. In addition to the use of unsound economic evidence, Ofgem's application of the productivity factors is incorrect, with some major areas of double counting as set out below.

3.4.3.1 Double Counts resulting in 1.9% Frontier shift

85. In the Initial Proposals Ofgem used the same 2.5% productivity and 0.9% real pay assumption that drove a frontier shift of 1.6% pa. In the Updated Proposals, the following double counts, together with new errors in IS frontier shift, and application of real price effects for indirect costs, are resulting in NGG networks facing a 1.9% frontier shift.

a) *Capital Substitution* - The Reckon labour productivity benchmarking includes the benefits of capital substitution. As such, given that the effect of mains replacement on repair productivity has been included in the repair workloads, Ofgem should not then apply a further 2.5% productivity on top. In order to remove this double count Ofgem will need to reduce their overall productivity assumption by 0.2%, the value of capital substitution applicable to repex.

b) *IS productivity* - We disagree with the application of the 2.5% pa. productivity assumption to IS allowances. Unlike other activities, the benchmark used for IS considers average costs over the whole period from 2005/06 to 2012/13. Within our forecasts, NGG included a stretching 4% pa efficiency saving. NGG is deemed to be efficient, and so it is inappropriate for Ofgem to assume further productivity improvements of 2.5% on top of this 4% (equivalent to £2.3m p.a). Ofgem should remove their productivity assumption for this activity.

3.4.3.2 Double count with Reckon comparators

86. In addition to the point above, the comparative competition factor is, in fact, a double count with the 1.4% productivity figure in that, as the Reckon report highlights, both the transport and storage sector and financial intermediation sector has been affected by the introduction of competition during the 1973-2004 period. This 21 year period is very similar to the 2006/7 – 2022/23 timescale that Ofgem is using to deliver GDPCR comparative competition effects from network sales. This means that the values for these two sectors would be artificially high, effectively for the whole period.

3.4.3.3 Labour productivity applied to total costbase

87. The productivity measure used in the Reckon report is a 'proxy for the increase in labour productivity that would have been achieved if capital growth had been held in line with output growth[14]. Given that labour costs only account for 70% of a GDN cost base, the productivity levels assumed by Ofgem should only be applied to 70% of our cost base, reducing the current 1.4% labour productivity assumptions to 1.0%.

3.4.3.4 Double Count with Gap Closure

88. Notwithstanding the above three errors, NGG believe that Ofgem are making a fundamental error in double counting gap closure and a 'comparative competition' factor into its productivity assumption. They have used historic comparator sectors to adopt a 1.4% productivity target and are then adding 1.1% comparative regulation, to get the overall 2.5% productivity assumption.

89. However, Ofgem have already delivered benefits to customers through comparative competition through the base-year benchmarking of direct and indirect costs. This has delivered £48m (equivalent to 1.2% pa) that is directly attributable to comparative competition and will benefit customers during the period 2008/9 – 2012/13. As such they are then applying this 2.5% productivity to upper quartile benchmarks, which themselves include a 1.2% pa improvement (with no glide path) to GDNs, equivalent to a 3.7% assumption overall.

[14] Para 3.3, Page 17, Gas Distribution Price Control Review: Update of analysis of productivity improvements trends, Reckon LLP

Catch-Up	+	Frontier shift	=	Overall Productivity
1.2%	+	2.5%	=	3.7%

90. In other words Ofgem are setting a productivity target at the very upper end of global ranges in a mature industry:

- that is UK based and reliant on UK skilled labour,
- where Ofgem have accepted that the privatisation effect is over,
- that has no growth prospects (unlike the comparator sectors),
- that does not have the advantages of being capital intensive, and
- where there is no evidence of sector inefficiency or source of delivery.

3.4.3.5 Conclusion on Application

91. The errors are resulting in a headline frontier shift that is actually 1.9% pa. for NGG networks, higher than that given to DNOs. The errors include double counting productivity and applying labour productivity to total costbase.

92. More importantly, Ofgem's application has fundamental flaws in concept, adding market based productivity to fundamentally efficient networks. This use of a sector productivity being applied to upper quartile performing networks is unbalanced and leads to an effective frontier shift of almost 4%.

3.4.4 Sense Checking Against Evidence since 2004 DNO review

93. NGG acknowledges that it is difficult to determine a value for frontier shift with precision. For this reason, evidence other than just broad economic analysis should be sought out as a cross-check.

94. We believe that information from the DNOs, which were set a slightly less aggressive frontier shift target at DPCR4, can be used as a valuable directional check. In addition, Ofgem needs to consider the outcome of the recent competition Commission report on BAA and the level of fixed costs in GDNs.

3.4.4.1 DNO and Water Experience

95. In DPCR4, Ofgem set allowances for electricity DNOs for the period 2005/6 – 2009/10 with a 1.5% frontier shift. In the first year of the period, (in which incentives to reduce costs are the strongest) DNOs' costs have remained flat, and the frontier shift for the upper quartile DNOs was 8%. Indeed, in the first year of their price control only the lowest quartile companies

actually reduced their costs at all. When set against this, and when considering that GDNs have a greater proportion of safety related fixed costs than the DNOs, the 1.6% frontier shift Ofgem is proposing for GDNs does not appear directionally correct.

	2004/05 Actual	2005/06 Actual	% increase
Better than Upper Quartile			
SSE Southern	53	56	6%
CE NEDL	35	37	6%
	88	93	6%
Median to Upper Quartile			
CN East	57	64	12%
SSE Hydro	27	30	11%
WPD S Wales	28	31	11%
CE YEDL	46	44	-4%
SP Distribution	48	53	10%
	206	222	8%
Lower Quartile to Median			
CN West	56	56	0%
WPD S West	40	47	18%
EDFE EPN	77	76	-1%
SP Manweb	54	54	0%
	227	233	3%
Worse than Lower Quartile			
UU	66	49	-26%
EDFE LPN	50	43	-14%
EDFE SPN	59	53	-10%
	175	145	-17%
	696	693	0%

Table 3.8 – DNO 2004/5 – 2005/6 cost increases by efficiency group

96. Figure 3.12 highlights that GDNs have achieved comparable productivity improvements to DNOs since privatisation. Put another way, DNOs have not delivered additional productivity over GDNs even though they have operated in a competitive regulation world.

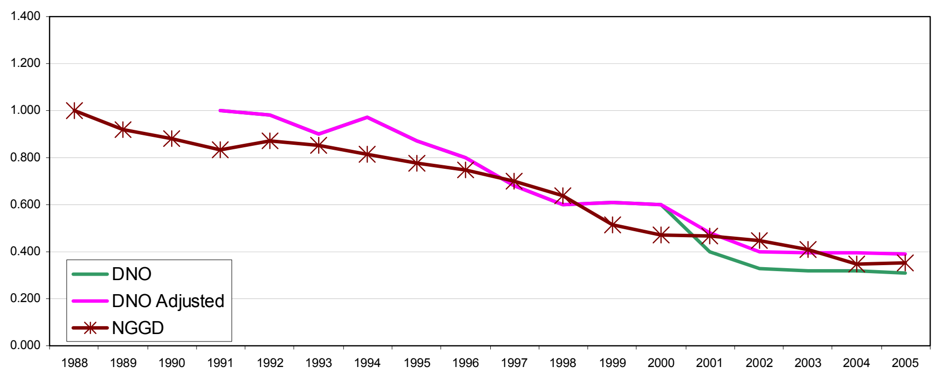

Figure 3.12 – Real unit operating costs for electricity and gas distribution networks

97. Furthermore, DNOs have not achieved cost reductions since 2002 despite the existence of a comparative regulatory regime, underlining that scope for distribution networks to continue to improve productivity at a rate greater than RPI no longer remains.

98. The experience in the water and sewerage industry is similar, and also supports a 0% frontier shift. In 2006/7, the water and sewerage industry overspent its allowances by 2%[15].

99. Further, from 2002/3 there have been increases in each year of between 1% and 4% to 2006/7[16] in real terms. Ofwat explain that a main contributor to this increase has been an increase in energy costs from 2003/4 to 2006/7. However adjusting for this, direct and support costs have still increased over the 2003/4 to 2006/7 period by 4.3% in real terms.

100. This experience of both the water and sewerage industry and electricity distribution shows that there is no evidence of a below RPI movements in opex costs.

3.4.4.2 Economic Evidence

101. The First Economics report has identified a clear divergence in the UK economy between goods and services, shown in Figure 3.13. The cost pressures on a GDN are more in line with those faced by service industries, and not manufactured goods, with the empirical evidence supporting First Economics assertion that costs for a GDN will increase in line with RPI.

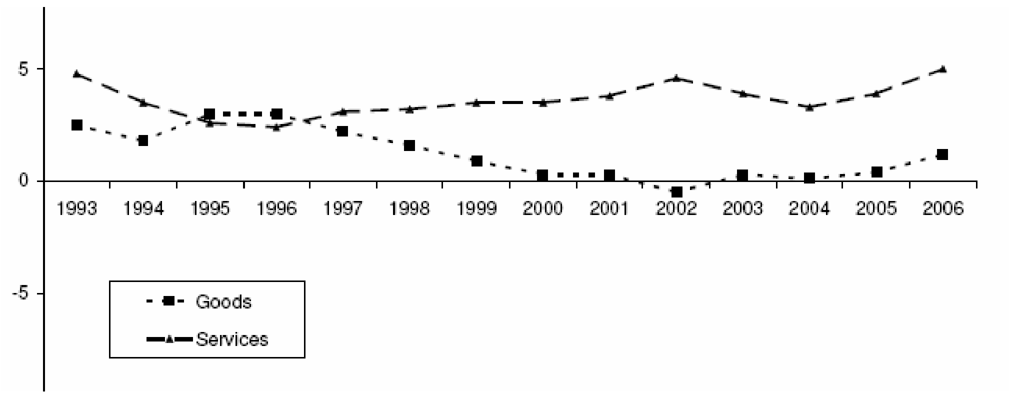

Figure 3.13 – Annual price changes in the goods and service sectors, 1993 to 2006

102. By using a long-term view of productivity, Ofgem does not take account of this split in the economy between the goods and services sectors over the recent period. Ofgem should recognise the increasing cost pressures on the service sector when making its assumptions on future productivity.

15 Financial performance and expenditure of water companies in England and Wales 2006-07, pg23
16 Ibid, pg25

3.4.4.3 Latest regulatory and political thinking

103. The Competition Commission report into the economic regulation of the London airports, published in October 2007, affirms the CAA assumption of 0% frontier shift. The key differences we the Updated Proposals are shown below:

	Frontier Shift	Catch-up	Glidepath
Updated Proposals	1.9%	14.9%	×
Competition Commission	0%	8.7%	✓

Table 3.9 – Competition Commission Review of BAA and Ofgem GDPCR Updated Proposals

104. The Competition Commission also allowed a glidepath, appreciating that immediate catch-up is not feasible even though there were identified inefficiencies analogous to the gap identified in GDN benchmarking.

105. Ofgem should give consideration to the Competition Commission views when considering the Final Proposals.

3.4.4.4 GDN Statutory fixed costs

106. As we have set out above, gas distribution has achieved equivalent levels of savings to the DNOs over the period since privatisation, in spite of the fact that the GDNs operate within a more restrictive safety framework. Although rather simplistic, Table 3.10 below highlights this key difference:

	GDNs	DNOs
Legal obligation to maintain supply 24/7/265 up to a 1 in 20 demand scenario	✔	✘
Absolute legal obligation to attend 97% of uncontrolled escapes within one hour	✔	✘
Absolute legal obligation to attend 97% of controlled escapes within two hour	✔	✘
Asset management and some indirect costs associated HSE obligation to undertake 30:30 replacement programme workload	✔	✘
Legal obligation to answer 90 % of phone calls within 30 seconds	✔	✘
Rigorous safety case which necessitates negotiating with the HSE before any change to working practices and organisational changes	✔	✘

Table 3.10 – Comparison of GDN & DNO legal and safety obligations

107. These differences restrict both the GDNs' absolute ability to reduce costs and the rate at which reductions can be made.

108. We estimate that the fixed cost element of the GDN accounts for 40% of the total cost base, as shown in the chart below.

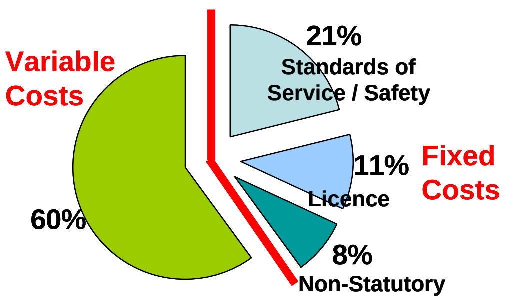

Figure 3.14 – Proportion of Statutory costs

109. Over a 5 year period, a GDN can only achieve productivity on costs which are not fixed. For GDNs to achieve a productivity target of 2.5%, from an efficient upper quartile starting point, on those costs which a GDN is thus requiring a 4.7% pa. productivity target to be deliverable.

3.4.4.5 Conclusion on Evidence since DNO review

110. Since the 2004 electricity distribution price control, there have been several elements of new evidence supporting the First Economics view that it is wrong to expect GDNs, as an industry, to continue to reduce opex in real terms on an indefinite basis, i.e. the outperformance of the rate of productivity improvement and input price control exhibited by the basket of comparative firms.

111. As such, to assume a frontier shift of 1.5% as applied in 2004 to DNO is now demonstrated to be inappropriately high and does not appear directionally correct.

3.4.5 Cost to Achieve

112. As we put forward in our response to the Initial Proposals, we believe that Ofgem should include an allowance for costs to achieve the frontier shift productivity assumption. Not doing so would mean that costs necessarily incurred by companies as they seek efficiencies will be unfunded and achievement of the cost of capital, even for a frontier network, is discounted.

113. We believe a distinction should be drawn between efficiency improvements which are needed to reach the 'efficiency frontier', and improvements which are needed to shift the frontier itself. In a competitive market, one would expect the shareholders of a firm which is 'off the pace' to bear the costs of restructuring required to compete with frontier companies. However, frontier companies themselves would normally be able to pass on to customers the costs of staying 'on the pace'.

114. Applied to gas distribution, whilst the laggard GDNs should fund the cost to catch up to the upper quartile, we believe customers should bear the costs of achieving the frontier shift assumed by Ofgem, including the costs of severance.

115. Further, in the past, funding of the frontier shift has not been allowed by regulators as it was accepted that utility sectors were less efficient than the general UK economy. However, twenty on years since privatisation this effect is over, as accepted by Ofgem in the Initial Proposals. To the extent that valid external benchmarking has been carried out at GDPCR, GDNs generally tended to exceed upper quartile benchmarks. As such, it is now appropriate for GDNs to be funded for productivity improvements included in the frontier shift.

116. This concept was recognised by CAA in its Initial Proposals for NATS in November 2004, where specific allowance was made for the costs to achieve productivity in future years. Referring to redundancy costs the CAA state explicitly that 'it would be inappropriate for users

to enjoy the long-term savings that [NATS] produces without also compensating the company for the one-off costs that it incurs during the transition [17].

117. The current Ofgem proposals are setting a position where NGG has to fund nearly £100m to deliver the 2.5% pa. productivity assumption, for which customers receive nearly all the benefit.

118. Areas where costs will be incurred to achieve productivity improvements by upper quartile GDNs include:

- staff severance,
- re-organisation costs,
- training costs,
- outsource and negotiation costs, and
- system & process development.

119. Table 3.11 outlines the estimated costs to achieve, and net benefit to customers of the frontier shift proposed by Ofgem. It uses the following assumptions:

a) All frontier savings achieved through headcount reductions,
b) An average cost per head of £40k pa.
c) £100k per head severance cost, including pensions strain, and
d) No costs for system & process development.

£m, 2005/06 real prices	**2008/9**	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**Total 2008/09 to 2012/13**	**NPV**
2.5% Productivity	13.3	19.7	26.0	32.1	38.1		
Incremental Annual Savings	13.3	6.4	6.3	6.1	6.0		
Costs to Achieve	33.3	16.0	15.8	15.3	15.0	95.3	
2.5% Productivity	-13.3	-19.7	-26.0	-32.1	-38.1	-129.3	
Costs to Achieve	33.3	16.0	15.8	15.3	15.0	95.3	81.7
Total	**20.0**	**-3.7**	**-10.3**	**-16.9**	**-23.2**	**-34.0**	**-274.3**

Table 3.11 – Estimated costs to achieve frontier shift

120. Table 3.11 shows that Ofgem should provide an allowance for the cost to achieve of £95m, which will deliver savings to the consumer both in this period and into perpetuity. Taking a 45 year NPV, this delivers £275m to consumers against an allowance for GDNs of £82m.

[17] CAA's November 2004 price control Initial Proposals, paragraph 7.41, p.61

121. If Ofgem reduced the productivity assumption to 2%, costs to achieve of £81m would be required, and for 1.5% the funding requirement is £60m.

3.4.6 Conclusion on Frontier Shift

122. The weight of evidence demonstrates that Ofgem lacks a solid analytical foundation for its point estimate of productivity and thus the frontier shift. More broadly, Ofgem should consider whether it makes sense to be forecasting that GDNs will go on reducing real term opex.

123. Evidence emerging from the DNOs, plus the higher safety framework in which GDNs operate suggest a value lower than 1.5% is justified.

124. First Economics' work and the findings of the CC report on BAA indicate that the appropriate level for GDN frontier shift is RPI-0%.

125. However, if Ofgem determine that there is to be a non-zero frontier shift, then it is only right an allowance for the costs to achieve this frontier shift is provided.

3.5 Other issues with Ofgem's Opex assessment

126. In addition to this there are a number of areas where we disagree with Ofgem's methodology.

3.5.1 Work Management CSV

127. NGG disagreed with the work management CSV in the Initial Proposals in that it understated the importance of customers and overstated the importance of network length.

