Promoting choice and value for all gas and electricity customers

Gas Distribution Price Control Review
Fourth Consultation Document

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Target audience: Consumers and their representatives, gas distribution networks (GDNs), independent gas transporters (IGTs), gas shippers and suppliers and any other interested parties

Overview:

This document contains the supplementary appendices for the Gas Distribution Price Control Review's (GDPCR's) fourth consultation document. The supplementary appendices provide more detailed information regarding the issues raised in the main document. It also contains a summary of responses to the previous consultation document, together with Ofgem's views.

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Context

The price control that currently applies to the gas distribution networks (GDNs) expires on 31 March 2008. This document is the fourth consultation held on the gas distribution price control review (GDPCR) and is designed to develop our thinking in setting the price control that will apply from 2008 to 2013.

The primary focus of this consultation is on the GDNs' costs and the document sets out our consultants' initial analysis of the efficient level of operating, capital and replacement expenditure costs that an efficient GDN will incur from 2008.

Our next document on GDPCR will be initial proposals which will be published at the end of May 2007. That document will bring together our thinking on the consultations to date and their associated responses into an initial set of proposals.

Associated Documents

- GDPCR One Year Control Final Proposals, December 2006 (Ref. 205/06);
- GDPCR Third consultation, November 2006 (Ref. 203/06);
- GDPCR One Year Control Initial Proposals, September 2006 (Ref 169/06);
- GDPCR Second consultation, July 2006 (Ref. 123/06); and
- GDPCR Initial Consultation, December 2005 (Ref 259/05).

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Appendix 5 - Responses to the third consultation document

1.1. This appendix summarises the responses received from GDNs and other interested parties to questions posed in the third consultation document published in November 2006, together with our views. We received 23 non-confidential responses from the following organisations:

- Advantica;
- Centrica;
- Chemical Industries Association (CIA);
- Community Energy Solutions (CES);
- East Surrey Pipelines (ESP);
- EDF Energy;
- Energywatch;
- EON UK;
- Fuel Poverty Advisory Group (FPAG);
- Gas Forum
- Health & Safety Executive (HSE);
- National Consumers Council (NCC);
- National Grid Gas (NGG);
- National Grid Transmission (NGT);
- Northern Gas Networks (NGN);
- RWE Npower;
- SBGI;
- Scotia Gas Networks (SGN);
- Shell;
- Statoil UK;
- United Utilities (UU);
- Wales & West Utilities; and
- xoserve.

1.2. Responses are available on Ofgem's website (www.ofgem.gov.uk). Please note that when summarising respondents' views, we have referred to each GDN company as a (single) GDN, even if the company owns more than one GDN.

Responses to Chapter 2 - High level framework

1.3. Chapter 2 of the third consultation document considered revenue drivers, scope of the control, price indices, uncertainty, new obligations & costs, correction mechanism and variability. We asked respondents the following questions:

- Do you agree with our initial view on which services could be given excluded treatment? Are there any additional services that we have not considered?
- Should domestic one-off connections be treated as excluded services or ordinary price controlled services?
- Have we correctly identified the range of items that could be treated as pass through items? Should these items be treated as pass through items?

- Is there any reason why we should change our position on cost indices?
- Is there any reason why we should change our position on re-openers?
- Should we introduce a two-tier correction mechanism for over and under recovery of allowed revenue, consistent with the arrangements that apply in electricity distribution?
- Should we calculate the GDNs' allowed revenues in a way that creates a smooth revenue profile over the course of the price control period?

Views of GDNs

1.4. The GDNs generally agreed with Ofgem's initial view on which services should be treated as excluded. One GDN expressed concern that rechargeable diversions have been omitted and another said that other gas-related activities that GDNs are encouraged to do should be treated as excluded (e.g. provision of carbon monoxide detectors).

1.5. All of the GDNs considered that domestic one-off connections should be treated as excluded services.

1.6. GDNs generally supported the range of items that could be treated as pass through. One GDN suggested including the costs of rating appeals. Three GDNs argued that at least some of the costs associated with offtake and interruption reform should be passed through. One GDN considered it appropriate to continue to treat licence fees and rates as pass-through and another GDN opposed an ex-ante allowance for rates.

1.7. Two GDNs supported the emergency service incentive scheme set out in the third consultation document to manage stranded opex concerns. One of these GDNs indicated that due to the uncertainties associated with the extent and timing of losses to metering workload the other option would be to allow a price control re-opener. One GDN did not agree with Ofgem's view that the suggested benefit under the sharing mechanism would be reduced, and considered that there would be incentives for GDNs to utilise their emergency workforce efficiently as they would have general incentives to reduce opex costs across the business. Another GDN considered that it would not be able to give a definitive view until our investigation into metering is complete but indicated that some form of risk and benefit sharing was appropriate.

1.8. Two GDNs supported the continued use of RPI but stated that real price effects should be accounted for when setting allowances. One of these GDNs proposed using a test against another index such as "Baxter" for extreme movements in contractor costs which would then allow adjustments. Two GDNs argued that utilities have high exposure to construction prices. One of these proposed an approach whereby the annual inflation index applied each year could be part RPI and part a construction price index. The other GDN stated that allowances should be set using sector specific real cost inflators uprated by RPI each year to maintain their real value.

1.9. One GDN stated that the costs of exit and interruption reform should be passed through (with separate incentives set) otherwise there should be an option for a re-opener for material unforeseen costs. Two GDNs supported Ofgem's view on specific re-openers such as costs associated with TMA. However both argued that generic re-openers should be allowed. GDNs listed other issues that should be the subject of specific re-openers including environmental legislation, safety requirements, congestion charging, charges to mapping backgrounds (PAI) and the effect of the UK Government having to change the Health & Safety Work Act 1974. Finally one GDN suggested including a specific term for TMA in the price control formula rather than logging up.

1.10. All of the GDNs supported a two-tier correction mechanism for over and under recovery of allowed revenue, and argued that the under/over recovery threshold should be increased as there is more revenue uncertainty in gas than electricity.

1.11. With regard to calculating allowed revenues as a way to create a smooth revenue profile, GDNs' views were mixed. While one GDN agreed that stable prices over time are preferred, another argued that there is no need to smooth the revenue profile. This GDN stated however that the revenue profile should take account of the cost profile to avoid discrepancies between costs and allowed revenues. One GDN favoured a one-off P0 adjustment subject to satisfactory financial ratios. Finally one GDN supported an approach that strikes a balance between ensuring that profiling maintains the required credit ratio levels and limits sharp increases in consumer prices.