128. PB Power's Work Management CSV is designed to reflect the relative levels of emergency, repair and maintenance workloads, and for maintenance this has been achieved by using network length in the Updated Proposals.

129. In the Updated Proposals' bottom-up assessment of maintenance however, PB Power and Ofgem have changed to a regression analysis of total maintenance using a composite size variable, based on asset numbers. As such, Ofgem should now substitute the maintenance CSV for network length.

130. In addition, NGG would contend that Work Management, as well as supporting the work execution activities also carries out activities such as asset management, commercial and customer driven activities, including the call centres. As articulated in the Initial Proposals,

these activities are driven by customer numbers and make up 34% of our work management costs.

131. Thus NGG would ask Ofgem to review the work management CSV, and refine as follows;

a) Replace km with the maintenance CSV,
b) Give a 66% weighting to the work execution element (i.e. current CSV with km replaced), and
c) Include a customer element with 34% weighting.

132. As shown in Figure 3.15, making these appropriate changes to the work management CSV improves the fit to $r^2 = 0.87$ from a lowly 0.83 in the Updated Proposals.

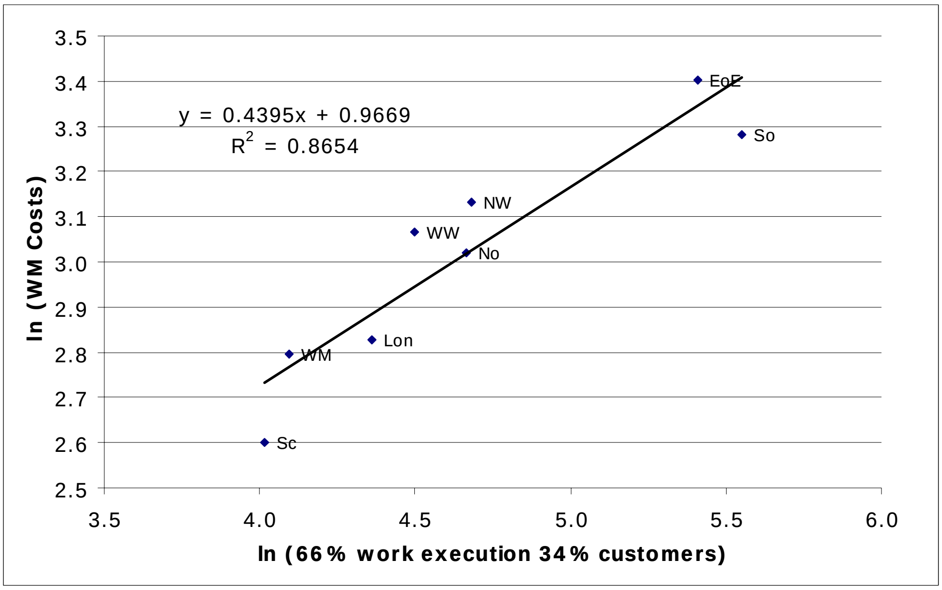

Figure 3.15 - Proposed Revised work management regression.

133. The attached spreadsheet provides the derivation of the proposed CSV and the regression calculation.

Work Management CSV.xls

134. Given the appropriateness of including customers in the CSV, increases in the explanatory power of the analysis, NGG believes that Ofgem have no option but to change the work management CSV and to remove inconsistency in analysis (km and maintenance CSV).

135. In addition to our concern over the CSV, we are concerned that there are appropriate costs missing from the GDN's work management actuals. These include:

- *SGN Executive costs* – In the PB Power report it states SGN has allocated these across all activities, whereas NGG, in line with Ofgem guidance, has captured these costs (100%) within work management. Since SGN's networks influence the upper quartile for work management, all GDN's future level of allowances may have been understated.

- *Easement costs* – in line with Ofgem's guidance, NGG has included all costs associated with easements / wayleaves in work management. We are concerned that SGN may not have included their costs in the same way.

3.5.2 Real Pay Assumptions

136. We disagree with the underlying assumptions that Ofgem has made in calculating real pay effects. The real pay increase for contractors and direct labour is too low and should be in the region of 3.1% to 4.75% for contractors and 1.7% to 2% for direct labour as explained below:

a) *Contractor real price effects* - Our response to question 1 of chapter 4 of the Updated Proposals (section 4.1) provides further details. In brief, this is providing a wealth of industry evidence including updates to the OGC / Deloitte report. Of particular relevance to opex is the Gardiner & Theobold Fairway Limited report which provides an independent view of the potential wage rate change for contractors. This report shows agreed wage settlements in the contractor market up to 2009 of c.6%, and asserts that this will set a 'benchmark' across the construction contracting sector. Consistently offering pay rises below this benchmark will eventually lead to gas distribution losing skilled labour to other contracting industries.

b) *Direct labour real prices* - Many of the points that the report highlights can also be applied to direct labour. If direct labour consistently receives wage increases lower than the market rate for contractors, then it will only be a matter of time before GDNs lose direct labour to the contractor market, therefore further heightening the skills shortage in gas distribution. Currently, Ofgem's assumptions of 1% real pay for direct labour falls well below the agreed national wage deals highlighted in the Gardiner & Theobold Fairway Limited report at c.6%. (3.5% real). The direct labour real pay assumption should be increased to take account of the risk of losing this skilled labour to other contracting industries offering markedly higher pay increases in the next few years.

137. As part of the Initial Proposals, Ofgem outlined, in Table A6.1, the range of evidence considered on real growth in salaries and earnings. In effect, Table A6.1 mixed pay settlements and average earnings increases. This is potentially misleading as pay settlements only reflect the negotiated increase to salary scales and wages rates. Average earnings increases include not only, increases to pay scales and wage rates, but also increase due to performance or the acquisition of competencies. Some commentators would also include increased overtime and allowance rates in their definition of average earnings increases.

138. This distinction between pay settlement increases and average earnings increases is critical. The Office of National Statistics in their document [18]entitled "The difference between pay settlements and earnings growth"; February 2005 estimate that average earnings growth was 1.25% higher per annum than average pay settlements over the six year period from 1998 to 2004. Figure 3.16 below reproduces the relevant data from the ONS document.

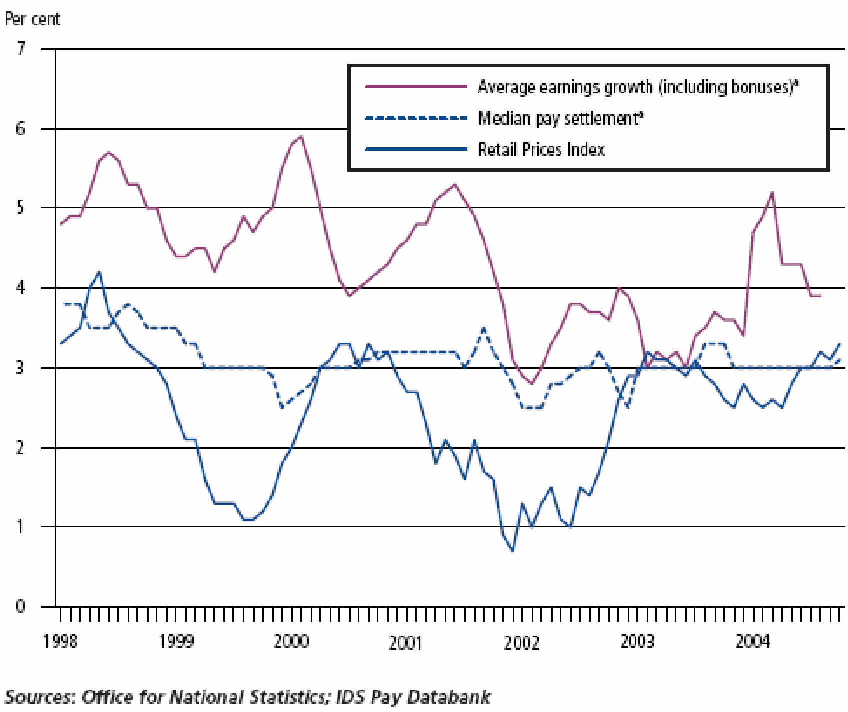

Figure 3.16 - Annual growth rates in the AEI, RPI and IDS Pay Databank; January 1998 to October 2004.

139. As an example, all of NGG's staff grades (Levels 1 – 8) are split into 4 Competency Steps (Entry Level, Step 1, Step 2, Core), each with a designated salary aligned to them. The salaries aligned to each Step will increase in line with the negotiated salary settlement each year (i.e. RPI plus). Dependant on the acquisition of defined competencies, employees can move between Steps on an annual basis. These competencies outline the key skills and

[18] The Office of National Statistics, Report: The difference between pay settlements and earnings growth, Figure 1

knowledge (for each position) that employees must develop in order to fully contribute to NGGs success. As such, the competency approach is a key element of NGG strategy to develop superior employee skills and deliver superior employee performance. Moving through the steps within each grade increases an individual's salary by between 5% and 6% per year. This is on top of the RPI +0.3% increase. Currently over 50% of staff are on the first two steps (Entry and Step 1) therefore giving a lot of scope for staff increasing to the next step for several years. The result is that, including increases faced by NGG are over RPI 1.5% to 2.5%, dependant on performance of staff.

140. The evidence of the external environment demonstrates that an RPI of 1.7% to 2.5% per annum is appropriate for GDNs.

3.5.3 Apprentices

141. NGG welcomes the inclusion of apprentice salaries and training within the Updated Proposals, which helps address the increasing skills shortfall over the next five years as the age profile cliff face starts to impact. The provision however remains short of our BPQ request, which included the funding of some early retirement to help reduce the overall costs of the age cliff face issue up to 2012/13, and beyond.

142. Working with EU Skills, NGG and the other GDNs, has demonstrated that satisfactory resolution of the issues surrounding training and recruitment will extend over more than one regulatory cycle. We believe there is a case for a separate funding initiative, similar to the IFI for R&D, to mitigate the emerging workforce cliff face that is facing the industry in the price control period from 2012/13 onwards.

143. With respect to the allowance that Ofgem has proposed for apprentices for the next period, we have three concerns.

a) Ofgem's allowance is based on the assumption that apprenticeships last for two years. Whilst appropriate for emergency and repair activities, for the maintenance activity (which make up 50% of our apprentice intake) a 3 year apprenticeship is required, reflecting the higher complexity of the activity.

b) We do not agree with Ofgem's proposal to profile GDN allowances for training and apprentices based on the existing number of FTE's. To mitigate the risks associated with the age cliff face issue, and an increasingly competitive labour market, NGG's future policy is to reduce the contractor proportion of the field force working on opex activities. Consequently, Ofgem should apportion the number of apprentices as a function of total resources employed, not use direct full time employees.

FTEs	Direct	Contractors	Total
East of England	821	359	1180
London	487	361	848
North West	616	529	1145
West Midlands	411	250	661

Table 3.12 - NGG's FTE and Contractor Numbers

c) No allowance has been made for the recruitment and assessment costs associated with apprentices. Our BPQ submission identified £0.8m for this activity. The assessment process is critical to ensuring that apprentices achieve the correct level of on the job training and, for emergency apprentices form part of their mandatory competence assessment (SNVQ).

3.5.4 Top down cost driver

144. NGG still disagrees with Ofgem's use of a composite variable of 50% customer and 50% network length. The single biggest determiner of a GDN's cost base is the number of customers. To add an additional factor that actually reduces the level of predictive fit seems questionable.

145. The r-squared (level of fit) in the Initial Proposals - which used a composite of 2005/6 actuals and 2006/07 forecasts as a base year - was significantly higher than the CSV when a 100% customer regression was used. We note that updating the analysis for 2006/7 actuals improves the r-squared, and although still lower than 100% customer numbers, the difference is now marginal.

146. In the Updated Proposals, Ofgem takes comfort from the similarity of efficiency rankings from their updated top-down and bottom-up work. As shown in the table below, the GDNs top-down ranking using 100% customer numbers produces a better match.

GDN	Updated Proposals Bottom Up	Updated Proposals Top Down	Customer only Top Down
Southern	1	3	1
NGN	2	1	2
Scotland	3	2	4
West Midlands	4	4	3
East of England	5	5	6
London	6	7	5

North West	7	8	8
WWU	8	6	7
Absolute variance to bottom up		**8**	**6**

Table 3.13 – Comparisons of customer only CSV and 50:50 CSV to the Updated Proposals bottom-up analysis

147. The significance of this for GDNs is that Ofgem's choice of CSV – which reduces both the top down fit and the correlation with bottom up rankings – sets the upper quartile 'safeguard' uplift at a level which reduces GDNs' allowances by £5m pa. when compared to an upper quartile using 100% customer numbers.

3.5.5 Waste Management

148. In our correspondence to date on the subject of future waste costs, we have consistently acknowledged the degree of uncertainty with respect to likelihood and timing of a major change. With that in mind, the GDNs commissioned a report to establish an independent view on the associated risks, and to address the current levels of uncertainty.

GDN.pdf

149. It is clear from the report that waste management is in a period of substantial change, both in respect of legislation and guidance. A number of reviews at European and national level are underway, including reviews which cover the highlighted inconsistencies with the definitions of waste. The report confirms that there is a risk that the output of the reviews will result in the GDNs' waste attracting a 'standard', higher taxation rate. However, due to these reviews being at an early stage, (consultations not due until late 2007 and early 2008), a great deal of uncertainty still remains.

150. Costs of waste management are certain to increase and, whilst GDNs can respond to number of these cost pressures, for example, through increased recycling, certain changes (such as changes to legislation or tightening of guidance) remain outside of the GDNs control.

151. Given the level of uncertainty, Ofgem should include a re-opener mechanism to address these additional costs, should these changes come about.

3.5.6 xoserve

152. The proposed xoserve savings in operating expenditure are based on inappropriate comparisons with GDNs that fail to take account of the very different nature of the xoserve and GDN businesses. Whilst it is agreed that benchmarking is required, we feel it would be more appropriate to compare xoserve against externally validated and comparable benchmarks.

153. For example, xoserve property costs are derived from GDN benchmarks which include office and depot properties. No recognition has been made of the differing nature of the businesses and their respective property requirements. For example, xoserve use only data centres and offices, which are more expensive than the mixture of office and operational property operated by GDNs.

154. Ofgem has also applied GDN benchmarks for IS to xoserve, despite the fact that xoserve utilise a different set of systems and has a completely different profile of projects and cost pressures. Ofgem should revise their analysis of costs based on the specific nature of xoserve's IS usage.

155. These issues has been exacerbated by Ofgem applying the same efficiency error being made on our NGG's IS expenditure to xoserve's allowances. See section 3.5.2.2.

3.5.7 Insurance

156. We continue to believe that Ofgem has set allowances for insurance based on a flawed understanding of future trends. In doing so, Ofgem has failed to acknowledge the findings of the independent report by insurance specialists Marsh. Ofgem are maintaining their 2006 cyclical view of insurance trends that we believe to incorrect.

157. In our response to the Initial Proposals, we submitted an updated report from Marsh, which, as with the report prepared for the TPCR, once again refers to two cycles. This report clearly points out that it is inappropriate to reflect the projection of pricing using the market cycle for NGG's retained costs and captive premiums. NGG believe Marsh is unequivocal in their emphasis on this point.

158. Ofgem appear to have disregarded this evidence in the Updated Proposals and provide no justification for doing so.

3.5.8 Procurement & Logistics

159. The implied benchmark inefficiency of 47% for procurement costs is simply not credible. As part of TPCR, the benchmark work carried out by the Hackett Group showed that National Grid's procurement and logistics function was short of world class performance by only 16%.

160. A significant degree of the apparent inefficiency cited in the Updated Proposals is actually due to Ofgem's benchmark not adequately reflecting the key drivers of procurement. Rather than use opex spend only, we believe that <u>total cash spend</u> is more meaningful indicator of overall procurement and logistics activity for this purpose. Total spend will ensure that mains replacement, the biggest single activity undertaken by GDNs and one that requires very substantial support from our procurement and logistics function, is fully captured. The use of opex only, effectively ignores what is one of the largest drivers of P&L activity.

Driver	NGG Ratio	Benchmark Ratio	Implied Disallowance	World Class Disallowance
% of total opex	0.87%	0.57%	1.7	0.8
% of total spend	0.76%	0.52%	1.5	

Table 3.14 Impact of different benchmarks

161. We believe that operating at a lower level of cost would be to the detriment of the effectiveness for the company, and ultimately, consumers. We therefore propose that the disallowance is no more than the reduction to world class as shown in Table 3.14 above.

162. NGG believes Ofgem should replace the GDN benchmark with the TPCR benchmark.

Chapter Four – Capital and replacement expenditure analysis

Question 1 - Do you agree with our revised approach to setting capex and repex allowances and the proposed allowances we have derived using that approach?

163. This section provides further evidence and detailed analysis regarding the investment issues summarised in section 2. The areas covered are:

- Real price effects (4.1);
- Downsizing of mains laid (4.2);
- LTS (4.3);
- Mains reinforcement (4.4);
- Connections (4.5); and
- Multi-occupancy buildings (4.6).

4.1 Real Price Effects (RPEs)

164. Throughout the GDPCR process, we have consistently stated our case for real price effects for construction contractor costs including an additional differential rate for London.

165. We acknowledge that there is a degree of uncertainty about the level of future contractor price inflation and that there are a variety of methods to estimate it. We were encouraged, therefore, to see Ofgem's support for our methodology in the Initial Proposals i.e. use of the Baxter Civil Engineering Index and the EC Harris Tender Price Index. In reviewing the methods put forward by GDNs for forecasting contractor inflation Ofgem stated "We consider that an alternative approach put forward by NGG is more robust". Ofgem adopted this methodology, albeit using more recent data, to support its proposed RPE of RPI+2%.