Views of other respondents

1.12. The other respondents broadly agreed with Ofgem's initial view on which services could be given excluded treatment. Energywatch welcomed clarification on the difference between core and excluded services so that consumers only pay for services that are attributable to them.

1.13. Two non-GDNs supported treating domestic one-off connections as excluded services. Two respondents think they should be brought within the price control and linked to a revenue driver. Energywatch stated that any appropriate treatment of costs associated with one-off connections must ensure that the costs are incurred efficiently to keep them low for affected consumers.

1.14. One non-GDN did not support the emergency service proposals unless it is possible to improve incentives on GDNs to secure infill work for the emergency workforce. This respondent suggested that GDNs could be given a target for the percentage of time that emergency workforce is not occupied by chargeable work with a reduced allowance if GDNs are unable to meet the target.

1.15. Five non-GDNs supported Ofgem's proposals on pass through items. One of these stated that charges from gas taken illegally should also be considered a pass through item.

1.16. Three respondents expressed support for the continued use of RPI. One respondent would like construction cost indices to be incorporated in GDNs' cost base.

1.17. Other respondents generally supported Ofgem's views and did not think it should change its position on re-openers. One respondent stated that other areas besides TMA should be the subject of a specific re-opener such as industry development. One respondent considered that xoserve costs should be a re-opener if user pays does not develop, and another considered that re-openers should only be used in very specific circumstances.

1.18. Three respondents agreed with Ofgem's approach of a two-tier mechanism for over and under recovery of allowed revenue. One respondent stated that although this approach has some merit, it is linked with other issues such as exposure of GDN charges to throughput. Another non-GDN considered that consistency with electricity distribution is beneficial but the additional complexity needs to be justified.

1.19. One respondent supported a smooth revenue profile as long as it is NPV neutral. Another respondent is not convinced of its need but thinks it may be worthwhile if it reduces price volatility. One non-GDN considered that smoothing revenue profiles could create additional risks around price stability, and viewed transparency and predictability as more important than stability of charges. Another respondent expressed a lack of clarity on how profiling operates, and what the real benefits are, and considered the ability to predict prices more important than reduced variability.

Ofgem's views

1.20. We note the comments of respondents on the scope of the control. We will consult further on our approach in initial proposals in May 2007; however, as part of the fourth consultation document we provide further thinking in a number of areas.

1.21. We note the views of respondents on the treatment of one-off connections. Our current view is that the magnitude of costs associated with the loss of metering related work is not significant enough to warrant a separate incentive.

1.22. A number of respondents noted the issue of real price effects and whether we should use other cost indices. Chapters 3 and 4 of the fourth consultation document provide our further thinking on real price effects in setting GDN cost allowances. We intend to retain RPI as the key price index while considering real price effects as part of ex-ante cost allowances.

1.23. We agree that the issue of a two-tier mechanism for over and under recovery of allowed revenue is linked with other issues such as exposure of GDN charges to throughput. Specifically, GDNs' ability to set their charges accurately to collect the required amount of allowed revenue depends on the extent of the mismatch between factors affecting allowed revenue and those affecting collected revenue, as well as

constraints on when and how often they can vary charges. Allowed revenue is driven by the terms of the price control, including revenue drivers and incentives, and collected revenue is driven by the structure of charges. Since we are still giving consideration to the terms of the price control, and consulting on alterations to the timing of changes in charges, it is too early to say to what extent this mechanism is required, or how wide the thresholds should be.

1.24. We note that artificial smoothing of the allowed revenues does not in itself deliver significant benefits to shippers and consumers, and that transparency and predictability of charges are more relevant. Additionally, we recognise that if our assessment of costs suggests a fluctuating profile, then smoothing allowed revenues may create financeability issues.

Responses to Chapter 3 - Assessing costs

1.25. Chapter 3 presented summary historical and forecast cost data for each of the GDNs, and it described Ofgem's approach to setting operational, capital and replacement expenditure allowances for 2008-09 to 2012-13 and the regulatory asset values (RAVs) to 1 April 2008. We asked respondents the following questions:

- Is our proposed approach to setting capital and replacement expenditure allowances for 2008-09 to 2012-13 appropriate?
- Is our proposed approach to setting operational allowances for 2008-09 to 2012-13 appropriate?
- Is our proposed approach to updating the GDNs' RAV to 1 April 2008 appropriate?

Views of GDNs

1.26. Three GDNs generally supported our proposed approach to setting capex and repex allowances. Two of these GDNs said that GDN specific characteristics should be recognised when comparing companies. The fourth GDN expressed support for focusing analysis on GDNs' forecast costs based on its policies and procedures however raised concerns over benchmarking.

1.27. Three GDNs supported the overall approach to setting opex allowances. Two of these GDNs recognised that normalising costs between GDNs will be required. Two GDNs emphasised the limited scope for detailed comparisons in this review, and one of them supported benchmarking in principle.

1.28. All of the GDNs agreed with Ofgem's approach to updating their RAVs. One GDN said that the RAVs should also be updated for capex/repex forecasts for 2007-08 which were submitted this year. One GDN asked for more clarification on the approach and suggested applying a five year capex roller comparing actual expenditure to allowed expenditure in final proposals. One GDN expects Ofgem to use rigorous standards to distinguish between excess costs due to inefficiency and cost overruns due to other reasons such as unforeseeable delays.

Views of other respondents

1.29. Two respondents supported the proposals to set capex and repex allowances. One of them suggested we apply the same techniques for opex (i.e. top-down benchmarking and TFP analysis) to capex and pension arrangements. One respondent expects Ofgem to build in a greater margin of error in setting allowances due to the limited availability of comparable data, and expects Ofgem to place more emphasis on GDN forecasts. Finally Energywatch raised two concerns: first, although new and replacement capex costs are forecast to rise further, there is no indication of cost efficiencies arising from previous additional expenditure and how much of this should be passed back to consumers; and, second, there are no effective mechanisms proposed for regular cost reporting between price control reviews.

1.30. Two respondents expressed support for the overall approach to setting opex. One of these respondents noted that to ensure there is no double counting; the results of any discussions between GDNs and suppliers on the loss of metering contracts and Post Emergency Metering Services contracts should be taken into account when setting allowances. One respondent stated that opex and capex allowances should recognise the increasing costs which are likely to be greater than RPI and that GDPCR should follow the same approach adopted in TPCR to address this.

1.31. One respondent supported the overall approach to updating the GDNs' RAVs. Another non-GDN also supported the approach however only at this stage due to lack of visibility until September 2007. One respondent expressed concern that GDNs will inflate their RAVs to compensate for overpaying.

Ofgem's views

1.32. We have discussed the issues related to benchmarking, regional factors and real price effects in chapter 3.

1.33. As explained in the third consultation document, we reviewed historical data for January 2001 to March 2005 and forecast data for April 2005 to March 2007 as part of the work on the one year control. For the purposes of initial proposals for the main review we intend to apply this analysis and the GDNs' capex and repex allowances for 2007-08 to update each of the GDNs' RAVs to 31 March 2008.

1.34. We will update our analysis of the efficiency of expenditure for 2005-06 and 2006-07 to reflect actual cost information for these two years. We will carry out this work once the updated cost information becomes available in June 2007 and use the results, together with the 2007-08 allowances, to update the RAV calculations. We will publish the results of this work in the September 2007 updated proposals document.

1.35. Our intention is that whatever method we use to update the RAV for the five year control for 2008-09 to 2012-13 will apply to the one year control for 2007-08. If we adopt our preferred option of capex rolling incentive (modified by an information quality incentive) for the main control as discussed in chapter 5, the strength of the incentive for the one year control will be the same as the incentive accepted for the five year control.

1.36. As we have highlighted in each of our consultation documents we will develop a cost reporting framework, and will be consulting on this subject in July. Indeed, we already have the relevant licence condition in place (Special Condition A40). We would nevertheless be happy to receive constructive suggestions on the content of the annual cost reporting pack in advance of the consultation.

1.37. The potential impact of GDNs losing some of their existing metering contracts on the costs of the emergency service is discussed in paragraph 1.21 above.

Responses to Chapter 4 - Outputs

1.38. This chapter considered the options for introducing network capacity output measures, improving the quality of service outputs, amending the third party damage and water ingress arrangements and improving the accuracy of pipeline records. We asked respondents the following questions:

- Do you support the proposed changes to the quality of service outputs?
- Do you support the proposed changes to third party damage and water ingress proposals?
- Do you support our proposals for improving the accuracy of pipeline records?
- Is it appropriate to introduce network capacity output measures? If so what type of output measures are appropriate and what sort of rewards/ penalties should the GDNs be exposed to?

Views of GDNs

1.39. One GDN partially supported the proposed changes to the quality of service outputs but had concerns over some of the incremental costs of making the changes. The remaining three GDNs generally agreed with the changes. Among these GDNs, one thought that a similar framework should apply to IGTs, one suggested some modifications, and one stated that there should be no change to either the level of compensation payments or the required performance under the Standards unless there are commensurate increased revenue allowances to match the increased costs.

1.40. Three GDNs generally supported incorporating third party damage and water ingress into the guaranteed standard. The remaining GDN did not support our proposals as it does not consider third party damage and water ingress to be within its control.

1.41. While two GDNs do not think we need to incentivise the accuracy of pipeline records, the other two consider we do. One of these GDNs only supports an incentive if there is no double counting as a result of existing arrangements with IGTs, and the other only supports one if it rewards performance.

1.42. In general, the GDNs considered the 1 in 20 planning standard to be a sufficient output measure.

Views of other respondents

1.43. Five respondents generally supported the proposed changes to the quality of service outputs. One of them stated that if the obligation for provision of alternative heating and cooking facilities (i.e. GS3) is removed then the suppliers' obligation to pass on data regarding priority customers to GDNs should also be removed. Another of these respondents expressed concern about the removal of GS3 and stated that this will result in an increased likelihood of a breach. One respondent argued that the proposals should also apply to IGTs to ensure customers receive equivalent service. Energywatch would like to be involved in improving measurement of standards and developing the balanced score card. The HSE supports including performance of GDNs in attending emergencies in the licence condition as it would help underpin their safety duties. Finally before supporting the changes, one respondent would like to see details of the consumer research.

1.44. Six respondents expressed support for incorporating third party damage and water ingress into the guaranteed standard. A few other respondents consider that both domestic and non-domestic customers should be covered by the GS Regulations.

1.45. Three respondents supported the proposals to improve the accuracy of pipeline records. One of them noted that failure to maintain such records is a breach of GDNs' licences. One respondent considered that the costs may outweigh the benefits. The HSE is concerned about this area which is currently part of an inspection programme.

1.46. Three non-GDNs do not support the introduction of network capacity output measures. Some of them expressed concern over how such measures would work and the risk of their incentive effects. The HSE is concerned that material changes to the 1 in 20 arrangements may have an impact on the safety case. A respondent agreed with introducing a network capacity output measure under certain conditions and fully supported that it be based on the 1 in 20 standard. Another respondent supported the general direction but urged Ofgem to ensure that any measures that have potential penalties are within the control of the GDN and that sufficient funding is provided for any additional obligations.

Ofgem's views

1.47. We are currently giving further consideration to the appropriate quality of service arrangements and our approach to the accuracy of pipeline records and capacity outputs in the light of our consumer research, consultation responses and other relevant information. We will set out our proposed approach as part of initial proposals.

Responses to Chapter 5 - Incentives

1.48. Chapter 5 considered the options for the gas distribution incentives including capex rolling incentive and the information quality incentive, opex rolling incentive, mains replacement incentive, capacity output incentive, quality of service incentive, accuracy of gas pipeline incentive and others. We asked respondents the following questions:

- Have we identified all the issues for each of the incentives?
- Is it appropriate to better align capex and opex incentives?
- Do you agree with our initial view that a capex rolling incentive and information quality incentive (IQI) should be implemented?
- Given the issues raised is there a case for an opex rolling incentive?
- Do you agree with our proposals to retain the mains replacement incentive?
- Is flexibility capacity the key incentive to focus on for the capacity outputs? Should we assume that the use of existing NTS flex capacity is the most efficient flexibility capacity product?
- Is it appropriate to assume that NTS and LTS flat capacity are complementary products? Should we incentivise tradeoffs between flat capacity and interruptible capacity?
- Should we incentivise accuracy of pipeline records? If so, how could accuracy be measured and audited?
- Is there a case for an innovation funding incentive?