166. In our July BPQ update we continued to use this methodology, again updated to take account of the latest data available, which indicated a national RPE of RPI+3.1% and a differential rate of RPI+4.75% for London. However, Ofgem appears now to have changed position, relying instead upon a review of longer term historical trends from the Construction Statistics Annual Report published by the DTI, and the findings of a report produced by Deloitte for the Office of Government Commerce (OGC), in order to leave its assumption for real price effects unchanged at RPI+2.

Historical longer term trends

167. We have undertaken our own analysis and agree with Ofgem that construction inflation does cycle with trends in the general economy. Further, we agree that historically, over the longer term, construction inflation tends to average at around RPI.

168. However, we do not understand why the long term behaviour of contractor prices is relevant to the price review. Ofgem has an obligation to ensure that GDNs are properly financed for the next five years and therefore seem obliged to base their assessment on the next five years alone.

169. If Ofgem is seeking to move to some new obligation (or interpretation) which will consider long term RPEs, then this is a clear inconsistency with the methodology it has used for direct labour real wage increases, where Ofgem has, predominately, taken a two year spot view to support its value of RPI+1%. This is materially lower than the long term view, which would give c.RPI+2-2.5%.

170. It is our view that Ofgem's obligation remains to fund those costs that are likely to be efficiently incurred over the price control period and, therefore taking account of forecast market factors is the appropriate methodology for determining allowances for both direct labour and contract labour.

171. Figure 4.1 compares movements in the EC Harris TPI against RPI over the period since privatisation of the gas industry in 1986. It can be seen that contractor real prices have consistently outstripped RPI with the exception of the period of recession (1989 – 1993). To achieve a long-term real price increase of 2% premised on historical averages, it is necessary to include the recession in the early 1990s.

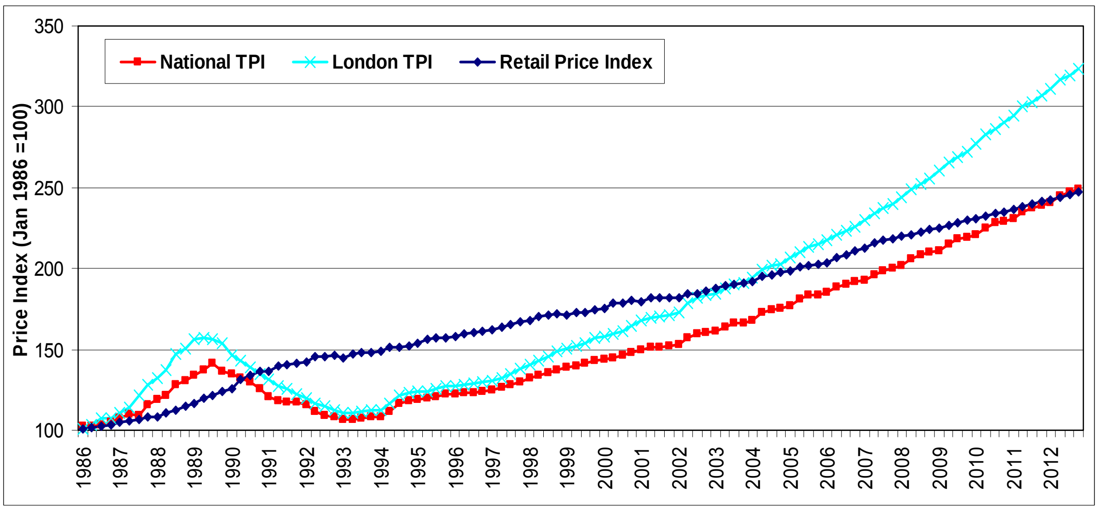

Figure 4.1 - EC Harris TPI vs RPI (1986 to 2012)

172. Table 4.1 breaks this 25 year period into a number of shorter timespans (broadly into price control periods) and highlights that:

- Contractor prices rise faster than RPI, except in periods of recession; and
- There is a clear differential between London and the rest of the country.

Period	National TPI	London TPI	Retail Price Index
1986-1989	+9.7%	+13.2%	+5.4%
1989-1993	-7.8%	-9.4%	+5.2%
1994-1997	+4.2%	+4.7%	+3.0%
1998-2002	+4.3%	+5.9%	+2.2%
2002-2007	+4.6%	+5.6%	+3.2%
2007-2012	+4.4%	+6.0%	+2.5%

Table 4.1 – Average annual price changes since 1986

173. Looking forward, the use of an assumption for contractor price inflation for the next five years that includes a period of recession is out of step with the views of economic forecasters. To date, we have found no evidence of an economic slowdown to the extent that this impacts on contractor prices, and hence an RPE assumption of RPI+2% is likely to underestimate the rise and result in a potential significant shortfall in allowances. For NGG, a one percentage point difference in the RPE would equate to around £70million.

Office of Government Commerce/Deloitte (OGC) Report – June 2006

174. We have examined the OGC/Deloitte report and broadly agree that it is a comprehensive piece of work, taking account of a wide range of issues, albeit it at a macro-UK level. The report was published in June 2006, and is largely reliant on information from other publications, many of which are now 2-3 years old, such as the winter 2005 edition of the quarterly EC Harris Economic Survey Report. Consideration therefore needs to be given to updating it, principally to take account of recent external market evidence of the growing strength of the construction sector and also recent announcements of major construction projects.

External Market Evidence

175. Over the last two years, real price forecasts have progressively increased across a range of external forecasts, as the construction market has continued to strengthen. This is demonstrated in the stock market performance of the Construction and Materials sector since September 2004, plotted against the FTSE 100, as shown in figure 4.2 below.

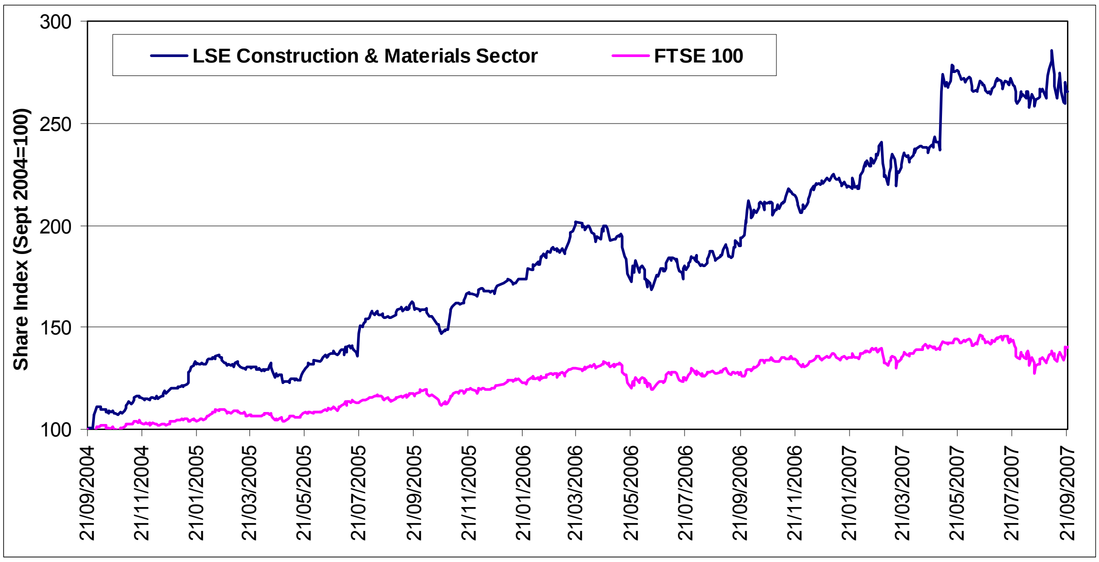

Figure 4.2 – Construction and Materials sector v FTSE 100

176. This clearly shows that the entire sector from which gas utilities source their contractors has significantly outperformed the FTSE 100 over the last three years. This is driven by a UK construction marketplace with plentiful work, where contractors can be choosy about the work they undertake, and are confident in increasing their margins on submitted tenders. It also confirms market confidence in growing future earnings over the medium term.

177. We have also examined how external forecasts have moved over the last three years. Table 4.2 below shows how EC Harris forecasts for tender prices at Q2 2009 have moved over the last three years, and clearly show an upward trend.

Date of Forecast	Forecast National TPI Index	Forecast London TPI Index
September 2004	203.6	244.4
May 2006	210.0	259.5
August 2007	215.3	265.5

Table 4.2 – EC Harris TPI Index Forecasts for Q2 2009

178. In terms of real world updates, NGG has commenced an exercise to extend, for a six month period, both its current TERM and Agency (GD1) contracts, which are due to expire in March 2008. We will provide a separate update on this to Ofgem as soon as possible.

179. These factors further demonstrate that growing upward pressures continue to exist in the marketplace.

Independent View

180. Since the Initial Proposals, we have sought an expert independent view on forecast contract labour costs across the period to 2012 from Gardiner & Theobald Fairway. This report considers a range of inputs, including recent construction trade wage settlements, the level of major planned projects, the effect of labour influx from Eastern Europe, and regional variations. It concludes that gas distribution contractor prices will move by c.6% per annum nationally in the period to 2012, with a 1-2% per annum premium in Greater London. A copy of the report will be sent to Ofgem as soon as possible.

The need for a London differential

181. Ofgem has, to date, refused to acknowledge that London prices are likely to continue to rise faster than the national average, despite overwhelming evidence to the contrary from a wide range of independent and recognised sources. Whilst Ofgem acknowledges the historical differential, it has stated that "We do not consider that an ongoing differential in real growth in contract prices between London and the rest of the country is sustainable as this would attract additional labour from other regions into London."[19]

182. Whilst economic theory might support the convergence of regional and national differentials over time, the available evidence, both historical and forecast does not, as shown below in figure 4.3.

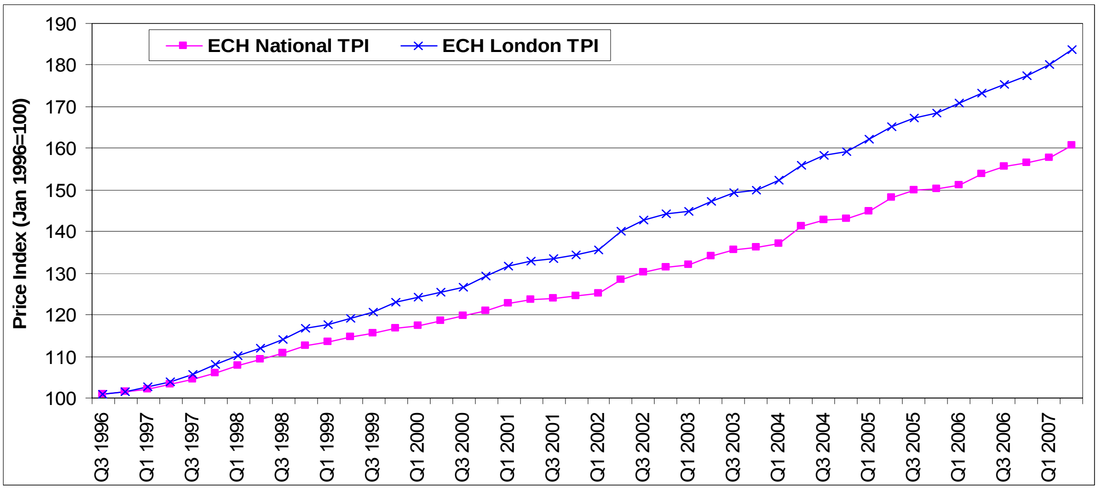

Figure 4.3 – Contractor Price Inflation 1996 – 2007

183. Indeed, the differential has widened in recent years, with no signs of convergence in the near future.

[19] Appendix 6, paragraph 1.24

184. The OGC report does not cover regional differentials in any depth. However, the elasticity of labour analysis within the report suggests that skilled labour, as used by the GDNs, is relatively inelastic and not attracted solely by changes in the wage level. Within the report[20] Deloitte suggests that the effect of a 1% change in wages on labour supply over two years would be that a 3.5% increase in the supply of unskilled labour could be attracted to London whereas only a 0.26% increase in skilled labour could be attracted. Whilst overall labour elasticity might appear to support Ofgem's view, it must be deconstructed due to the bias introduced by unskilled labour.

185. Again, economic theory suggests that labour mobility, within reason, will also transcend national boundaries. However, the recent enlargement of the EU has not increased the supply of contractors in the UK. The OGC report itself[21] acknowledges that the influx of foreign workers since the opening of borders has merely displaced an element of the previous workforce and not increased it. Furthermore, whilst a limited number of immigrant workers may be deemed competent to work with gas in their own country, they will not be familiar with the equipment, safety standards, or working methods that are used in the UK. Neither will they possess the necessary GNVQ qualifications to work on gas in the UK. Whilst these issues can be overcome in the longer term, short to medium term elasticity of labour supply simply does not exist for gas distribution operations.

186. Ofgem states that "there are cycles in tender prices in both London and the rest of the country and that the growth in construction prices in London will exceed other parts of the country in the peak of the cycle but be lower in London in the downturn of the cycle."[22] Such swings in labour prices are not consistent with Ofgem's own arguments that the labour market will flex to eradicate location specific wage inflation.

OGC Quantification of London Differential

187. Whilst the OGC report is completed at a macro level only (i.e. UK average), it does acknowledge that regional differences exist in the contractor market, being broadly supportive of a London differential.

188. The appendices to the OGC report attempt to quantify the incremental impact of a number of possible scenarios on its base case inflation forecasts. Two such incremental scenarios (both in London) have now been formally announced and must be factored into updating the OGC forecasts:

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[20] Page 49
[21] Page 24
[22] Updated Proposals – Appendix 6, paragraph 1.24

- **Crossrail** – The Government has estimated the cost of this project to be c.£16bn, over the period 2010-2015. The OGC report had assumed a cost of £6.0bn and estimated that this level of infrastructure investment (on top of its base case) would drive an average premium of +0.6% per annum on London rates across the build period. It is therefore reasonable to assume that the latest cost of £16bn (i.e. £10bn higher than assumed within the OGC report) will drive an average annual premium of approximately 1.5% per annum from 2010.

- **2012 Olympics** - A second scenario considers the cost of the Olympic project running above the (then) forecast of £2.5bn. Deloitte forecasts that an additional £1.0bn of spend would drive an additional 0.5% per annum on the London TPI between 2006 and 2010. On 15 March 2007, Tessa Jowell, Culture Secretary, announced that the forecast cost had risen to £9.35bn. London 2012 is targeting to have contracts let and designs agreed for the four main venues by August 2008, with construction work due to commence in late 2008. It is therefore reasonable to assume that the Olympics at their current forecast level of spend will drive a London premium of at least 1.5% per annum over the next 3-4 years.

189. Based on the OGC scenarios, these two major projects (which will largely run sequentially) alone will drive an ongoing 1.5% annual differential between the increase in London rates and the national average, further supporting our contention for an on-going differential for the next five years.

190. Finally, the number of large scale infrastructure projects being undertaken in the capital is significant, as shown in table 4.3 below, and will undoubtedly impact on the demand for, and hence price of, contractors. Such expenditure cannot be viewed as representing a period of economic downturn.

Duration	Project	Value (£bn)
2010-2015	Crossrail	c.16.0
2007-2012	Olympic stadia & infrastructure	c.9.4
2005-2011	Heathrow Terminal 5	4.2
2006-2012	Stratford City Development	4.0
2007-2012	Argent Kings Cross Central Development	2.0
2007-2012	Wood Wharf Scheme	2.0
2007-2012	Project Allenby/Connaught	1.5
2007-2012	Silvertown Quays	1.5
2007-2012	London Gateway	1.5
2006-2010	East London Line Development	0.9
2008-2012	Bracknell Town Centre	0.8

Table 4.3 – Major developments in London

Competition Commission Determination – BAA

191. We note that the Competition Commission, in its determination on the BAA London airports companies, adopted an assumption that real prices in construction would move by RPI+0.75% per annum across the period to 2013.

192. Finally, we note that the Competition Commission's recent report on BAA assumed RPEs of RPI+0.75%. However, the Commission took account of inflation being included in BAA's project risk contingency of 25% which is applied to all schemes. Additionally, the CC did not apply any further productivity to BAA's investment programme. In contrast to this, NGG's major schemes are estimated on a P50 basis, with a typical non-inflation risk contingency of only 10-15%; all other investment is evaluated at current rates. Ofgem also apply productivity of 1.5-2% to 70% of the GDNs' investment programme.

193. However, it must also be considered that the Commission took account of inflation risk being included in BAA's project risk contingency of 25% which is applied to all schemes. Additionally, the Commission did not apply any further productivity to BAA's capital programme. In contrast, NGG's major schemes are estimated on a P50 basis with a non-inflation risk element of typically 10-15% above the base cost; all other investments are priced at current levels. Ofgem's productivity assessment of 1.5-2% has been applied to 70% of the GDN's investment programme which largely offsets its RPE assumption giving a rate of real cost growth of only 0-0.5% per annum[23], which is lower than the Competition Commission assumption.

Conclusion

194. We believe the foregoing supports the forecasts included in our BPQ update of RPI+3.1% nationally and RPI+4.75% for London and we would urge Ofgem to carry out a further review of their real price assumptions prior to final proposals.

4.2 Downsizing of mains laid

Ofgem's Methodology

195. For a given length of mains to be laid, Ofgem has increased the length of mains to be laid in the smallest diameter band (<=75mm) by reducing the lengths laid in all other diameter bands on a prorated basis. This simple approach arbitrarily transfers workload without considering the effect upon system capacity and is further exacerbated by the impact of Ofgem's proposed increase in the forecast abandon to lay ratios for NGG's networks from around 1.03

[23] Excluding the impact of project contingency

to 1.05, which means that fewer mains are laid to replace a given length of mains decommissioned i.e. less capacity is available.

Continued network failure

196. In our response to the Initial Proposals, we provided quantitative evidence that Ofgem's downsizing assumptions would result in a loss of system pressures such that supplies to customers would be lost in large parts of the networks analysed.