Views of GDNs

1.49. One GDN did not think we have identified all of the issues for each of the incentives. Another said that it would support annual incentives rather than logging up to the next price control review. Two GDNs did not have any other issues to add.

1.50. Two GDNs believe that the cost reporting framework should tie down the definitions which will limit the need to align the capex and opex incentives. One GDN agreed that the incentives should be better aligned but is unclear about what this means in practice. One GDN considered that the split between companies and customers of outperformance (underperformance) under a five year capex rolling incentive should be more even to strongly incentivise efficiencies and to better align capex and opex incentives.

1.51. One GDN argued for a low powered capex rolling incentive, and stated that capex relating to exit, network extensions and private networks should not be a part of the IQI and capex rolling incentive. Two GDNs generally agreed with implementing a capex rolling incentive and IQI but one considered that the power of the capex rolling incentive period should be increased, and noted that an IQI requires confidence in consultants' abilities to forecast. One GDN requested more details on the scheme before it comments and stated that there is a risk of incentives overload.

1.52. Three GDNs are in favour of implementing opex rolling incentives however one recognised their practical difficulties. One GDN cannot take a view unless the likely level of future opex allowances is set.

1.53. All of the GDNs supported our proposals to retain the mains replacement incentive. Most of them also supported adjusting for larger diameter mains and service costs. However two GDNs did not support inclusion of service costs. All of the GDNs argued that sharing factors should be symmetrical.

1.54. One GDN expressed uncertainty that flex capacity is the key incentive to focus on for the capacity outputs, and is doubtful that such a scheme would result in a meaningful measure for GDNs. Another GDN agreed that flex capacity is an important output however does not believe the trade-offs that Ofgem identified in Option 3 actually exist. This GDN also stated that it is not possible to make an assumption that the use of existing NTS flex capacity is the most efficient flex capacity product as in some circumstances NTS flex is not viable. One GDN said that they cannot make an assessment until they have clarity on both commercial and regulatory arrangements.

1.55. One GDN supported a single, high level incentive covering interruptions, flat capacity and flow-flex. Two GDNs considered NTS and LTS flat to be complementary products. One of these GDNs considered that it will be challenging to incentivise trade-offs between flat and interruptible capacity, and the other did not support a new incentive in this area. Another GDN considered it unlikely that any short-term incentive will have much impact on efficiency of investment decisions involving long-term trade-offs.

1.56. On incentivisation of pipeline records, please see paragraph 1.41.

1.57. All of the GDNs consider that there is a case for implementing an innovation funding incentive.

Views of other respondents

1.58. There was general support among the other respondents on the issues identified for each of the incentives. There were two main concerns: first, ensuring we consider incentives as a total package to avoid perversities; and, second, setting an effective capacity output incentive with interruption and offtake reform.

1.59. Three respondents supported better alignment of capex and opex incentives. One of them stated that this should be underpinned by the cost reporting framework. Another respondent considered that it would be inappropriate to better align the incentives if an information quality incentive is introduced as it would be more difficult to undertake comparative opex analysis if GDNs select different incentive strengths.

1.60. Four respondents supported implementation of a capex rolling incentive and IQI in principle. One of them expressed concern that this would be heavily reliant on the quality of consultants' forecasts. Energywatch is not convinced that a capex rolling incentive is required and does not agree with an IQI as a means of encouraging GDNs to improve performance.

1.61. One respondent did not think an opex rolling incentive is necessary if a tough opex target is set together with year on year efficiency factors and robust benchmarking, and another did not support opex rolling incentives for now but considered that they may be feasible from 2013. A respondent considered that they should only be introduced once the cost reporting framework is in place, and another expressed support for the principle of rolling incentives and suggested that they also be applied to other areas within the price control. Finally one respondent agreed with applying them to opex.

1.62. Three respondents generally agreed with the proposals to keep the mains replacement incentive. Another respondent expressed concern over interactions between the mains replacement incentive and the capacity output incentive. HSE stated that for any changes to the agreed methodology, it requires GDNs to commit to meeting replacement rates and that an equivalent risk has been removed.

1.63. The majority of the non-GDN respondents argued that there was insufficient clarity over exit and interruption to be able to set any capacity output incentive effectively. A number of these respondents advocated for a simple and straightforward incentive regime.

1.64. Three respondents agreed that NTS and LTS flat capacity are complementary however one of them noted that they may not be perfect complements. Another respondent argued that the provision of LTS capacity is substitutable with NTS capacity not complementary. Three respondents did not support incentives for flat and interruptible capacity at this time.

1.65. Five respondents supported an incentive for the accuracy of pipeline records. One of these respondents would like Sites and Meters to be included in such a scheme. A number of respondents considered it appropriate to base the scheme on an audit process that includes GDNS, IGTs, ICPs and suppliers. Energywatch does not support an incentive for the accuracy of pipeline records and considers that it should be part of normal business.

1.66. While, three respondents considered there to be a case for an innovation funding incentive, Energywatch and some others do not.

Ofgem's views

1.67. We note respondents' comments on the capex rolling incentive and IQI. We have set out in the consultation document further detail on the issues associated with the incentives and have set out our views in support of a strong capex rolling incentive. We agree with respondents' views that the incentives should be underpinned by an appropriate cost reporting framework. We also note that comparative opex analysis may be made more complex if capex and opex incentives were aligned and GDNs had different incentive strengths as a result of the IQI.

1.68. One respondent argued that the IQI is heavily reliant on consultant's forecasts however we consider that allowances set under the traditional RPI-X incentives are also reliant on consultant's forecasts.

1.69. We note that many of the GDNs support for the opex rolling incentive but we continue to have reservations on how this could be implemented. We will consider this further before reaching a view in our May 2007 initial proposals document.

1.70. We note GDN support for retaining the mains replacement incentive. We also note that some of the GDNs have a concern about including services costs in the incentive. We will be undertaking further work on how these costs can be appropriately included within the incentive for example one option could be to include a separate unit cost allowance for services costs. Alternatively since services costs are incurred when mains replacement is undertaken we could increase the unit costs for mains replacement to cover both mains and services costs. However, we would need to review further whether there is a constant relationship between mains replacement and services costs.

1.71. We note the respondents' concern over interactions between the mains replacement incentive and capacity outputs incentive. We intend to keep all the incentives under review to ensure that there is consistency across all the incentives.

1.72. We note respondents' views on the capacity outputs incentive and we are also reviewing how the incentive would work in particular if interruptions reform is delayed by one year and offtake reform goes ahead as planned.