197. We have re-run this network analysis, taking account of the changes made by Ofgem in the Updated Proposals. Table 4.4 summarises the impact of Ofgem's revised adjustment and demonstrates that system failure will still occur in all networks. The variation in impact across the networks reflects the differing physical characteristics of the networks analysed.

Network	**Example Project**	**NGG BPQ**	**Ofgem Initial Proposals**		**Ofgem Updated Proposals**	
		Average % in <=75mm	**Average % in <=75mm**	**% of Nodes in Failure**	**Average % in <=75mm**	**% of Nodes in Failure**
North West	Morecambe	24%	30%	16%	26.5%	13%
	Buxton			34%		32%
East of England	Grimsby	17%	25%	13%	20.3%	4%
	Grantham			3%		1%
West Midlands	Rugby	18%	30%	34%	22.3%	29%
	Hereford			7%		3%
London	Southend	10%	12.5%	5%	11.3%	4%
	Bracknell			1%		1%

Table 4.4 – Network analysis results

198. Using Grimsby as an example, figures 4.4 and 4.5 show the output from the network analysis based on Ofgem's adjustment in both the Initial and Updated Proposals[24]. The degree of failure has fallen from 13% to 4% but the resulting loss of supplies is equivalent to around 3,000 domestic customers.

[24] following the methodology described in section 4.2.2 of our response to the Initial Proposals

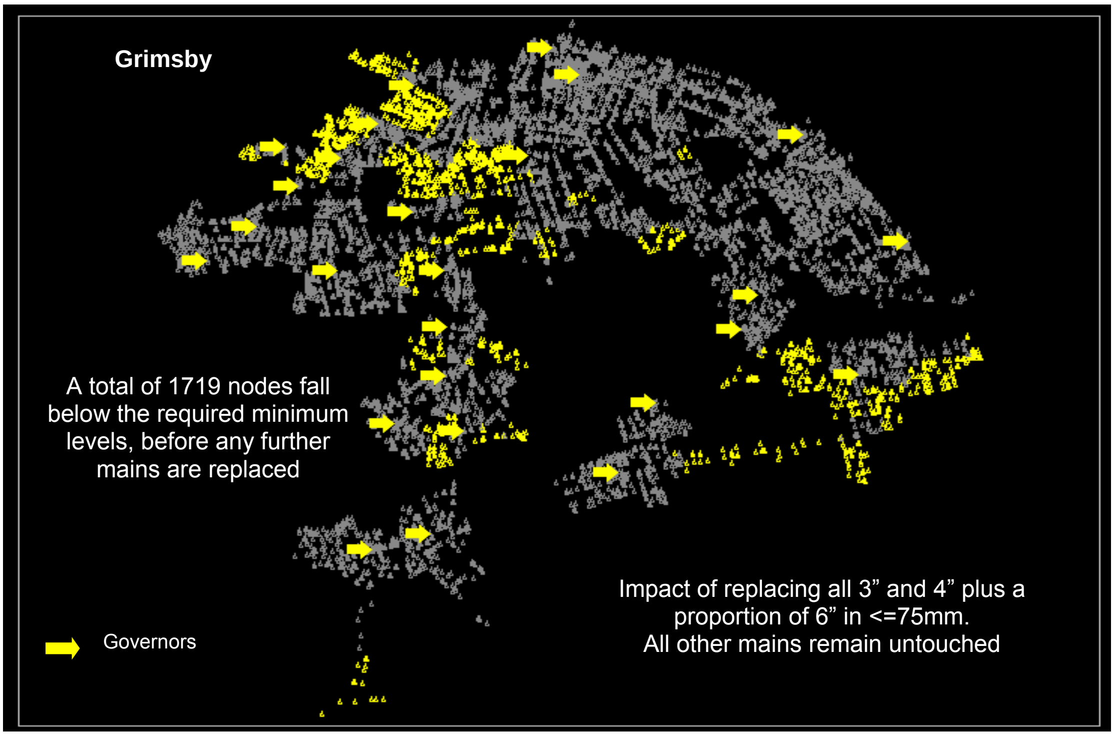


Figure 4.4 – Grimsby network based on Initial Proposals

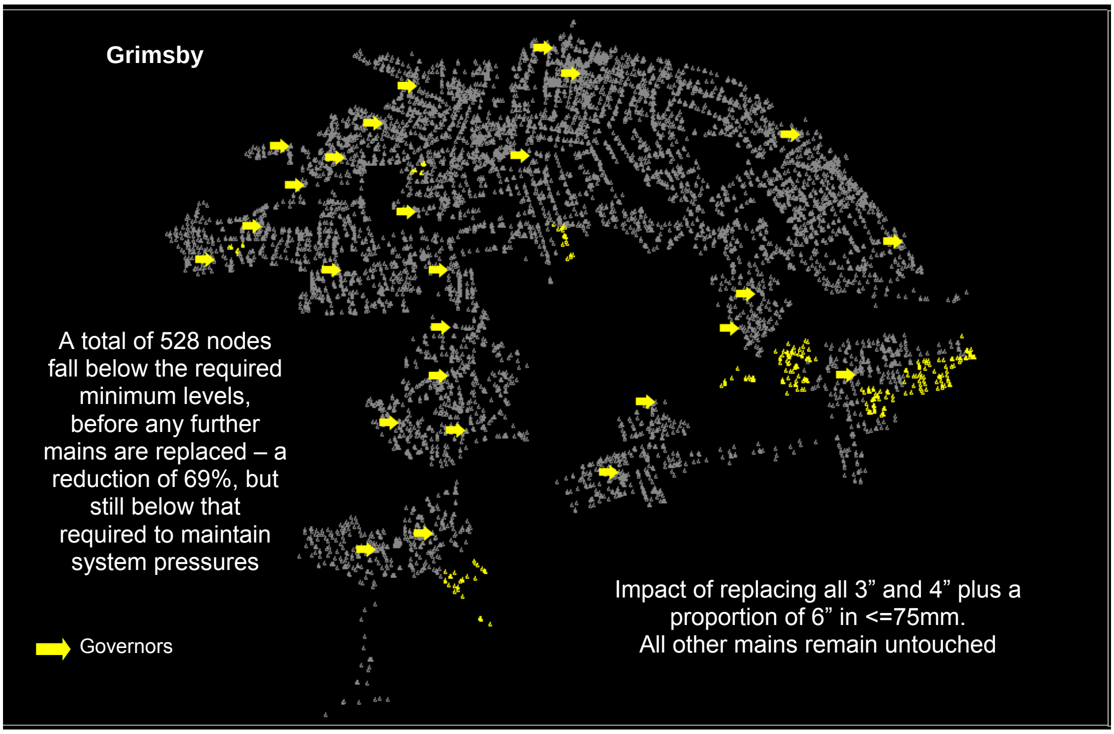


Figure 4.5 – Grimsby network based on Updated Proposals

199. The equivalent charts for the other networks are provided in the document below.

Network analysis files for UP.ppt

2006/07 actual results

200. We understand that Ofgem has based its revised downsizing adjustment on the actual results for 2006/7, noting that the actual proportion of mains laid in the smallest diameter band in our North West and East of England networks was higher than forecast in our October 2006 BPQ, as shown in tables 4.5 and 4.6 below.

North West	**Forecast 2006/07 (km)**	**Proportion in band**		**Actual 2006/07**	**Proportion in band**
<=75mm	157	31%		190	38%
>75mm to 125mm	230	46%		190	38%
>125mm to 180mm	41	8%		40	8%
>180mm to 250mm	28	6%		20	4%
>250mm to 355mm	35	7%		33	7%
>355mm to 500mm	15	3%		22	4%
>500mm to 630mm	0	0%		0	0%
>630mm	0	0%		0	0%
Total	506	100%		496	100%

Table 4.5 – Actual vs. forecast – North West Policy Mains Laid

East of England	**Forecast 2006/07 (km)**	**Proportion in band**		**Actual 2006/07**	**Proportion in band**
<=75mm	190	25%		240	33%
>75mm to 125mm	406	53%		364	50%
>125mm to 180mm	92	12%		74	10%
>180mm to 250mm	30	4%		18	3%
>250mm to 355mm	34	4%		25	3%
>355mm to 500mm	6	1%		7	1%
>500mm to 630mm	1	0%		0	0%
>630mm	0	0%		0	0%
Total	759	100%		728	100%

Table 4.6 – Actual vs. forecast – East of England Policy Mains Laid

201. The higher than forecast proportion of mains laid in the smallest diameter band in these networks was the result of factors that are, to some degree, of a one-off nature and unlikely to be replicated in future, including:

- Replacement of mains under 20/70/10 - from 2007/8 onwards our work mix is determined based on relative risk of geographic zones and so the mix of work will be more reflective of the overall population i.e. larger diameters;
- Substitution of simpler projects brought forward from subsequent years to compensate for road restrictions imposed by the Local Authority on planned works (NRSWA s58), in order to meet HSE targets in 2006/7; and
- Residual seed projects carried over from previous years.

These points are further developed in the following paragraphs.

Mains replacement using the 20/70/10 methodology

202. Schemes developed under the 20/70/10 mains selection methodology focused on smaller diameters, primarily reflecting risk profiles but also to facilitate the ramp-up required over the first five years of the 30 year programme, to remove all iron mains within 30metres of a building. With the introduction of a more zonal approach from 2007/8, the diameter mix of mains to be decommissioned will be more closely aligned to the population of remaining iron mains and not biased toward the smaller diameters, as in the past.

203. The impact of this on the diameter mix of mains to be decommissioned can be seen in table 4.7 below. For example, whereas 14% of mains decommissioned over the last three years were in the <=3" category, going forward only 6% of mains will fall within this band.

Diameter band	2004/05 to 2006/07 Actual	2008/09 to 2012/13 BPQ
</=3"	14%	6%
4-5"	56%	51%
6-7"	14%	20%
8-9"	5%	9%
10-12"	4%	7%
>12-18"	5%	4%
>18-24"	0%	2%
>24"	0%	1%
Total	100%	100%

Table 4.7 HSE policy mains decommissioned by diameter band - NGG

204. The general upwards shift in the diameter mix of mains decommissioned results in a step change in the proportion of mains to be laid in the smallest diameter band from 41% over the last three years to a forecast average across NGGs'networks of 17%, and a 12 percentage points reduction in the proportion of mains laid in bands up to 180mm, as summarised in table 4.8 below.

Diameter band	2004/05 to 2006/07 Actual	2008/09 to 2012/13 BPQ	2008/09 to 2012/13 Ofgem UP
<=75mm	41%	17%	21%
>75mm to 125mm	42%	45%	43%
>125mm to 180mm	9%	17%	17%
Sub-total up to 180mm	**91%**	**79%**	**81%**
>180mm to 250mm	3%	9%	8%
>250mm to 355mm	4%	7%	6%
>355mm to 500mm	2%	4%	4%
>500mm to 630mm	0%	1%	1%
>630mm	0%	1%	0%
Total	100%	100%	100%

Table 4.8 HSE policy mains laid by diameter band - NGG

205. Ofgem's Updated Proposals are based on an average of 21% of mains laid in <=75mm pipe and 81% of mains laid in diameters up to and including 180mm. In other words, mains laid in larger diameters will be two percentage points lower than NGG forecast. It must be recognised that 85% of the mains to be decommissioned in the bands >12" are medium pressure (MP), i.e. the bulk supply system and, consequently, the scope for further material downsizing is reduced, without significantly increasing pressures which would require additional investment that has not been included in the allowances.

206. By way of example, our downsizing assumptions for London are based on operating the London MP system at 2bar (dependent on the proposed LTS schemes associated with the London gas supply strategy) and the further downsizing of mains implicit in Ofgem's proposals would require increased operating pressures impacting upstream and downstream pressure reduction equipment and necessitating some sections of mains to be laid in steel or HDPE rather than MDPE i.e. higher cost.

207. Ofgem considers that NGG's programme to replace medium pressure mains by insertion and to increase the operating pressures to compensate for loss of capacity[25] offers similar opportunities on the low pressure networks. However:

- Our approach to MP mains replacement relates specifically to London and requires reinforcement of the LTS network – Ofgem has made no provision for this in relation to its downsizing adjustment;
- The approach is part of a 15 year integrated programme of MP and LP mains replacement in London. Its transferability to other networks will be governed by the physical characteristics of the networks;

[25] Updated Proposals para 4.40

- Wherever possible, we aim to raise pressures on all low pressure systems. The uprating of MP systems is an enabler to this and avoids expensive and restrictive constraints in adopting open cut techniques on the low pressure system.

Operational and resource constraints

208. A number of schemes were deferred in 2006/7, particularly in the North West and East of England GDNs, as a result of restricted access to particular carriageways in town centres, local authority initiatives or simply internal resource constraints. These schemes must be replaced by other schemes in order to achieve the annual HSE target length for decommissioning iron mains. As an illustration of the impact this can have, twohemes in the North West involving bridge crossings were deferred due to conflicting works being undertaken on these bridges. These schemes involved minimal <75mm work but were replaced by other schemes that involved 90% of mains laid in <=75mm pipe.

Carry over work from previous years

209. Where it is necessary to defer schemes involving seed pipes, for example because of road restrictions, the work must be completed as soon as possible and, consequently, slippage from a previous year impacts on the level of work to be undertaken in the following year. Depending on the scale of such deferrals, absorption of this work may not be possible without a re-prioritisation of overall workload for the year, principally towards smaller diameters, in order to achieve the HSE target. This was a particular issue for North West in 2006/7 when around 30km of work was carried over[26]. This carry-over work has largely been completed.

Remedy

210. We believe that the predicted shortfall in capacity, as a result of Ofgem's downsizing adjustment, could be largely overcome by not applying a downsizing adjustment to workloads in the diameter bands >180mm. For example, the variation in capacity for 1km of pipe laid in 250mm rather than 180mm is about double.

[26] It should be noted that NGG has achieved its overall company target for mains decommissioning as the HSE considers NGG's 4 networks in total.

4.3 LTS

211. Our key concerns in this area relate to NGG's four major schemes.

4.3.1 North West Storage (North West)

212. It is acknowledged by Ofgem's technical experts that there is a requirement for additional local storage in the North West network.

213. Following notification from NTS that it was not possible to continue with our first solution, the transfer of the UKT Nether Kellet to Blackrod pipeline, our revised solution to increase storage support within the network is to build a salt cavity storage facility, with the storage coming on stream by the end of the price control period.

214. PB Power has recommended that the salt cavity project be allowed in full, premised upon,

- the low unit cost of the storage,
- the resultant flexibility the facility will give to the North West network, particularly beneficial with the uncertainty around interruption reform, and
- the support that the additional storage will provide to other GDNs, particularly East of England.

215. In fact, PB Power has recommended the deferral of a storage project in East Midlands due to the North West salt cavity potentially releasing additional NTS storage to East Midlands.

216. It is very concerning, therefore, that Ofgem has ignored the recommendation of its technical consultants and is proposing to defer the commencement of the project until at least 2013/14, because they "are of the opinion that the investment is not required in the current price control"[27]. No evidence is provided by Ofgem to support its opinion.

Increasing storage support from the NTS

217. By deferring the project, Ofgem is stating that we can increase reliance on NTS support, well beyond the period for which indicative commitment has been given by the NTS. Under Ofgem's proposals, the storage from the salt cavity would not be available to the network until 2017/18 (4-5 years later than originally planned).

218. However, a number of the NTS offtakes in North West are already operating at or near capacity, and are not sized for any additional capacity requirements; in particular those of

[27] Updated Proposals para 4.19

flowflex, where the offtakes need to be sized for peak flow and not steady state flow. The following figure 4.6, details the predicted requirement in 2011/12 through each volumetric controlled offtake in the North West GDN, plotted against the capacity of the offtake.

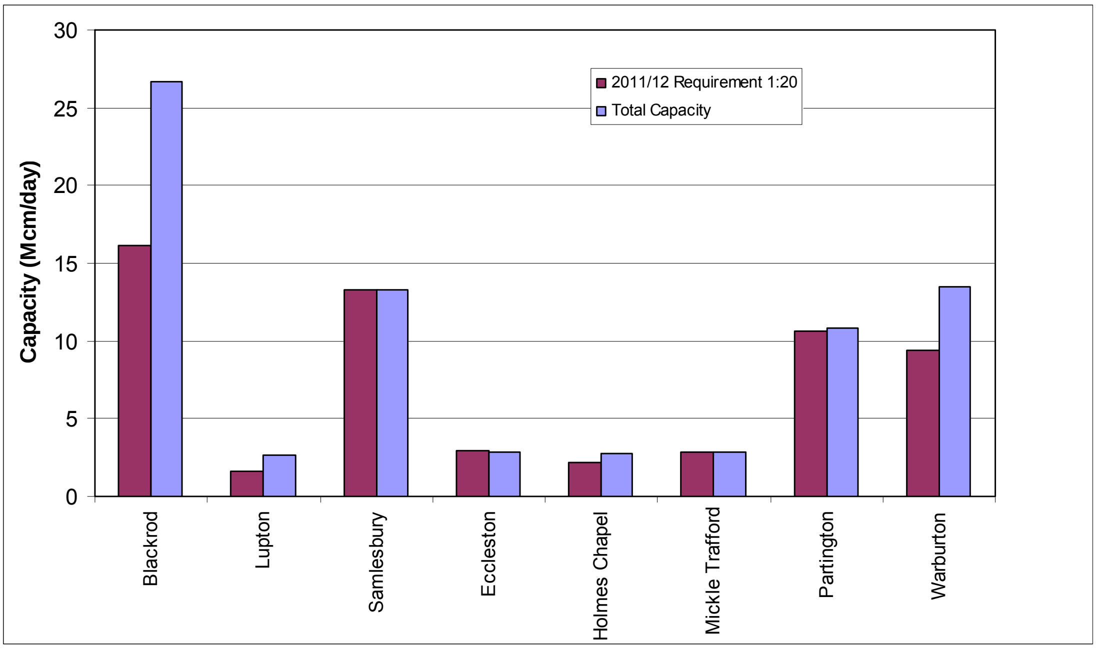


Figure 4.6 Total and Predicted Capacity for North West GDN Volumetric Offtakes

219. Particular constraints exist in both the Liverpool and South Manchester areas, i.e. Eccleston, Mickle Trafford and Partington that are already at, or close to, maximum capacity, and certainly will be by 2011/12. Given that there are limited opportunities to reconfigure the network to move flow from offtakes at capacity to those with spare capacity, the timing of the salt cavity project is crucial to alleviate future constraints and to provide operational support to the GDN.

220. An alternative approach would be to build new offtakes, or upgrade existing ones, to enable more flowflex to be taken into the North West network. However, NGG does not consider this a credible solution, as with all NTS diurnal storage reliance, there is no guarantee that any additional capacity will be available beyond the four year period, resulting in this investment becoming redundant if there is no long term flow flex supply availability from the NTS, and placing a requirement for urgent investment in the GDN to maintain gas supply.

Availability of Salt Cavity Site

221. Ofgem’s proposed delay to the salt cavity project exposes NGG to two further significant risks - the future availability of the identified site and the potential impact of deferral on cost. NGG has had preliminary discussions with a salt cavity developer and has confirmed that a 4mcm cavity is available and can be currently developed within our planning timescales. However,

there is increasing demand for, and interest in, gas cavity storage with Gaz de France having recently signed an agreement to develop up to 28 NTS connected strategic salt cavities in the region, with a total capacity of up to 400mcm. The NGG salt cavity is very small when compared to these major projects and there is a real risk that the commercial opportunity for NGG to develop this cost efficient storage in the North West will not exist in five years from now.

222. Ofgem should reinstate the capex for the proposed salt cavity development, taking account the recommendation of its technical consultants.

4.3.2 Sutton on the Hill to Ashley Hay (East of England)

223. Ofgem's deferral of the Sutton on the Hill to Ashley Hay project by one year has been premised upon the recommendations of its technical consultants. However, as we have already noted, this was based upon the additional NTS capacity that would be released by the development of the North West salt cavity, which Ofgem has chosen to defer - a clear example of a lack of cross-project assessment by Ofgem - the project should be reinstated to its planned timeline in the Final Proposals.

224. At this stage we do not have any evidence to suggest that this support will be available, or at what cost. The first time that indicative figures will be obtained is through next year's capacity requirements process.

4.3.3 Peters Green to South Mimms (London)

225. The Peters Green to South Mimms project forms a vital part of our London supply strategy and supports an efficient mains replacement programme, delivering overall savings of around £200m. Ofgem believes that the loss of gas holder storage that will result from increasing the operating pressure of the medium pressure system (once it has been replaced), can be provided by the NTS at no additional cost.[28] However, NGG has recently experienced significant reductions in source pressures when trying to take diurnal storage from the Peters Green offtake, which indicates that future requests for NTS flex will be declined.

226. As the commissioning date cannot be pushed back without adding risk and cost to the overall London supply strategy, Ofgem's deferral of the project not only provides inadequate funding during the construction period but also compresses the construction window.

227. Our experience with the Harefield to Southall project has demonstrated that major pipeline construction projects in the capital are fraught with inherent difficulties and having a

[28] Updated Proposals para 4.16

contingency period in the project plan affords the opportunity to deal with these issues, thus ensuring that overall project costs are minimised.

228. Therefore, in order to ensure the broader customer benefits of the London supply strategy are not compromised, Ofgem should reinstate the Peters Green to South Mimms project to the original timeline.

4.3.4 Harefield to Southall (London)

229. Subject to the final tender outcome for the Harefield to Southall reinforcement project, we consider that it is appropriate that Ofgem has allowed the additional costs.

4.3.5 Outcome of the 2007 OCS Process

230. We note that Updated Proposals allowances for both *Peters Green to South Mimms* and *North West Storage* are subject to revision, based on the outcome of this year's Offtake Capacity Statements (OCS) process.

231. As part of this year's process NGG has increased its NTS storage support to cover nine holder sites in the North West that currently do not have serviceable anti-freeze systems. We will be taking steps to renew the antifreeze equipment that has caused concern, prior to winter 2008/09.

232. The outcome of the 2007 OCS process does not change our views on the requirement and timing of the above projects.

4.4 Mains Reinforcement

233. In our response to the Initial Proposals, we highlighted the following areas of concern regarding Ofgem's proposed allowances for mains reinforcement:

- 2% per annum productivity was not realistic;
- Limited work volumes could have a distorting impact on the regression analysis; and
- Sufficient sense checking of the results of the regression analysis, to ensure that the answers were both realistic and comparable across GDNs, had not been undertaken.

234. Ofgem has correctly revised its productivity assumption to a more realistic level of 1.5% per annum. However, despite this, average GDN allowances have been reduced by a bewildering 38% (up from 14% in the Initial Proposals), with no GDN receiving a cut of less than 23%, as shown in table 4.9.

2008/9 to 2012/13	Initial Proposals				Updated Proposals			
	2005/6 Ranking	Normalised BPQ	Ofgem Proposal	% Cut from BPQ	2006/7 Ranking	Normalised BPQ	Ofgem Proposal	% Cut from BPQ
		£m	£m			£m	£m	
North West	4	12.8	10.8	-15.6%	4	13.2	8.0	-39.4%
East of England	1	14.2	15.4	8.5%	3	15.7	12.1	-22.9%
West Midlands	3	11.4	11.6	1.8%	1	11.8	8.6	-27.1%
London	8	11.1	8.2	-26.1%	6	13.0	6.9	-46.9%
Scotland	2	38.3	30.5	-20.4%	2	34.4	23.9	-30.5%
Southern	5	71.9	59.5	-17.2%	5	72.6	44.1	-39.3%
Northern	7	24.7	21.2	-14.2%	8	24.9	14.9	-40.2%
Wales & West	6	34.5	31.9	-7.5%	7	41.8	23.1	-44.7%
Total		**218.9**	**189.1**	**-13.6%**		**227.4**	**141.6**	**-37.7%**

Table 4.9 – Mains Reinforcement forecasts 2008/9 to 2012/13

235. The relative cut for each GDN is also perverse in relation to its ranking. It can be seen that West Midlands was ranked 3rd in 2005/6 whilst its allowance for the period 2008/9 to 2012/13 was marginally higher than its normalised BPQ submission. However, West Midlands was the top ranked GDN in 2006/7 and yet suffers a 27% reduction to the BPQ submission in the Updated Proposals.

236. The volatility in the results cannot be reflective of any genuine step change in performance between 2005/06 and 2006/07, but rather demonstrates the weakness of relying on regression analysis alone to set five year allowances for this activity.

237. Further evidence that something is not right in Ofgem's analysis is that the resulting unit costs are lower than the equivalent repex matrix values proposed in the Updated Proposals. For example, the average unit cost for West Midlands for >180mm reinforcement of c£170 per metre is materially lower than the repex matrix value of c£260. Mains repex offers greater potential for the use of insertion, with significantly less geographic dispersion of jobs than for mains reinforcement and, consequently, reinforcement unit costs would normally be higher than for repex, further suggesting that Ofgem's approach is less than robust.

238. Workload in this area is relatively small for NGG and therefore overall expenditure is more susceptible to project specific influences. Table 4.10 provides general reinforcement unit costs for London across the previous price control period, showing the potential volatility that exists, driven by project specific factors.

£/m (outturn)	2002/03	2003/04	2004/05	2005/06	2006/07
<180mm	124	157	106	132	127
>180mm	258	191	799	324	333

Table 4.10 – Actual unit costs for general reinforcement for London

239. This data illustrates that, for NGG, project specific issues drive higher than average unit costs in an individual GDN and/or year.

240. GDNs were required to submit project data for schemes costing £0.5m or more. For example, the London BPQ submission specifically identified a project to carry out reinforcement works related to supplying the London Olympics site, with works planned to cost £1.1m for 2km of 500mm reinforcement (£550/m). This single project skews the average >180mm unit cost in London in 2008/09, increasing from c£350/m to c£520/m. However, there is no evidence that Ofgem has taken any account of this information in deriving its proposals to date.

241. Ofgem must review its approach to setting allowances for mains reinforcement, particularly to take account of project specific information, thereby helping to overcome issues associated with small work volumes.

4.5 Connections

242. The changes made by Ofgem in the Updated Proposal, to reduce its productivity assumption from 3% to a more realistic figure of 1.5% a year, and to split its overall connection allowance to market sectors in proportion to the GDN's own forecasts, are supported.

243. We note that reductions in workloads have been proposed across a number of GDNs and market sectors, based on 2006/07 actual data. Connections workload is customer driven and year-on-year variations are not unusual. The reduction to existing housing workloads in East of England is likely to result in insufficient allowance in an area where GDNs have little, if any, choice but to undertake work and Ofgem should reconsider this adjustment for the Final Proposals.

4.6 Multi Occupancy Buildings

244. Ofgem's Updated Proposals were set at half-way between the GDNs forecasts and the view of its consultants. Ofgem stated that significant uncertainty remains both in terms of the riser workload and the appropriate level of unit costs and that further work will be undertaken to assess riser costs which may result in revised allowances.[29] Recent validation of our population of properties with riser systems has shown our previous estimate to have been understated by around 15% and so allowances should be changed to take account of this in Ofgem's Final Proposals.

[29] Updated Proposals paragraphs 4.47 and 4.48

Riser population

245. Over the last few months NGG has completed a major programme of data validation. We commissioned the use of median height Light Detection and Radar (LIDAR1) building height data, obtained from aerial observation. This precise height data was then combined with address point data, matched to the addresses in our pipe asset/repository, cross-linked to xoserve meter point data and verified through satellite imaging in remote areas. The resulting comprehensive database is a significant step forward from previous building data repositories and has been enabled by recent advances in the MasterMap database.

246. The use of multiple sources is illustrated in figure 4.7 below which combines information from desktop maps with satellite imagery.

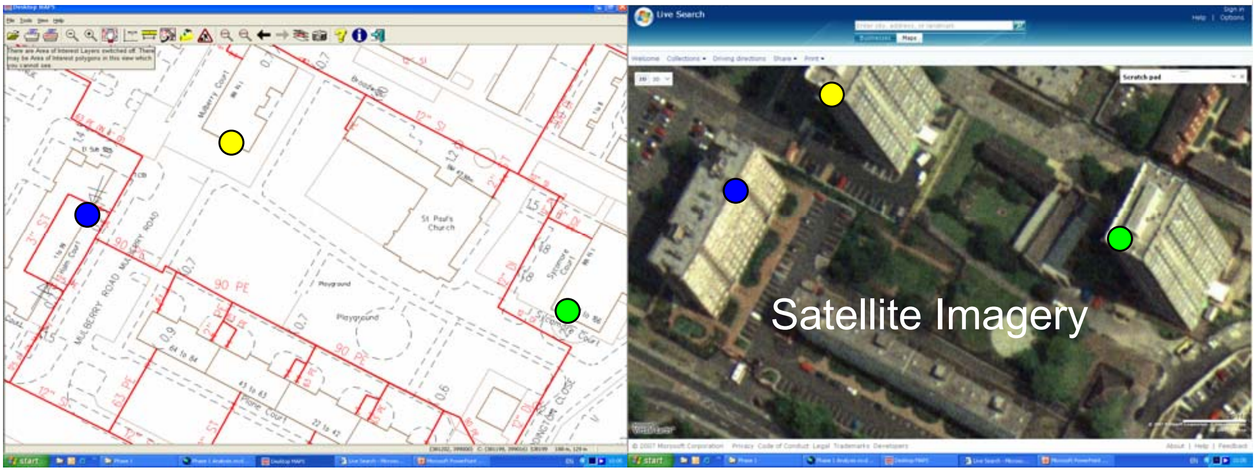


Figure 4.7 – Desktop maps and satellite imagery

247. The data validation exercise identified around 4,200 buildings with riser systems exceeding 20 metres, some 600 properties more than our BPQ submission indicating that our BPQ was, in fact, understated by around 15%.

248. The breakdown of the total population of multi occupancy buildings with riser systems for NGG's networks is shown in table 4.11.

Network	Population of Buildings by Building Height	
	20-40metres	**>40metres**
North West	362	97
East of England	42	1
West Midlands	336	94
London	3,025	237
Total	**3,765**	**429**

Table 4.11 – Population of multi occupancy buildings with riser systems

249. The majority of risers within multi-occupancy buildings were installed in the 1960's and 1970's, are generally screwed or welded steel construction and are often encased within the fabric of the building. Assuming a fifty year life, many of the riser pipe systems are now significantly into or have exceeded their design life and are prone to corrosion and gas escapes. This is both a hazard and disruptive to customers, directly as a result of occasional evacuations and indirectly as a result of the isolation of supplies whilst repair and/or replacement work is undertaken.

250. We face a workload peak within the next 5 to 10 years and it is important not just to replace failed risers but to build the capability to manage this forthcoming peak in workload. This requires a proactive approach to riser replacement, as proposed in our July 2007 update. This involves:

- Replacing all risers within a block when one has failed (all blocks 2 storeys or above). The fact that there has been an escape on an identical pipe at the same location that has been exposed to a similar environment strongly suggests that the other riser pipes within the block are likely to fail in the near future. This provides a good justification for the proactive replacement of the other pipes within the block which will reduce the impact of future riser failure on customers.

- Replacing risers in blocks over 20m high where major refurbishment works are planned and the riser system appears to be in poor condition. This will require a consultative approach with Local and Housing Authorities where the results of our high-rise riser survey programme are coordinated with their refurbishment plans.

251. Ofgem required information by meter point rather than property and we have derived the number of meter points per block by using the refined building data combined with historical data from riser replacements and recent LC21 survey results. The results are summarised in table 4.12 below.

Network	Target Meter Points by Building Height	
	20-40metres	**>40metres**
North West	5065	4087
East of England	585	42
West Midlands	4701	3965
London	42356	9962
Total	**52707**	**18056**

Table 4.12 – Population of meter points in high rise buildings

252. Using this updated information, together with the age profile of properties, we estimate that the average annual workload over the next five years will need to be as shown in table 4.13. This workload is higher than included in our BPQ of around 2,400 flats in blocks above 20metres in height.

Network	Annual Meter Points by Building Height	
	20-40metres	**>40metres**
North West	203	163
East of England	23	2
West Midlands	188	159
London	1694	398
Total	**2108**	**722**

Table 4.13 – Annual meter points for 2008/9 to 2012/13

253. It becomes increasingly impractical to use the address matching data improvements for properties below 20metres as the number of buildings is significantly greater. However, the exercise has identified over 6,500 properties in the 15-20metre category which broadly supports our previous estimates and, therefore, we see no reason to amend our BPQ forecast for low rise blocks (i.e. <20metres) from the 3500-4500 flats per year already submitted.

Costs

254. Ofgem's Updated Proposals currently reflect a 30% reduction in unit costs for NGG's networks. Costing of this activity can be difficult, with variations in unit costs to be expected given the nature of the work and the different ages, heights and configurations of the multi occupancy buildings. For example, the riser pipe work in some blocks can be replaced externally (cheaper) whilst for other blocks the work must be done internally (more expensive).

255. Our recent response to supplementary question NGG1037 demonstrated that workload and costs over the six months to September 2007 were broadly in line with 2006/7 in London, assuming an equal phasing through the year. However, we expect leakage driven work to

ramp-up over the second half of the year in line with weather conditions. It should be noted that London accounts for around 85% of NGG's workload in this area.

256. In our other three GDNs, workload and cost has been higher than experienced throughout the whole of 2006/7.

257. As indicated above, we are planning to adopt a proactive approach to riser replacement in order to avoid unnecessary customer interruption. Whilst we have not pushed this approach to date, in light of the emergency-only allowance for 2007/8, we have undertaken some limited proactive work during 2007/8. This has been in response to local authority and/or housing association requests associated with refurbishments and where we considered the condition of adjacent risers, in blocks where there had been a failure, was likely to require replacement in the near future.

258. The unit costs for 2008/9 reflect the possible improvements that we would hope to achieve under a proactive programme where we are able to align with council or housing authority refurbishments. This provides a significant saving for the >40metres blocks where a property such as Denning Point in London which was recently replaced at a cost of c£4,000 per flat. This reduction in unit rate is particularly marked as the vast majority of planned replacements are not aligned to refurbishment programmes.

Conclusion

259. NGG's population of multi occupancy buildings above 20metres with riser systems has been validated and shown to be around 15% higher than first estimated. The actual results for 2006/7 and the six months to September 2007, demonstrate that the unit costs included in our BPQ submission are robust.

260. Ofgem's current proposals would be insufficient to finance the anticipated level of leakage driven work and the increase associated with our proposed proactive approach to riser replacement designed to reduce overall disruption to customers.

261. Ofgem should now be able to increase its proposed allowances for riser replacement for NGG's networks in the light of the validated increased population of high rise buildings and the latest unit cost information provided in response to NGG1037.

Chapter Five - Quality of Service Arrangements

Question 1: Do you agreed with our updated proposals for the quality of service arrangements?

5.1 Emergency Service Standard

262. In moving the emergency service standard from an overall standard of service to a licence condition, Ofgem has fundamentally and inappropriately altered the intention of the original legislation upon which the obligation is based. NGG places the utmost importance on its safety responsibilities, and we design and resource our organisation to meet the rigorous safety standards applicable to it. However, we are concerned that Ofgem's proposal will expose the GDNs to the risk of being in "automatic" licence breach if they are unable to meet the required emergency standard of service, even if any failure were to be due to extreme circumstances beyond their control, such as exceptional/severe weather conditions or an unforeseen peak in the demand for emergency services.