1.73. Please refer to paragraph 1.47 on Ofgem's views on incentivising the accuracy of pipeline records.

1.74. We continue to consider whether there is a case for the introduction of an innovation funding incentive scheme in gas distribution.

Chapter 6 - Financial issues

1.75. This chapter set out our initial thoughts on some of the financial issues we propose to review. These include the cost of capital, tax allowances, financeability and depreciation. We asked respondents the following questions:

- Should we allow for an ex post adjustment for changes in tax treatment of certain kinds of expenditure, as outlined in paragraphs 6.3 and 6.4 of the third consultation document?
- Which key ratios should we use as financeability indicators?
- How should we finance replacement expenditure, having regard to its impact on the overall financeability of the price control?
- Should we change our depreciation rate for new assets in response to the assets being capitalised?

Views of GDNs

1.76. Three GDNs generally agreed that changes in tax treatment should be adjusted ex post, and one GDN considered that they should have specific re-openers.

1.77. GDNs generally considered that Ofgem should use financeability indicators currently used by credit rating agencies. They listed a number of key ratios including:

- Debt/RAV;
- PMICR;
- FFO/Debt; and
- Net(post-dividend) cash flow/capex.

1.78. One GDN also suggested a number of financial ratios that are used by equity analysts, including dividend yield, EBITDA and P/E ratio.

1.79. All of the GDNs considered the current 50/50 split of capitalising and expensing repex broadly acceptable going forward. One GDN proposed that we consider altering the asset lives and another suggested that it may be appropriate to increase the opex proportion of the repex allowance.

1.80. All of the GDNs supported a review of the depreciation rate for new assets, such as IS. One GDN proposed that the RAV depreciation be accelerated due to declining economic gas supplies.

Views of other respondents

1.81. Two respondents agreed with ex post adjustment for changes in tax treatment. One of them considered that such adjustments should be symmetric. A respondent

stated that GDNs should be allowed to re-open the price control if the issue is significant.

1.82. Responses from non-GDNs indicated that Ofgem should use financeability indicators that were used as part of DPCR4 and those used by credit rating agencies. Key ratios that respondents listed included:

- FFO interest cover;
- Adjusted FFO interest cover;
- FFO/debt;
- Retained cash flow/debt; and
- Debt/RAV.

1.83. In general, non-GDN respondents considered the current mechanism for financing replacement expenditure to be appropriate except one who argued that repex should be fully capitalised and depreciated and consideration should be given to addressing any resulting impact on financeability.

1.84. There were mixed views on whether a review of depreciation rates was necessary. Two respondents supported such a review while one considered IS costs not to be significant enough to warrant a change.

Ofgem's views

1.85. We note the comments on tax treatment. We will consult further on our approach to taxation in Initial Proposals.

1.86. We agree with the general principle that most rating agencies' key ratios are a useful guide to financeability. However, we have concerns with the adjusted interest cover ratios, particularly PMICR. These concerns are outlined in Appendix 10. We do not see the relevance of equity analyst indicators to Ofgem's approach to financeability, particularly since none of the GDNs are stand alone listed companies.

1.87. We note the general support for the repex financing mechanism. As discussed in chapter 5, we need to be aware of the interaction between financeability and the rate at which GDNs obtain funding for capital and replacement expenditure. We will consider any changes to the current proportion of repex that is expensed, or to asset lives in this context.

Chapter 7 - Sustainable development

1.88. In this chapter, we set out how we propose to take account of our sustainable development commitment and duty as part of GDPCR through gas shrinkage arrangements, network extensions, and, corporate social responsibility. We asked respondents the following questions:

- Which of the two forms of the network extensions incentive scheme should we adopt going forward?
- Do you agree with our assessment of the risks, costs and benefits attributable to the options for facilitating network extensions (see Appendix 6 of the third consultation document)?
- Is our proposed methodology for quantifying the costs and benefits associated with the various options appropriate (see Appendix 6 of the third consultation document)?
- Is it appropriate to set an incentive scheme which recognises the initiatives that some companies undertake with respect to their corporate social responsibilities?
- What other criteria should be included in a Corporate Social Responsibility incentive scheme for GDNs?

Views of GDNs

1.89. All of the GDNs favoured Option 3b (i.e. specifically link funding to an output measure) over Option 3a (i.e. reward GDNs that best serve the interest of consumers across chosen categories) as the form of the network extensions incentive scheme. Some of the GDNs argued that Option 3a would not provide enough incentives to carry out network extension activity. Three GDNs preferred Option 6 (i.e. amend the economic test for network extensions that tackle fuel poverty) over Option 5 (i.e. treat income from network extensions that tackle fuel poverty as excluded revenue).

1.90. Three GDNs supported our assessment of the risks, costs and benefits attributable to the options for facilitating network extensions. However one considered that we have overstated the complexity associated with Option 6 and argued that this option allows UIPs and IGTs to participate. One GDN failed to see how either Option 5 or 6 would have a detrimental effect on competition in connections. One GDN stated that they require further details to assess fully their risks, costs and benefits.

1.91. Three GDNs considered our proposed methodology for quantifying the costs and benefits associated with the various options for network extensions appropriate. One GDN suggested that we use real rather than theoretical examples for communities. Another requires more information on the mechanism behind the options to analyse the methodology.

1.92. All of the GDNs supported an incentive scheme which recognises the initiatives related to corporate social responsibility. Two GDNs considered that such a scheme should be separate to any incentive on network extensions and should not include CO detectors.

1.93. GDNs suggested the following criteria that should be included in a CSR incentive scheme:

- environmental projects;

- community interest; and
- education and skills.

Views of other respondents

1.94. Three respondents expressed support for our initial view that Option 3 could be implemented alongside either Option 5 or 6. One respondent did not support either option for the incentive scheme as it considers corporate social responsibility initiatives something that should be carried out by GDNs anyway however it supported Option 6 above Option 5. A non-GDN supported Option 3b and 6 which would result in the best alignment of incentives and objectives. A respondent noted that any incentive scheme should not result in complex charging structures. Another stated that an incentive scheme should be available to IGTs. Finally one respondent did not consider Option 3a to be adequate or appropriate but does think that Option 3b could work alongside Option 5.