263. Section 33BA(3) of the Gas Act states that:

> *"It shall be the duty of every gas transporter to conduct its business in such a way as can reasonably be expected to lead to his achieving the standards set under this section."*

A failure to achieve the standard of service is therefore not an automatic breach of the Gas Act: in setting the existing rules, Parliament rightly anticipated that a transporter could conduct its business in such a manner as to reasonably expect it would meet its obligations, but there may be circumstances of an exceptional or unforeseen nature that would prevent this being achieved. Alternatively it is plausible that Ofgem may wish to investigate a GDN if they are unhappy with the approach that the GDN is using to achieve its safety standard. Ofgem's drafting would preclude this.

264. It ought to be noted that adequate sanctions already exist to protect public safety in respect of these standards through the GDNs' respective Safety Cases that are enforceable by criminal prosecution under the Gas Safety (Management) Regulations by the Health and Safety Executive. Such a prosecution would lead not only to the imposition of a fine (that could be unlimited if the breach leads to loss of life), but would in all cases be accompanied by significant adverse publicity and reputational damage.

265. In this light, it is not clear how Ofgem's proposed changes grant any greater protection to the interests of consumers.

266. Within the Updated Proposals document Ofgem stated that it "*would take account of whether… …any exceptional circumstances had occurred during the year that had an adverse impact upon the GDN's performance*"[30]. However, if this is to be the case (and we consider that it is wholly appropriate that Ofgem should take such circumstances in to account), Ofgem should take a consistent approach and not contradict or jeopardise its ability to take this approach by either (i) inserting similar text to that of the Gas Act into any licence conditions relating to these standards, or (ii) making provision for events of an exceptional nature to be taken into account.

267. The approach advocated by National Grid Gas would maintain the clear intent of the Gas Act within the licence and provide Ofgem with the opportunity to investigate and establish whether there is a case to answer without being forced into a full enforcement action, as would be the case with the current drafting. From a GDN perspective, the prospect of an automatic breach of licence arising from failure to meet an emergency Standard of Service is highly undesirable, given that it is likely to cause significant reputational damage and may affect its dealings with investors and potential business partners. Given that a subsequent Ofgem investigation may find that a breach was caused by an event beyond the reasonable control of the GDN will not alleviate the adverse impact initially felt by the business.

268. If Ofgem is determined to force such changes in to the licence;

a. the obligations need to be placed in a separate, new Standard Special Condition in section D of the GDNs' licences to avoid confusion with other obligations; and
b. the Enforcement Guidelines should be amended to include an explicit statement setting out that Ofgem will consider all relevant factors and will consider whether the GDN made all reasonable endeavours to meet the requirements when conducting a review of a GDNs performance against these standards.

5.2 Guaranteed Standards of Service

269. We support the intention of Ofgem's amendment to the Guaranteed Standard (GS) 1 (Supply restoration) to ensure that the party who is responsible for the failure of supply should ultimately be responsible for paying for the compensation payments. However we do not believe that the process of ensuring that the appropriate party should pay the compensation to the customer should affect the timeliness with which compensation is paid. Under Ofgem's proposed scheme the "customer's" GT, whose infrastructure the affected customer is connected, can claim an exemption, thereby passing on the responsibility to the appropriate

[30] page 47, para 5.33

"offending" GT. This process of claiming an exemption will almost certainly lead to delays in making payments to the customers. We believe that the customer compensation payment should be the priority and that it should be paid by the "customer's" GT as a matter of course. If the "customer's" GT can demonstrate that the interruption was caused by an incident on an "offending" GT's infrastructure, the "customer's" GT should be able make a claim against that "offending" GT. This would appear to be consistent with standard condition 20 of the DNO's licence and offer a better solution to the customers.

270. We agree with Ofgem's interpretation of GS2 (reinstatement) that a temporary reinstatement of consumer's property following work is adequate to meet the standard.

271. We support Ofgem's decision to retain the existing scope of GS3 (alternative heating and cooking standard) with the additional condition that customers must claim the compensation within 3 months of the interruption.

272. Whilst we support Ofgem's proposal to convert the notice of planned interruptions to a guaranteed standard (GS10A), requiring GT's to provide at least 5 working days notice of a planned interruption, we do not support the latest proposed revisions to this standard requiring GT's to provide and monitor adherence to a 7 day window within which the interruption will occur. The existing standard's scope appropriately enables our workforce to operate in a flexible and more efficient way. By providing the customer with 5 working days notice of the expected interruption date and then liaising directly with customers whilst on site to arrange the date of the actual interruption offers GTs the flexibility to react to the needs of the customers and the nature of the work. The introduction of monitoring the interruption against a 7 day window creates an unnecessary administrative burden that offers little benefit to the customer compared with the current process.

273. We also believe that the compensation proposals potentially expose GT's to two compensation payments per interruption. One for not giving the 5 working days notice and one for interrupting outside of the 7 day window. We believe that there should be only one compensation payment for not providing the customer with the minimum 5 working days notice of the expected interruption and that the compensation should be paid on receipt of a valid customer claim. Ofgem should provide clarification that only one compensation payment per job is payable.

274. We support the complaints handling standard being converted into a GS as this provides recompense to individual customers where their complaint has not been dealt with in a timely manner, but as stated in our response to the IPs we believe that the new GS standard for complaints should remain in line with the water industry complaints standard whereby compensation will be paid if a customer complaint does not receive a substantive response

within a given period. The additional payments are not necessary given the ongoing developments of the Consumer, Estate Agents and Redress Act. We will contribute to the clarification of what constitutes a “substantive response” during the working group discussions.

275. As we set out in our response to the Initial Proposals we do not believe that it is appropriate to apply a productivity factor to the standards of service allowances. Whilst the GDNs can control their performance against a number of the standards, the standards with the greatest cost associated with them (TPWI) are outside the control of the GDNs. GDNs are unable to influence the incidence of water mains damaging gas infrastructure and interrupting supply or the speed with which the water company fixes their infrastructure. Consequently applying a productivity improvement factor is inappropriate.

276. We continue to support the introduction of a balanced score card to provide a measure of the GDNs overall performance and we support a number of the amendments that Ofgem has made since the Initial Proposals. We note that Ofgem intend to include the number of unplanned interruptions per 100 customers. We believe that this should exclude the number of interruptions due to third party water ingress because we believe that this may inappropriately affect the GDNs’ score as a result of incidents which are completely beyond the control of the GDN. We believe that any proposed balanced scorecard measures relating to private reinstatement should be based on the number of failures in line with the reporting requirements.

5.3 Interruptions Reporting

277. We always endeavour to provide Ofgem with robust and reliable data. We have worked hard to improve the quality of our interruptions data and we will continue to do so. We acknowledge the changes that Ofgem has made to the licence condition relating to accuracy and completeness of interruption data. We believe that the changes are appropriate and proportionate.

5.4 Discretionary Reward

278. We continue to believe that it is appropriate for Ofgem to introduce a discretionary reward scheme. However Ofgem has stated that it only intends the scheme to offer a reward for undertaking initiatives which does not cover the full cost of the initiative. Since the scheme has been ring fenced to activities that are directly related gas transportation, and the GDNs are regulated companies and so unable to earn additional return for undertaking such discretionary activities we believe that if it is appropriate for the GDNs to undertake such activities, they should be fully funded. Implicit in the scheme presented by Ofgem is that the

GDNs should make a loss for “doing the right thing for the customers”. This is even more important when considered in the light of the allowances that have been set will put enormous pressure on cost reduction.

Chapter Six – Incentives

Question 1: Do you agree with our view that an opex rolling incentive is not appropriate?

279. We agree with Ofgem's assessment that the power of comparative regulation is sufficient to preclude the need for an opex roller.

Question 2: Is our approach to capping the expenditure under the mains and services incentive appropriate?

280. As we have set out in section 2 we agree with Ofgem's approach to capping mains replacement expenditure. We reiterate that we believe that it is appropriate that Ofgem should provide flexibility in the wording of licence to allow for more work to be undertaken if it is deemed necessary by the HSE.

Question 3: Is our approach to allocating domestic purge and relight costs to services costs appropriate?

281. As we have set out in section 2 we agree with Ofgem's approach to allocating domestic purge and relight costs to services costs is appropriate.

6.1 Capacity Outputs Incentive

282. Our response on the capacity outputs incentive comprises responses to the questions together with a section containing some additional comments. At the outset we would like to make it clear that we are concerned that the proposed capacity outputs incentive is not appropriate. We have therefore included a supporting appendix that outlines an incentive mechanism that we think works for Exit and Interruption reform.

Question 4(a): Do you agree with our approach to the capacity outputs incentive?

283. We do not support the approach to the capacity outputs incentive outlined in the Updated Proposals. As Ofgem has set out in the Updated Proposals the introduction of the enduring Interruption and Exit reform is designed to provide the GDNs with an incentive to unlock savings for the generality of the customers by either contracting for interruption at an economic level or ensuring that investment is efficiently allocated between NTS and the GDNs. The extent to which savings can be generated is dependent upon the effective

participation of a small section of the consumers who are able to offer interruption and the ability of the GDNs to utilise different offtakes. Whilst the GDNs can encourage consumers to participate in the interruption tender, they cannot readily affect the level of the bids and hence the outcome. Therefore the incentive mechanism must provide the GDNs with an appropriate incentive to deliver value to the consumer without exposing them to windfall gains or losses. The mechanism that Ofgem has proposed does not achieve this.

284. In terms of the general structure of the incentive, we have previously provided an incentive mechanism comprised of a single sliding scale mechanism. The Updated Proposals proposed incentive structure comprises separate elements for flat, flex and interruption with sharing factors and caps and collars which has potential for perverse incentives where one scheme is on the cap or collar and the other is still in the incentivised range. A single sliding scale incentive eliminates this issue.

285. In terms of the targets, Ofgem's proposed level of the target for interruption is restricted to the equivalent to the GDNs' exposure to discounted reinforcement costs of NSLs only. It takes no account of the level of interruption that the GDNs may require to mitigate constraints on the LTS. In the Updated Proposals Ofgem set out that LTS constraints can be mitigated by use of additional NTS flat capacity. Generally gas passes through three stages of gas transportation: the NTS, the LTS and the local distribution network. Each part of the network must be built to be able to meet the level of demand. Simply increasing the capacity on one element of the chain (in this case the offtake) does not alleviate a constraint on another. Further to this the financial saving of lower NTS flat expenditure usage as a result of interruption is extremely unlikely to offset the costs of interruption.

286. If Ofgem proceed with the interruption target as set out in the Updated Proposals, and the consumers bid at an economic level[31] that mitigates constraints on the LTS, the GDNs will be exposed to a windfall loss just for making rational decisions that are in the interest of the consumers. This cannot be what is intended.

287. This issue is exacerbated by the fact that the capex re-opener associated with Ofgem's proposals only caters for the NSLs (para 6.35 - 6.36 Updated Proposals). This exposes the GDNs to a risk of a large windfall loss and needs to be amended. Previously we have submitted the costs associated with additional LTS reinforcement required to deal with the increased capacity requirements. This showed that the cost associated with engineering out the generic interruptions is over 30 times larger than the forecasted costs associated with NSLs.

[31] For the avoidance of doubt "economic bid" refers to a bid that is cheaper than the cost of alternatives rather than a bid calculated by the bidder on economic terms,

288. Whilst interruption lessens the peak demand on a network and hence the cost of flat capacity is part of the decision making process when assessing interruption bids, exit reform's primary objective is to encourage the GDNs to optimise their use of offtakes by either making greater use of a cheaper offtake or by rationalising investment decisions between NTS and GDNs. If GDNs are able to invest more cheaply than the NTS or they can make savings by using cheaper offtakes, the savings should be shared between consumers and the GDNs. Ofgem intends to set the target for NTS flat capacity at the level of capacity required if all sites except NSLs are firm. This target does not provide the GDNs with sufficient capacity if consumers do not bid at an economic level. Again this exposes the GDN to a windfall loss.

289. In terms of the flat capacity target this should be based on the level of capacity required to meet 1 in 20 demand conditions with all sites firm. The target should be comprised of the quantum of energy at exit/linepack zone multiplied by the price; that price being a firm price at the time of booking rather than a price at the time of use. If the GDNs can out-perform this target, the benefits should be shared between the consumers and GDNs through a sharing factor. The converse is also true if the GDNs are unable to beat the target. Setting a volume target is plainly wrong because the GDN's safety case is predicated on maintaining supply in a 1 in 20 demand conditions. If the GDNs fail to achieve this they may be subject to criminal prosecution. Ofgem cannot intend for the GDNs to try and book less capacity.

290. The flex element of the incentive is discussed in response to question 4b and the alternative proposed mechanism is discussed further in the Appendix.

Question 4(b): What are the issues raised by incentivising or not NTS flex capacity?

291. Flex is a by-product of efficient NTS investment and so has zero marginal cost. However, it is also a valuable finite product that can be used to defer investment within the distribution networks. It is important, therefore, that it is used where it delivers the most value. If flex capacity is not incentivised it can be expected, that over time, flex may become scarce. The evidence to date suggests that a relatively modest financial incentive is adequate to prevent hoarding and to ensure that the GDNs make efficient use of NTS flex.

Question 5: Should the volume targets for the flat capacity incentive vary with changes in the calorific value (CV) of gas?

292. We do not consider that this is an issue because GDNs' targets should continue to be set based on the energy transported rather than the volume of gas. If this is the case, the variation in the CV does not influence the GDNs' performance.

Question 6: Is it appropriate to allow a price control re-opener (subject to certain criteria) for any capex spend that may be required following the interruption auctions

293. There is a great deal of uncertainty about both the level of participation in the interruption tenders and the price at which consumers may offer interruption. It is, therefore, wholly appropriate that the GDNs are provided with a capex re-opener to cope with the investment associated with the implementation of interruption reform. However, we are concerned at Ofgem's indication in the Updated Proposals that a re-opener would only to be provided for the reinforcement required to alleviate the constraints associated with NSLs (paragraph 6.35 and 6.36). Our analysis shows that the costs associated with alleviating the generic interruption constraints may be far greater than the costs associated with the NSLs. To offer true protection from uncontrollable events, the capex re-opener must, therefore, be extended to include all of the efficient capex costs associated with interruption reform. Failure to do so will expose the GDNs to a material potential windfall loss.

Additional Comments

294. In Table 6.3 we notice that for the transitional arrangements (1 April 2008 – 30 Sept 2011) the target is presented as zero for GDN Interruption. As explained in our response to the Ofgem consultation on NTS Exit capacity and interruption incentive for Gas distribution Networks 2010/11 we disagree with this and note Ofgem's response in the subsequent Final proposals document [32] that "To ensure due process, and because it is not time critical for a final decision on the interruption incentive to be taken ahead of GDNs exit capacity bookings in July 2007, we have decided to consider this issue further".

295. In terms of the timetable going forward (Figure 11.1) we note that Ofgem intend to consult further on the capacity outputs incentive in October. If this timetable is to be adhered to and bearing in mind that the consultation on the Updated Proposals does not close until 22 October we believe that this leaves very little time to consider our response to the UP consultation before issuing the capacity outputs incentive consultation and the subsequent final proposals in December 2007. We would ask that Ofgem take this into account when consider the development of the capacity outputs incentive proposal.

NGG's proposed network capacity outputs incentive mechanism

Networks Capacity
Outputs Appendix.do

[32] Final proposals on extended transitional NTS Exit capacity and interruption incentive and formal licence consultation under section 23 of the Gas Act 1986

Question 7: Is it appropriate to have an adjustment mechanism for the treatment of emergency services costs arising from the loss of metering? If so do you agree with our approach and methodology for the parameters?

6.2 loss of Meterwork

296. Ofgem's proposal is entirely appropriate as growth in metering competition will result in unavoidable stranded costs for the GDNs. However Ofgem's interim methodology, as depicted by the tipping points and unit rates in Updated Proposals, needs further refinements to ensure GDNs do not suffer windfall losses or enjoy windfall benefits Our concerns relate to the averaging concept for the tipping points and the exclusion of the impact on work management indirect costs that Ofgem has applied.

297. This section describes how we think Ofgem should develop their mechanisms ahead of the Final Proposals and answers the specific questions raised in the Updated Proposals regarding real prices, support costs and potential infill work.

298. Ofgem's methodology for calculating the tipping point is based on 50% of the GDN's own tipping point and 50% of the average across all GDNs (expressed as a percentage of 2005/6 metering volumes). This is designed to address concerns over the wide spread of tipping points between the GDNs. We are concerned that this approach is somewhat arbitary and should be improved through Ofgem understanding and reflecting the real underlying differences.

299. NGG submitted a detailed explanation of why tipping points will vary across its four GDNs from between 52% to 72%. We appreciate that this was submitted too late for incorporation in the Updated Proposals, but Ofgem should fully consider it before the Final Proposals. In summary, the spread is valid, given that it is largely dictated by a function of two variables;

c. The number of resources that a network currently has above the minimum level required to achieve the emergency standards of service,
d. The proportion of meterwork currently carried out by emergency resources in each network.

300. In addition, factors such as the ratio of meterwork to emergency jobs in individual units (that is small geographic areas) and different demographics of the networks have a further effect on the tipping points of individual networks.

301. NGG's networks undertake less meterwork than the other GDNs and meterwork also represents a lower proportion of our overall emergency service workload. Consequently NGG

networks have a lower capacity to absorb a reduction in meterwork before impacting on the costs of providing the emergency service.

302. Given the evidence available NGG does not believe that the use of a 50:50 averaged tipping point is good regulatory practise. Differences in networks in this area will result in different tipping points. The averaging concept discriminates against NGG, providing it with an 8% "deadband" within which no funding is provided despite it facing costs.

Unit Cost

303. NGG was surprised at the level of divergence in unit costs across GDNs. We understand that this may be due to two companies providing data on cost per hour basis and two on cost per job basis. This will need to be corrected for in Final Proposals.