1.95. One respondent suggested that the incentive scheme should be restricted to premises close to the GDNs' existing network and favoured Option 6 over Option 5. This respondent questioned how we would calculate the funding for a project in a way that is the same for both GDNs and IGTs, and concluded that GDNs should only be allowed to develop infill projects as an IGT completely separate from the rest of the GDN to ensure they are subject to the same conditions as other IGTs.

1.96. Two respondents considered that further analysis is required to assess the risks, costs and benefits associated with the options to carry out network extensions.

1.97. One respondent considered our approach to quantifying the social benefits associated with the options to facilitate network extensions helpful but understates them. This respondent suggested we use the cost of alternative measures to eradicate fuel poverty (e.g. household scale renewables or long term price subsidies) as a proxy of the social benefits. Another respondent suggested we take account of the full range of outcomes when estimating the social and environmental benefits.

1.98. Two respondents welcomed a CSR incentive scheme while one did not. A respondent stated that the initiatives under such a scheme would be expected to enhance brand and reputation of GDNs therefore it should be funded by shareholders not customers. Energywatch agreed with the scheme but considered that it should be limited to network extensions. Finally HSE welcomed the incentive scheme to promote public awareness of gas safety and carbon monoxide risks.

Ofgem's views

1.99. The objective of the incentive scheme for network extensions (i.e. Option 3) is to encourage GDNs to find ways to increase the affordability of network extensions by, for example, making resources available for the coordination of existing sources of government funding. The intent of this incentive scheme is not to fund network extensions.

1.100. We will be careful in considering any distorting effects on competition in the connections market for network extensions in fuel poor non-gas communities, and address them appropriately. In addition, we will consider any effects of the options on the IGT market.

1.101. As part of initial proposals in May 2007, we will publish a final impact assessment which will quantify the costs and benefits associated with each of the options to facilitate network extensions. We will be careful to consider all of the suggestions made by respondents.

1.102. We continue to consider whether or not we will propose a CSR incentive scheme in initial proposals in May 2007. As part of this, we will take into account respondents' suggested criteria.

Chapter 8 - Other issues

1.103. Chapter 8 considered other issues that are specific to GDPCR including the arrangements for the funding of xoserve and independent systems. We asked respondents the following questions:

- Do you agree with our assessment of the risks, costs and benefits attributable to the two options for the funding of xoserve?
- If we adopt a core services plus user pays approach (Option 2), how should we define core services and user pays services?
- What costs/benefits would your organisation incur in the event that we adopt Option 2?
- What questions do we need to ask GTs, xoserve and shippers in order to accurately quantify the costs associated with Option 2?
- In the event that the Secretary of State requires GDNs to put in place further alternative arrangements relating to independent systems, should the excess costs associated with independents systems be:
- Spread across all GB consumers via transmission charges; or,
- Borne by customers located in gas distribution areas where independent systems are located (primarily Scotland)?

Views of GDNs

1.104. While three GDNs broadly agreed with the proposed assessment of the risks, costs and benefits attributable to the options for the funding of xoserve, one had a number of comments on the assessment and is concerned that classifying some existing services as user pays may worsen services. Two GDNs considered that the costs of implementing a user pays may outweigh any benefits.

1.105. Two GDNs listed criteria developed by the Working Group for user pays services including: key stakeholders are users; users have discretion on whether to use the service; and, costs associated with the services are usage dependent. One of these GDNs included 'costs associated with the services are clearly identifiable and

separable from core xoserve costs' as a fourth criterion. One GDN advocated for a narrower scope for user pays, and another proposed an alternative way of defining xoserve services which consists of reviewing current and future services and determining whether they are funded through the GDPCR or through user pays.

1.106. GDNs listed various costs that they would incur if user pays was adopted including increased administration costs and lower revenues if some existing services became user pays. One GDN noted that although there would be increased costs to administer new services, this should encourage only cost effective change which could result in additional revenue for GTs. Costs that xoserve would incur include increased uncertainty of revenue with potential for stranded costs. Shippers could benefit from reduced costs associated with the provision of new services associated with UNC modifications.

1.107. GDNs recommended we ask GTs, xoserve and shippers the following:

- Shippers. Nature and volume of the potential user pays services they want, how the costs should be allocated to them and the likely utilisation of existing services that may be reclassified as user pays.
- Xoserve. Cost of providing potential user pays services.

1.108. Two GDNs considered that the excess costs associated with independent systems should be borne by customers located in the gas distribution areas where independent systems are located. One GDN argued for them to be spread across all GB consumers via transmission charges. One GDN noted that we need to undertake a licence consultation to amend the alternative arrangements in order to put in place enduring arrangements post 31 March 2008.

Views of other respondents

1.109. One respondent considered our qualitative IA of xoserve to be a clear exposition of the issues that need to be considered however the conclusion is not as clear-cut as described. Another respondent supported the user pays option however did not agree that responsiveness will be enhanced and argued that changes to core services should be funded through a recovery mechanism. One respondent considered that the net benefits of user pays are likely to be negative and another is not convinced of the benefits.

1.110. In terms of how to define core and user pays services, the general tone among respondents was that existing core services should continue to be treated as core and that user pays should be restricted to new services. Some respondents listed the criteria developed by the Working Group.

1.111. Respondents mainly listed administrative costs being incurred if a user pays model is adopted. One respondent stated that a benefit of user pays is that it would encourage xoserve to tailor services enabling shippers to differentiate products. One respondent stated that it would incur upfront and ongoing administration and system

costs as well as increased revenue risk and the likelihood of stranding costs. This respondent also said that there is potential that demand for services will be lower than under the current regime which would allow costs to be reduced.

1.112. Other respondents suggested we ask GTs, xoserve and shippers the following questions to quantify accurately the costs associated with a core services plus user pays model:

- Which services should be core?
- Should costs be volume or portfolio driven?
- What will the costs of the new governance arrangements be for user pays?
- How usage of existing services will vary and what new services will be requested which cannot be requested under current arrangements?
- What is the relative priority that GTs will place on additional revenue from new services against the delivery of existing services where they have obligations?

1.113. Two respondents considered that the excess costs associated with independent systems should be spread across all GB consumers via transmission charges. One respondent recommended that the excess costs be borne by GB customers but that charges be localised to the GDN.

Ofgem's views

1.114. Ofgem notes the concerns raised by a range of respondents to the introduction of option 2 - core and user pays services. We note that some respondents are concerned that option 2 will lead to a reduction in service levels, and could drive lower revenues with increasing costs.