Real Price Effects and Productivity

304. The financial impact of the loss of meterwork manifests in stranded labour costs and hence the impact will increase with real earnings growth. Unit costs therefore should be adjusted for real price effects, consistent with the other opex allowances but without the application of further productivity targets.

305. It is clearly counter intuitive to apply a productivity factor to a revenue driver that is designed to account for loss of productivity as a result of factors beyond the GDNs' control.

Work management and Indirect costs

306. Meterwork allows a portion of regulated emergency service costs, including the associated overhead costs from work management and support functions, to be charged to non formula activities and recovered from third parties. The loss of meterwork will therefore lead to an increase in regulated costs as the support costs, (necessary for the support of the emergency process) must be maintained at or near their current level, regardless of the level of non-formula income. The following list shows why the indirect costs are fixed:

- *Operations* – Front line managers within Operations will not be reduced as their current numbers are consistent with the minimum numbers required to operate on a 24/7/365 basis.
- *IS systems* – meterwork is managed via E&MW, an integrated work management and scheduling application for emergency and meterwork. Maintenance of the system is still required regardless of meterwork reductions.

- *HR* - The substantial reduction in meterwork will only enable a reduction in contractors with overall NGG direct resources being essentially unaffected. Consequently, the size (and therefore costs) of our indirect functions will be unaffected by any reduction in meterwork.

307. We have identified an opportunity to reduce some of NGG's support costs in the activities undertaken by the commercial teams dealing with the small number of contract and staff associated with work scheduling and customer service. However, these activities only make up 2% of the support activities currently recovered from non-formula work. As such 98% of the cost of work management and indirect costs currently recovered from third party metering customers are to all intents and purposes identical to direct labour costs recovered similarly, and so should be treated similarly in Ofgem's mechanism.

308. It is also important to recognise that the tipping point for the impact of the loss of meterwork on support costs has been already reached because of the fixed nature of the support cost base. This means that the appropriate form of the revenue mechanism is as illustrated below. Prior to reaching the tipping point an allowance should be provided that covers the unit support cost for each job lost. After the tipping point an allowance should be provided for the unit cost associated with the support costs as well as the direct labour costs.

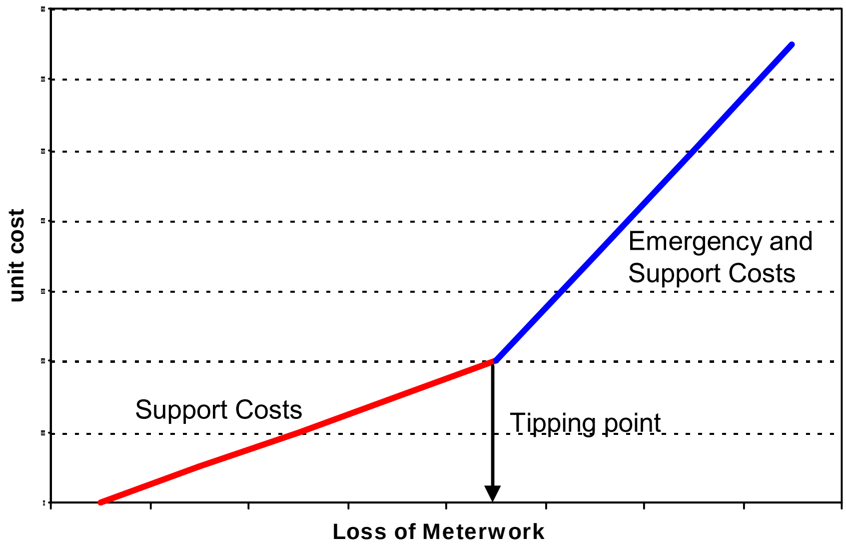


Figure 6.1 - Revenue driver for Loss of Meterwork

Suitability of alternative work for emergency engineers

309. Given the restrictions of emergency standards of service the ability to find suitable external work is limited because it be flexible enough in nature to fit round the emergency engineer's primary safety obligations.

310. In the face of declining meterwork significant and sustained management effort has been dedicated to maximising infill work across the direct field force over the last few years, to the extent that we are now operating at what we consider to be the economic optimum. As discussed in our response to supplementary question NGG168, NGG already undertakes approximately 30,000 low skill maintenance jobs per annum with emergency engineers. The costs to train and maintain competency for any additional infill work, beyond that already undertaken, increase to such an extent that it would increase the overall cost of providing the emergency service. As such NGG does not believe there is efficient scope for significant volumes of additional infill.

311. NGG is aware of the concern that many parties have regarding carbon monoxide (CO). Whilst it is appropriate to have an industry-wide debate about whether the FCO's should undertake CO tests as part of their emergency procedures, it must be recognised that whatever the outcome it would not be a way of mitigating any increase in controllable opex as there is no third party revenue associated.

6.8 Sub Deducts

312. We are willing to conduct a survey of identified sub-deduct pipe systems within the area covered by our distribution Networks subject to the provision of an appropriate allowance. We have set out below our expectation of the costs associated with undertaking a survey. However these costs are highly dependent upon the form and objectives of the survey that is completed. To ensure that the survey delivers maximum value, a set of consistent national survey standards should be agreed. This will enable more effective comparison of installations that are situated within the different distribution Networks. We have included a more detail response within section 3 of our response.

313. The survey of sub-deducts installation will require significant preparatory work, identifying and contacting premises occupants and arranging a date for the survey to be undertaken. This issue is particularly acute when there is a landlord and a number of tenants to liaise with, some of whom may not be cooperative. It is important to note that unlike circumstances where a consumer is directly connected to the GDNs network, any consumer which is connected to sub-deduct network or has pipework on their property down stream of the primary ECV may refuse to grant access to the GDN. Where such an occupant will not grant

access, we have no means to oblige the occupant to grant access and we will not be able to legally survey apparatus within their premises.

314. The inspections will be affected by the fact that much of the pipework is concealed, either within the structure of a building or under the ground between buildings. This means that in the majority of cases only a proportion – and sometimes a small proportion – of the pipework will be visible and available for inspection.

315. As part of the survey it is very likely that we will encounter unsafe installations or appliances. In such cases, we will be duty bound to condemn the equipment and make safe. This is likely to be unpopular and lead to disruption to customers.

316. Assuming that adequate funding is available to employ additional resources we expect that we could deliver such a programme of sub-deduct installation surveys within twelve months, albeit that because of the issues that are associated with gaining access such a programme may not cover all affected premises in that time. If Ofgem were to require a survey of all private networks this would be a much more formidable undertaking and that as a result the mobilisation and survey programme times would be substantively longer.

317. We expect that it will cost around £700 (2007/08 costs) to carry out each survey outside North London Network and £780 to conduct each survey within. These values include mobilisation and preparation costs. Should the scope of the survey be considerably greater than we anticipate, the costs may rise significantly

Chapter Seven - Sustainable Development

Question 1: Is it appropriate to roll forward the existing shrinkage incentive and if so do you consider the leakage volumes appropriate?

318. We do not believe that the shrinkage mechanism proposed within the UPs constitutes a roll forward of the existing arrangements. As such we have not commented on whether it is appropriate to roll forward the arrangements. Instead we have based our comments on our understanding of Ofgem's proposed mechanism contained within the updated proposals.

319. As we set out in more detail below, we believe that it is appropriate to move from the 3 month ahead reference price to a day ahead price. However we do not agree with the analysis that indicates it would 'eliminate the inherent price asymmetry due to forecasting errors'. This issue accounted for 0.75% of the current uplift factor and effectively reflected the difference between the forecast error valued at day-ahead and valued at SAP. If Ofgem do decide to use the day ahead price this element of the uplift should be included.

320. The analysis performed by Ofgem and included in appendix 14 of the Updated Proposals shows that the volume of gas lost from the networks does not vary with the volume of gas transported. As a result it may be appropriate to introduce fixed volumes. However the introduction of fixed volumes does require further changes to the shrinkage scheme and consideration of other issues.

321. If Ofgem do decide to replace shrinkage factors with a fixed leakage volume, it is important that an equivalent change is made to basis upon which the volume of shrinkage gas bought is determined. We believe that it is appropriate that if the decision is referred to Ofgem for a determination, Ofgem should be consistent in their views and support the modification.

322. We understand that Ofgem is aware that the leakage volumes that have been proposed are inappropriate. We will work with Ofgem to ensure that appropriate volumes are established.

Question 2: Is the gas reference price formula appropriate?

323. We are unable to comment on the form of the of the gas reference price formula since it was not included it in within the consultation document. We understand that Ofgem intend to base a formula on a day ahead price such as the Heren day ahead offer price. We have conducted analysis of the day ahead price compared to the 3 month ahead price and we have also concluded that over the medium to long term the day ahead price is cheaper. Our analysis (based on 2005/6 market data) also shows that whilst moving to the day ahead price does eliminate a significant proportion of the uplift that was appropriately allowed in the extension

year price control, a small uplift is still required to account for the cost incurred as a result of forecast error.

324. GDNs are required to purchase a volume of shrinkage gas based on a percentage of the total volume of gas transported each day. If GDNs are to purchase gas on the day ahead market they must make a forecast of the anticipated level of demand for the following day. The accuracy of this forecast is largely dependent upon the accuracy of the weather forecast for the following day since the volume of gas demand is very temperature sensitive. Further to this the price of gas is also closely related to the demand. Therefore on colder days the gas price is higher than on the warmer days. Consequently on days that are colder than expected the GDNs are required to buy on the days when the price is high. On days when it is warmer than expected the GDNs are required to sell on the days when the price lower. This issue is exacerbated because the GDNs are prevented from trading commercially in the market and may only buy or sell to meet physical needs. This systematic buying against the market means that the GDNs should be granted an uplift if using the day ahead price. This issue could be resolved by setting the price at the on the day price. Our analysis from 2005/6 suggests that an uplift of 0.75% is appropriate.

Question 3: Should Ofgem establish a new incentive to target harmful environmental emissions?

325. Whilst NGG works hard to minimise its environmental impact wherever possible the cost of reducing the level of leakage within the network is often prohibitive unless funding is provided by another route. We therefore agree with Ofgem that it is appropriate to establish leakage incentives that reflect the social cost of emissions. We look forward to working closely with Ofgem to deliver an effective incentive mechanism that enables the GDNs to make significant reduction in the volumes of gas leaked.

Question 4: Do you support the design of the environmental incentive and its parameters?

326. We believe that it is appropriate that gas transporters are exposed to a financial incentive mechanism that values emissions at a level that corresponds to the amount of harm caused by such emissions. This allows the GDNs to identify and evaluate projects that reduce the emissions of natural gas. We agree with Ofgem that it is appropriate to use the Defra shadow price of carbon rather than placing reliance upon a market derived commodity value of carbon because it will enable the GDNs to make rational investment decisions. Basing the

performance on a volatile market derived cost of carbon risks windfall gains or losses and reducing the GDNs' incentive to improve performance.

327. Clearly the higher the level of the cost of carbon the greater the potential for a reduction in leakage. However we consider that the level established by Ofgem is appropriate.

328. It is important that a neutral baseline target leakage level is appropriate because it must be recognised that the current level of leakage is largely a function of past decisions, materials and working practises and the GDNs are not likely to be able to make large reductions in the volume of gas lost without significant investment. Use of a more aggressive leakage target is likely to lead to windfall losses to the GDNs.

329. We agree that it is appropriate to set the GDNs targets based on a fixed quantum of leakage rather than a factor, as has been used in the past for shrinkage because our analysis shows that the level of leakage does not vary materially with the volume of gas transported between years. It is also important that the level of leakage is not altered to account for variations in the calorific value of the gas transported, which is beyond the control of the GDN, because it creates the risk of windfall gains or losses without providing a more effective incentive to reduce the level of leakage. We believe that a consistent CV should be used throughout the process, from setting the targets through to the annual assessment.

330. We do not agree with the proposed use of caps and collars. Please see our answer to question 6 for more details.

Question 5: Are the strength and baselines for the incentive appropriate?

331. We understand that Ofgem is aware that the leakage volumes that have been proposed are inappropriate. We will work with Ofgem to ensure that appropriate volumes are established.

332. We agree that the strength of the incentive is appropriate. It is important that the strength of the incentive is maintained throughout the incentive period to ensure that the GDNs have stability for their planning processes.

Question 6: Are the cap and collar arrangements appropriate?

333. Caps and collars are usually introduced when there is uncertainty about the expected level of performance as a result of unanticipated factors affecting the outcome. Whilst the leakage incentive is new, it has many parallels to, and uses the same measurement model as the shrinkage incentive. The most material difference to the shrinkage mechanism is the economic value that is applied to the value of the gas lost. If a mechanism were available to the GDNs that has the potential to reduce leakage it is likely that it would have been utilised already to minimise the GDNs exposure to shrinkage costs. It could also be argued that the only potential effect of such a mechanism would be to stifle the introduction of new as yet not developed technology because were a transporter able to identify a method of significantly reducing leakage they would not be able to implement it effectively because it would be unfunded.

334. In this light, it does not appear appropriate to use caps and collars to mitigate a risk of material over or under performance as they will not be in the interests of the environment.

335. If Ofgem do intend to implement caps and collars it is important that they are not introduced on a network basis. This is because the scope for improving the leakage performance of our networks by additional investment in leakage controlling equipment (the primary method that we anticipate using) is not uniform. As a result the introduction of caps and collars on a network basis will be likely to adversely affect the amount of improvement that we will be able to deliver. Instead we advocate that if Ofgem does introduce caps and collars it be done at a company wide level to reduce the impact of this factor.

Question 7: Is it appropriate to introduce a mechanism to address periodicity of investment?

336. We believe that for this incentive to work effectively a distribution Network Operator will have to retain the benefits arising from any investment for an adequate period. Indeed it is our belief that if such investments are only funded through the resulting leakage savings, a retention period of ten years would be more appropriate. In the absence of a mechanism to address periodicity, it is likely that the possible benefits that can be delivered by the leakage incentive mechanism will be reduced.

337. To eliminate the impact of periodicity Ofgem should maintain a rolling 5 year leakage baseline target, setting the target for the additional year, through consultation with the industry. This would ensure that the GDNs have certainty over the level of performance required (allowing

efficient investment decisions) and Ofgem could flex the level of the baseline to reflect the GDNs historic performance.

Question 8: Are the leakage model and governance arrangements appropriate?

338. The existing leakage model has proved adequate over many years. We acknowledge that extending the scope of revenues controlled by the model will require additional governance arrangements. In particular we believe that it will be appropriate for Ofgem to establish arrangements whereby they can be assured that the model is being used appropriately and that the data input is robust. The detail of the regime can be worked out between transporters and Ofgem in due course.

Chapter Nine - Financial Issues

Question 1: Does our risk analysis support a range for the cost of equity of 7.0% - 7.5%?

339. National Grid welcomes Ofgem's consistent approach to the cost of equity which has sought to retain, as a starting point, the cost of equity assumptions in TPCR - from which an allowance for Gas distribution can be determined via a relative risk analysis. We believe that this approach is appropriate because the long run average of aggregate equity returns still provides the most appropriate indicator of future required returns for the period of the next price control.

340. We note that Oxera's analysis (submitted to Ofgem on behalf of the GDNs as a response to Initial Proposals) regarding the risk differential between Gas distribution and transmission supports the analysis carried out by Ofgem in that it argues that gas distribution is at least as risky as transmission. Although the empirical and quantitative evidence that has been presented is not conclusive, we believe that it is important and relevant that the evidence reinforces an historic perception that gas distribution is indeed a more risky business than transmission (Water UK survey, credit rating agencies' views).

341. As an owner of both gas distribution and transmission businesses, our view is that gas distribution <u>is</u> exposed to marginally more risk than transmission. This view is strengthened by the quantitative analysis that has been carried out recently however it is largely drawn from qualitative arguments arising from our experience of running both businesses. For example, due to relatively onerous health and safety obligations of the gas distribution business compared with transmission, we have almost no opportunity to flex our core workloads of emergency service, maintenance and repex programme to react to cost or volume input shocks. Conversely, our experience suggests that transmission's ability to control workload to some extent means that it can react to input shocks more effectively.

342. On top of this, the gas distribution business is exposed to greater risk of input shocks – largely because of its relative proximity and obligations to the end user. An example of such a risk that creates a greater input shock risk for distribution in comparison with transmission is the relatively high proportion of opex spend in distribution. As identified by Ofgem in the Updated Proposals, the high strength incentive on opex (100%) as apposed to capex (25% - 35%) means that distribution has more risk exposure on total costs.

343. As stated above, we concede that the evidence for a risk differential between transmission and distribution is not conclusive. However, there is a strong <u>perception</u> that there is such a differential and therefore it is important, in order to ensure that incentives to invest within the

National Grid Group are not skewed, that this perceived risk differential is recognised with a small premium on the cost of equity for gas distribution.

344. The GDNs have commissioned Oxera to carry out further analysis on the factors relevant to the cost of capital debate for GDPCR. This paper has been submitted to Ofgem separately by the GDNs as an Updated Proposals response. Oxera's conclusions support National Grid's view that it would be appropriate to recognise a risk differential with a premium on the cost of equity allowed in TPCR. There has been little precedent set on how to convert qualitative evidence of risk differentials into quantifiable cost of equity differentials. Oxera's work proposes a methodology for doing this which has taken reference from the Competition Commission's recent proposals for BAA risk differentials. This highlights that a 0.5% premium on the cost of equity would be approximately equivalent to a 0.04 increase in the asset beta (assuming current asset beta for distribution is 0.4). Such a small adjustment to the asset beta would not seem to overstate the appropriate premium - particularly in light of Oxera's previous analysis of "pure-play comparators" (included in submission to Ofgem on 4th September 2007) which stated:

> "…the market evidence suggests that gas DN's asset betas should be around 0.2 higher than for transmission (including electricity and gas)."[33]

345. The chart below is an extract from this analysis and demonstrates the source of the 0.2 difference identified between gas distribution and transmission.