1.115. Alongside the responses the industry dialogue work group has now reported. Before we can reach a view on the funding of xoserve further work is required in particular to assess the costs of the arrangements. We have asked the working group for more detail of the likely level of increasing costs to help inform our final Impact Assessment that we intend to undertake in our initial proposals document in May 2007. This is both the costs incurred by shippers but also xoserve and the GTs.

1.116. We note the differing views of the respondents on independent systems and the scope of any enduring arrangements. Subject to the approach of the Secretary of State, we intend to amend the price control to take account of any new alternative arrangements.

Appendix 6 – Accounting adjustment and issues

Accounting adjustment to capex and repex

1.1. The accounting adjustments to capex and repex as described in chapter 2 are set out in Tables A6.1 and A6.2 below.

Table A6.1 Proposed accounting adjustments to capex, (£m, 2005-06 prices)

	NGG				NGN	SGN		WWU
GDN	**East of England**	**London**	**North-West**	**West Midlands**	**North England**	**Scotland**	**South England**	**Wales West**
Disallowed costs - related party margins	(2.0)	(1.2)	(0.9)	(0.8)	-	-	-	-
Accounting policies - capitalisation	-	-	-	-	(2.8)	-	-	(0.3)
Total adjustments to capex	(2.0)	(1.2)	(0.9)	(0.8)	(2.8)	-	-	(0.3)

Table A6.2 Proposed accounting adjustments to repex, (£m, 2005-06 prices)

	NGG				NGN	SGN		WWU
GDN	**East of England**	**London**	**North-West**	**West Midlands**	**North England**	**Scotland**	**South England**	**Wales West**
Disallowed costs - related party margins	(0.1)	(0.1)	(0.1)	(0.1)	-	-	-	-
Accounting policies - reconciliation to regulatory accounts								(0.6)
Accounting policies - capitalisation	(0.4)	(0.4)	(0.4)	(0.4)	-	-	-	-
Total adjustments to repex	(0.5)	(0.5)	(0.5)	(0.5)	-	-	-	(0.6)

Treatment of Connections margins

1.2. This section sets out a number of scenarios for connections to explain our treatment of connections margins for both monopoly and competitive connections activities and to show that this is consistent with our approach for the one-year control. Table A6.3 on page 23 sets out each of the scenarios.

Scenario 1 - Monopoly connections work with a loss from undercharging

1.3. In this example we have assumed that there is a price control allowance of £6 million for connections to existing housing to cover costs associated with the 10 metre rule, final connections and employee ordered works.

1.4. The connections work is carried out by a related party to the GDN, ABC Connections. ABC Connections carried out this work at a cost of £10 million and applied a 10 per cent profit margin so the total charge to the GDN is £11 million.

1.5. We have assumed that 60 per cent of the costs relate to work covered by the 10 metre rule, the final connections allowance and employee ordered works. This work costs £6.6 million (£6 million plus the related party margin of £0.6 million).

1.6. The cost of the remaining work is charged to the customers requiring the connections. This work costs £4.4 million (£4 million plus the related party margin of £0.4 million).

1.7. In practice we have assumed that the GDN only recovers £3 million in income from connections charging so that it makes a loss of £1 million (or £1.4 million if the related party margin is taken into account).

1.8. The GDN submits net capex in its BPQ of £8 million. This is made up of £6.6 million of costs for the 10 metre rule and final connections allowance and a further £1.4 million to recover losses associated with undercharging (effectively a negative margin).

1.9. As this is a monopoly connections activity we take actual costs and income from connection charges into account. This results in net capex of £7 million (=a-g in the table) being allowed and £1 million of margins being removed.

Table A6.3 - Connections margin example

			Scenario 1 - monopoly connections with related party margins and a loss from undercharging		Scenario 2 - monopoly connections with related party margins and a profit from connection charges		Scenario 3 - competitive connections with related party margins and a profit from connection charges
	Net Capex allowance		6.0		6.0		1.0
a)	**Costs of related party**		10.0		10.0		10.0
	Related party profit margin	10%	1.0		1.0		1.0
b)	**Related party charge to GDN**		11.0		11.0		11.0
c)	**Ten-metre rule and final connections allowance (with related party profit margin)**	60%	6.6		6.6	10%	1.1
d)	**Ten-metre rule and final connections allowance (without related party profit margin)**		6.0		6.0		1.0
e)	**Costs directly recoverable from customers requiring connections (with related party profit margin)**	40%	4.4		4.4	90%	9.9
f)	**Costs directly recoverable from customers requiring connections (without related party profit margin)**		4.0		4.0		9.0
g)	**Income from customer connection charges***		3.0		5.0		11.4
h)	**Net Capex in BPQs**	= c + e - g = b - g	8.0	= c	6.6	= c	1.1
	Margins removed		1.0		1.6		0.1
j)	**Net capex with adjustment for margins**	= d + f - g = a - g	7.0	= d + f - g = a - g	5.0	=d	1.0
	NPV benefit / cost to GDN under the capex roller / pot 2		-0.3		0.3		0.0

* Note we have assumed levels of contribution to show cases of GDNs making losses and profits on connections activities. In Scenario 1 we have assumed the GDN makes a loss. In Scenarios 2 and 3 we have assumed it makes a profit. Inputs are shown in blue and calculated values are shown in black. We have assumed that the strength of incentives under Pot 2/the capex roller is 30 per cent.

1.10. This approach is consistent with our policy for the one year control. We removed the related party margins on net capex associated with the 10 metre rule and final connections, which are £0.6 million in this case. We also allowed the GDNs to recover their loss associated with undercharging which is £1 million in this case. Overall this results in net capex of £7 million (=d+f-g in the Table above). Under the capex rolling incentive (or pot 2) the GDN is exposed to £0.3 million of the loss on the connections work.

Scenario 2 - Monopoly connections with a profit on connections charges

1.11. The price control allowance and costs are the same as in the previous scenario. We have now assumed that the GDN makes a profit on its connection charges of £1 million (£0.6 million if the related party margin is taken into account as a cost).

1.12. The GDN submits net capex of £6.6 million associated with the ten metre rule and final connections allowance.

1.13. As this is a monopoly connections activity we take into account actual costs and contributions in updating the RAV. This results in net capex of £5million (=a-g).

1.14. This is equivalent to removing the related party margin of £0.6 million and then a further £1 million of profit from the connection charges. This approach is clearly symmetric to the treatment in the one year control where we allowed the GDNs to recover losses on monopoly connections activities.