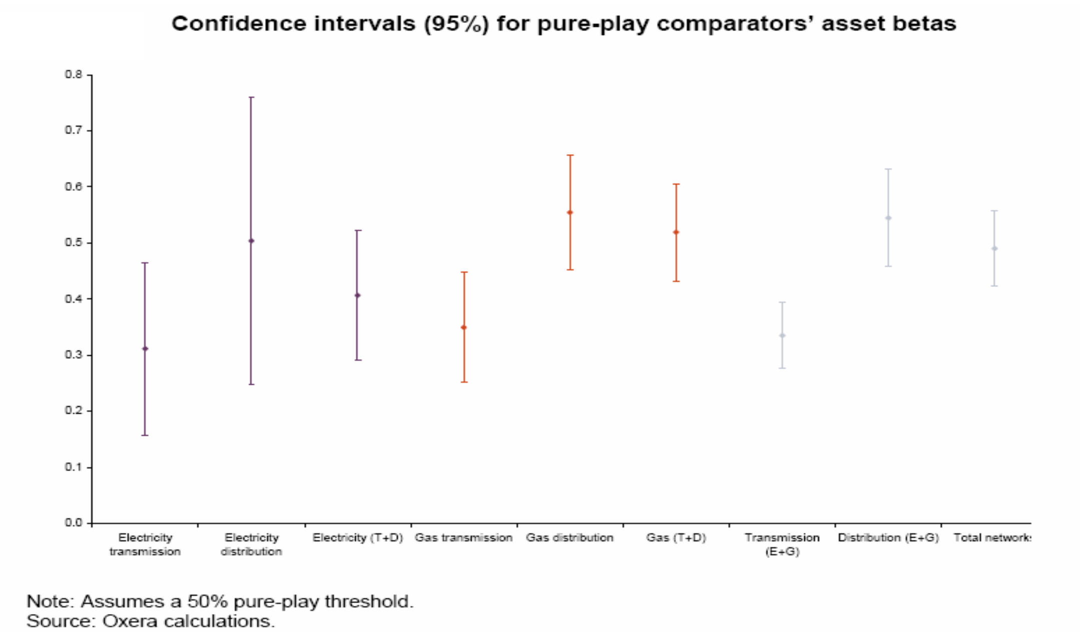


Figure 9.1 – 0.2 difference between gas distribution and transmission

[33] From Oxera's report "Is there a risj differential between Energy Networks" September 4 2007.

346. We note that Ofgem has some reservations about this analysis but that these do not necessarily invalidate the conclusion that gas distribution asset betas are higher. However, what is also interesting to note from this analysis is that the bottom of the 95% confidence interval for gas distribution is approximately 0.44. The top of the 95% confidence interval for transmission (E&G) is approximately 0.4. This indicates, with a high level of confidence that there is an asset beta differential of at least approximately 0.04. This reinforces the conclusion reached above and provides at least some quantitative substantiation of a reasonable asset beta differential.

347. Therefore, we believe that a premium of 0.5% on cost of equity for gas distribution compared with transmission to reflect the different business risk is appropriate.

348. On another point, linked to gearing, Ofgem's current notional gearing assumption implies that, without an appropriate adjustment to cost of equity, that the asset beta of gas distribution is lower than that of transmission. This is clearly inconsistent with the risk differential analysis. We feel strongly that it is necessary to either retain the 60% notional gearing assumption used in TPCR or to make an appropriate adjustment to cost of equity to reflect the impact of the change in gearing assumption upon the cost of equity. This view is endorsed by Oxera who state in their report that:

> *"…the idea that, other things being equal, equity risks will not increase with higher gearing is in conflict with one of the most basic propositions in modern corporate finance theory – and Ofgem has offered no robust reason for overturning this proposition."*

349. It may also be worth noting that the Competition Commission took the view in their review of CAA's proposals on BAA that there "would be considerable dangers" in drawing conclusions from empirical evidence of limited data samples on the relationship between gearing and cost of equity. The Competition Commission consider that there are no grounds at this stage to depart from the established beta-equity beta formula.

350. To reflect the impact of a gearing change on the cost of equity as implicated by corporate finance theory, an adjustment of approximately 0.3% on the cost of equity would be appropriate. Further detail to support this figure is provided in the Oxera report (section 3.1.1).

351. In summary, National Grid propose that a cost of equity of 7.5% at 60% gearing or 7.8% at 62.5% gearing would provide an appropriate reflection of the business risk differential between gas distribution and transmission. If such a risk differential is not reflected appropriately in the cost of equity, then it is very likely that this will lead to a skewing of incentives to invest and competition for capital within National Grid.

Question 2: Is it appropriate to continue to maintain a consistent approach to cost of debt to that taken in TPCR?

352. Regulatory consistency is an important principle which should be retained to ensure risk and therefore costs are minimised for both customers and shareholder's benefit. Ofgem should maintain a consistent approach to all aspects of its price control reviews.

353. National Grid agree with Ofgem's consistent view that it is appropriate to take into consideration a number of indicators such as long run averages, trailing averages and spot rates when estimating where interest rates might lie over the course of the next price control. Ofgem highlight in the Updated Proposals that it will be reconsidering the relative weight to be placed upon such factors in determining its cost of debt allowance for Final Proposals.

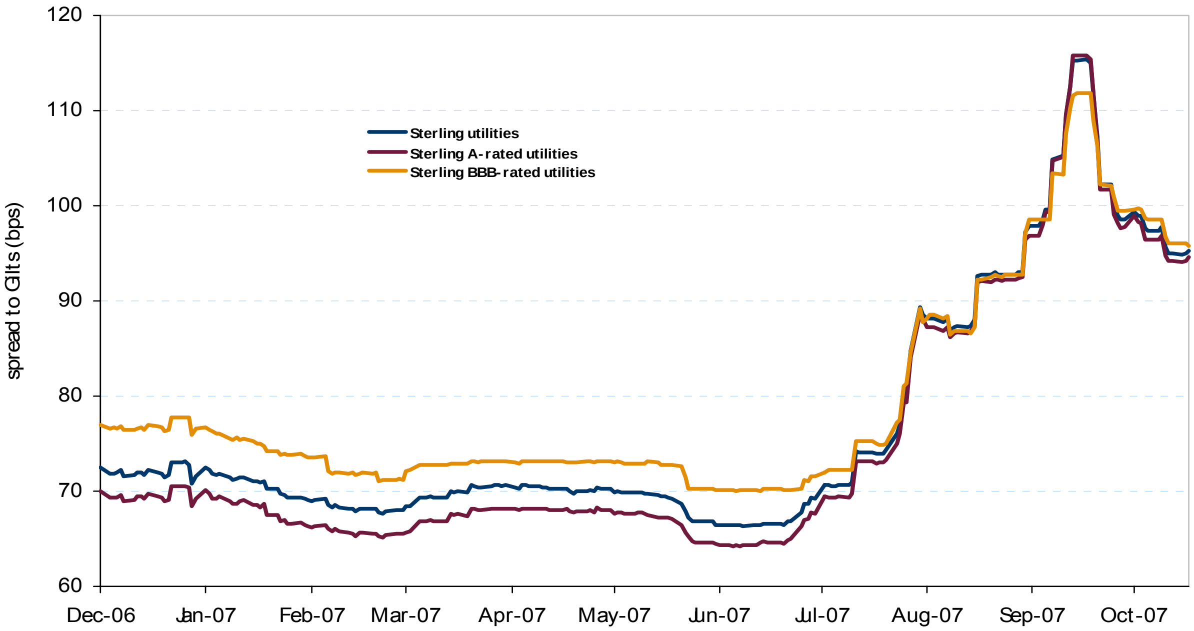
354. At the time of TPCR, it was deemed appropriate by Ofgem to place most weight on the estimates of long run averages for risk free rate and debt premium. Smithers' recommendation on the long run risk free rate was 2.5% which was recognised as a figure widely used by regulators and central banks as a benchmark. Its recommendation on debt premium was a figure between 1.0% and 1.5%. On the basis that it was not yet clear whether the then much lower spot rates would be likely to remain low for the period of the price control, Ofgem allowed a cost of debt of 3.75%. This premium of approximately 125bps above spot rates was deemed to provide a sufficient and appropriate level of headroom in the cost of debt allowance. It is notable that this headroom was provided in a period of relative interest rate stability.

355. Since TPCR, and particularly over the summer of 2007, there has been much volatility in interest rates. Nominal yields on 10 year gilts reached 5.5% and the spread over gilts of A and BBB rated debt reached around 130bps and 150bps respectively. Taking into account even a conservative RPI inflation assumption of 2.8%, this means that the real pre-tax cost of debt reached levels of around 4.1%.

356. Although yields have fallen since the summer, it appears that they are not returning to the low levels seen in the preceding years. The charts below highlight the movement in 10 year UK nominal gilts and the spread over gilts of corporate bonds since TPCR:

Source: Bloomberg

Figure 9.2 - Movement since TPCR in 10yr UK nominal gilts



Source: Barclays Capital – Barclays Sterling Index

Figure 9.3 – Movement since TPCR in UK corporate spreads over gilts

357. The following table sets out the headroom allowed against 10 year index-linked gilt spot rates at the time of TPCR and with the current GDPCR Updated Proposals. The table also highlights the 10 year trailing average rates as well as the long-run average data on the relevant index linked gilt and bond rates.

	TPCR	GDPCR UP
Long run average	3.75%	3.75%
10 yr trailing average	3.49%	3.37%
Spot rates	2.51%	3.16%
Allowance	3.75%	3.55%
Headroom	**1.24%**	**0.39%**

Source: Oxera and Ofgem analysis

Table 9.4 – Headroom allowed Vs 10 year index-linked gilt spot

358. This table demonstrates that the headroom against relevant spot rates has been cut from 124bps at TPCR to 39bps (a 69% reduction). With this in mind, National Grid feels very strongly that the current proposal on cost of debt is too low. There are no reasonable grounds for the level of headroom provided on cost of debt allowance in TPCR being reduced so drastically for GDPCR. The mechanistic approach of using 10 year trailing averages as a proxy for where rates may lie over the period of the next price control is inappropriate given recent volatility in cost of debt and the fact that interest rates have recently increased. In any case, it should be noted that the actual reduction in the 10 year trailing average since TPCR has been only 12bps – rather than the 20bps expected by Ofgem.

359. There is no "magic methodology" which can be applied at every price review to determine an appropriate allowance for future rates. Therefore at each price review, there is a need to look at the set of available historical data and determine which (if any) provides the best indicator of where rates might lie over the course of the next price control period. Currently, long-run averages provide the best indicator and for this reason we believe that Ofgem should continue to place most weight on long run averages, as they did in TPCR, to set the cost of debt allowance for GDPCR. Against the background of recent and current interest rate volatility, and taking note of the Competition Commission's remarks about the highly unusual interest rate experience between 2003 and 2006, it would seem odd to place more weight than previously on ten-year trailing averages. Therefore, as with TPCR, it would seem appropriate to give most weight to long-run averages for GDPCR.

360. In our view, a cost of debt allowance of 3.75% (equal to the TPCR allowance) would provide sufficient headroom against current spot rates to allow National Grid to finance its activities over the course of the next price control. It should be noted that by keeping the allowance at the same level as TPCR, this in effect reduces the ex-ante headroom and this should be seen to benefit customers.

361. A cost of debt allowance for gas distribution lower than the TPCR figure would be illogical and would certainly lead to a distortion of incentives to invest within National Grid.

Question 3: In the light of both the results of our risk analysis and the levels of actual gearing observed in the sector, is there a compelling reason to change our notional gearing assumption from 62.5%?

362. In all other aspects of the cost of capital debate in GDPCR, Ofgem have sought to build on the conclusions and allowances of TPCR. National Grid does not believe that there are any compelling reasons to change the notional gearing level from 60% as used in TPCR to 62.5%

363. Despite the high levels of gearing that have been achieved at investment grade ratings, the recent continued uncertainty in credit markets means that now is not the time to be testing the capital structures of critical infrastructure companies.

364. A 60% gearing assumption represents a prudent and (just) achievable target for National Grid. However it is totally impractical to expect National Grid to be able to fine-tune its gearing to within 2.5% and it is unclear exactly how Ofgem would measure National Grid Gas' gearing level for the purposes of the tax-claw back clause agreed in TPCR if GD is given a different notional gearing target than T.

365. A notional gearing assumption of 60% for gas distribution as well as transmission would remove the issues around determining the impact on cost of debt and equity of a higher level of gearing highlighted in our response to question 1 (above). If Ofgem does not address this point, this again calls into question the issue of skewed investment incentives and competition for capital within National Grid. By setting the notional gearing assumption at the same level as for TPCR, Ofgem has the opportunity to iron out the investment risk versus reward discrepancies created in National Grid by the gearing differential between transmission and distribution. This in turn will ensure that commensurate incentives to invest exist in both our transmission and distribution businesses.

366. As stated in our response to question 1 above, if Ofgem do use a notional gearing assumption of 62.5%, then an adjustment to the cost of equity will be necessary to reflect the increased financial risk.

Question 4: Is our approach to determining the GDNS' tax allowances appropriate?

367. We are pleased to see in the Updated Proposals that Ofgem have reverted to the pre 2007 Budget levels for capital allowances, since the proposed changes are still subject to consultation and have yet to be implemented in existing law.

Methodology

368. We broadly agree with the methodology for calculating capital allowances in the Ofgem financial model, but make the following detailed comments.

369. The allowance pools should exclude the capex overspend values. “Pot 1” capex should be excluded permanently and “pot 2” capex included in the pools at its tax written down value in the year that it is added to RAV and is consistent with the treatment of other costs where there is a match to the value included in allowed revenues. At present, the tax calculation reduces the income for pot 2 included in RAV, with no corresponding adjustment to costs (capital allowances).

370. Ofgem correctly make a tax deduction for capitalised pension costs. However the values used do not agree with those submitted in the B4 pensions table as part of the main review in October 2006. Detailed analysis of the differences can be found in table 9.1 below.

	2009	2010	2011	2012	2013	Total
Submission	*sourced from B4 pensions Table (rows 27 and 54)*					
North West	0.4	0.4	0.5	0.5	0.5	2.4
East of England	0.5	0.5	0.5	0.5	0.5	2.4
West Midlands	0.3	0.3	0.3	0.3	0.3	1.4
London	0.2	0.2	0.2	0.2	0.2	1.1
Total	**1.4**	**1.4**	**1.5**	**1.5**	**1.5**	**7.3**
Ofgem Model	*sourced from updated proposals model*					
North West	0.6	0.7	0.9	1.1	0.8	4.2
East of England	1.2	1.0	1.1	1.3	1.1	5.8
West Midlands	0.6	0.5	0.6	0.7	0.7	3.1
London	1.2	1.2	0.8	1.1	1.0	5.2
Total	**3.6**	**3.5**	**3.5**	**4.3**	**3.6**	**18.4**
Difference						
North West	0.2	0.3	0.5	0.6	0.3	1.8
East of England	0.7	0.6	0.6	0.8	0.7	3.4
West Midlands	0.3	0.2	0.3	0.4	0.4	1.7
London	1.0	1.0	0.5	0.9	0.8	4.2
Total	**2.2**	**2.1**	**1.9**	**2.7**	**2.2**	**11.1**

Table 9.1 – Reconciliation of capitalised pensions

371. The interest charge included in the 2008/9 tax allowance is based on RAV including the “pot 2” overspend multiplied by gearing multiplied by the nominal interest rate. The debt value (and consequential interest charges) is then rolled forward taking into account any cash surplus or deficit in the year. Instead, Ofgem should calculate interest excluding that portion of “pot 2” which has still to be included in RAV. National Grid receives a return on RAV

excluding the "pot 2" spend for some of its life and so an interest charge calculated based on gearing of a RAV including the pot 2 spend for all of its life would be inconsistent with the price control calculations.

Basis of tax modelling

372. In their response to the Initial Proposals, NGN believe that the tax modelling for repex should follow the regulatory, and not statutory, treatment to be consistent with the notional modelling for other price control aspects. We do not support NGN since their argument runs contrary to the tax allowance being an allowance to cover the actual tax liability of the business.

Logging up of tax losses

373. We note Ofgem proposes to log up any tax losses as calculated on a regulatory basis and deduct them from expected tax allowances when the timing differences that led to the loss reverse. We support this, as long as any tax losses being carried into the next price review period are only those included in the Ofgem financial model at the end of 2012/13 (adjusted for actual tax rates) – i.e. no carry forward of any actual tax losses.

Question 5: Should we make a financeability adjustment in cases where a GDN fails to meet our target ratios because of its own actions, such as penalties incurred under incentive schemes?

374. National Grid continue to be of the view that where necessary, it is appropriate to make NPV neutral financeability adjustments – regardless of the cause. NPV neutral adjustments will not undermine the incentive regime and will ensure that the costly implications of credit rating downgrades are avoided. This approach would benefit both customers and shareholders.

375. Regarding overall financeability of Ofgem's Updated proposals, we are concerned that the current allowances do not allow National Grid Gas distribution to remain at comfortably investment grade. In particular Standard & Poor's place most weight on (FFO+Interest) / Interest and FFO / Debt ratios which, given Ofgem's proposals, come out on average at 2.3 and 8.0% respectively for National Grid. These ratios translate to BBB rating which is <u>below</u> comfortable investment grade.

376. Notwithstanding our view stated above that it is appropriate to make NPV neutral adjustments if necessary even in the case where the GDN fails to meet the target ratios because of its own actions, we have recalculated the ratios assuming that the impact of "pot 2 overspend" is removed. Even in this scenario, the S&P financial ratios highlighted above still remain at a

BBB level. Given the weight that S&Ps place on these two ratios as part of their overall view, Ofgem must ensure that these individual ratios support at least BBB+ rating in their Final Proposals.

Pensions

377. We believe that is appropriate that Ofgem's pensions principles remain, broadly unchanged, from Initial Proposals.