1.15. Under the capex rolling incentive (or pot 2) the GDN retains £0.3 million of the profit on the connections work.

Scenario 3 - Competitive connections with a profit on connections charges

1.16. In this example we have assumed that there is a price control allowance of £1 million for connections to new housing. The smaller allowances reflect the fact that a smaller proportion of such connections would attract the 10 metre rule allowance.

1.17. The costs of the work are as before with a 10 per cent margin applied by ABC Connections. We have assumed that 10 per cent of the costs are associated with the 10 metre rule and final connections allowance. This work costs £1.1 million (£1 million plus a £0.1 million related party margin).

1.18. The costs of the remaining work are recoverable from the customers requiring the connections. This work costs £9.9 million (£9 million plus a £0.9 million related party margin).

1.19. We have assumed that the GDN makes a profit of £2.4 million on this work (£1.5 million if the related party margin is included in the costs). The GDN submits

net capex of £1.1 million associated with the 10 metre rule. As this is a competitive activity no profits or losses associated with the connections feed into net capex or adjustments to the RAV.

1.20. As this is a competitive activity we only remove the related party margin from the net capex so the adjusted net capex is £1.0 million. There is no adjustment for profits on the connection charges. Again this is symmetric to the treatment of losses on competitive connection activities for the one year control. GDNs were fully exposed to such losses.

Appendix 7 - Operating expenditure

1.1. This appendix provides further detail from the operating cost analysis discussed in chapter 3 of the main consultation document.

1.2. The following table summarises LECG's approach to benchmarking for each of the indirect activities, the low and high benchmarks set, and the impact on each of the GDNs for the price control period.

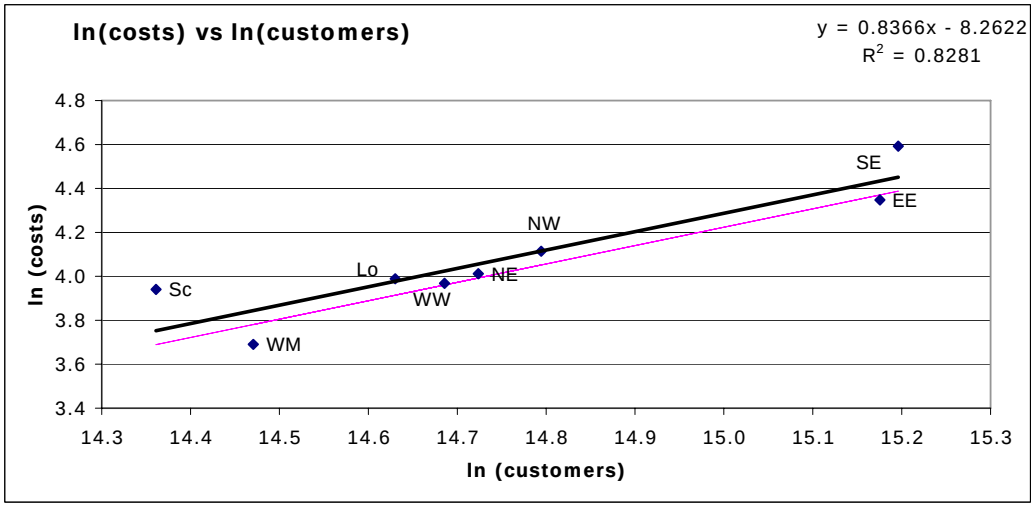
		NGG	NGN	SGN	WWU
Information Systems					
Benchmark of IS support costs as a percentage of revenue against other GDNs. Low savings median benchmark, high savings upper quartile.	GDN score	1.9%	2.2%	1.3%	2.4%
	Low 2.0%	£0.0m	£2.3m	£0.0m	£6.3m
	High 1.8%	£10.5m	£7.0m	£0.0m	£10.8m
Finance, Audit and Regulation					
Finance and audit benchmarked against European companies as a percentage of revenue. Regulation against previous Transco benchmark	GDN score	1.51%	1.08%	0.75%	1.11%
	Low 1.05%	£25.1m	£2.3m	£0.0m	£0.9m
	High 0.62%	£48.2m	£8.2m	£4.9m	£7.1m
Insurance					
Benchmark between GDNs and apply TPCR cyclical view of cost trends.	GDN score	1.46%	1.08%	0.85%	1.02%
	Low 1.05%	£35.7m	£1.3m	£1.7m	£2.1m
	High 0.98%	£39.8m	£2.3m	£1.7m	£2.7m
Property Management					
Combination of floorspace per km (for size), 3rd party rent levels, and benchmarking facility management against other GDNs					
	Low	£9.1m	£0.3m	£0.0m	£5.8m
	High	£17.2m	£0.9m	£0.9m	£11.3m
Corporate centre and communications					
Benchmark as percentage of operating costs between GDNs.	GDN score	1.31%	1.05%	0.48%	1.21%
	Low 1.13%	£5.4m	£0.8m	£0.0m	£0.8m
	High 0.90%	£12.3m	£2.0m	£0.0m	£2.8m
Human Resources					
Thirdparty benckmark as percentage of revenues	GDN score	0.44%	0.29%	0.54%	0.27%
	Low 0.28%	£8.9m	£0.1m	£3.0m	£0.0m
	High 0.17%	£14.8m	£1.6m	£6.3m	£1.4m
Legal					
Benchmark as percentage of revenues against other GDNs	GDN score	0.18%	0.31%	0.17%	0.24%
	Low 0.21%	£0.0m	£3.2m	£0.1m	£0.4m
	High 0.18%	£0.2m	£3.7m	£0.1m	£0.9m
Procurement and Logistics					
Benchmark as percentage of operating costs against other GDNs	GDN score	1.27%	0.92%	0.60%	1.04%
	Low 0.98%	£8.2m	£1.5m	£0.0m	£0.8m
	High 0.84%	£12.4m	£2.1m	£0.0m	£1.9m
Total Indirect opex adjustments					
	Low savings	£92.1m	£11.7m	£4.8m	£17.0m
	High savings	£155.2m	£27.8m	£13.8m	£38.8m

1.3. The following table summarises the type of analysis carried out by PB Power for each of the direct operating cost activities and shows the proposed adjustment for each GDN over the five years of the price control period. Negative figures are a reduction to the GDNs' forecast figures, positive figures are an increase.

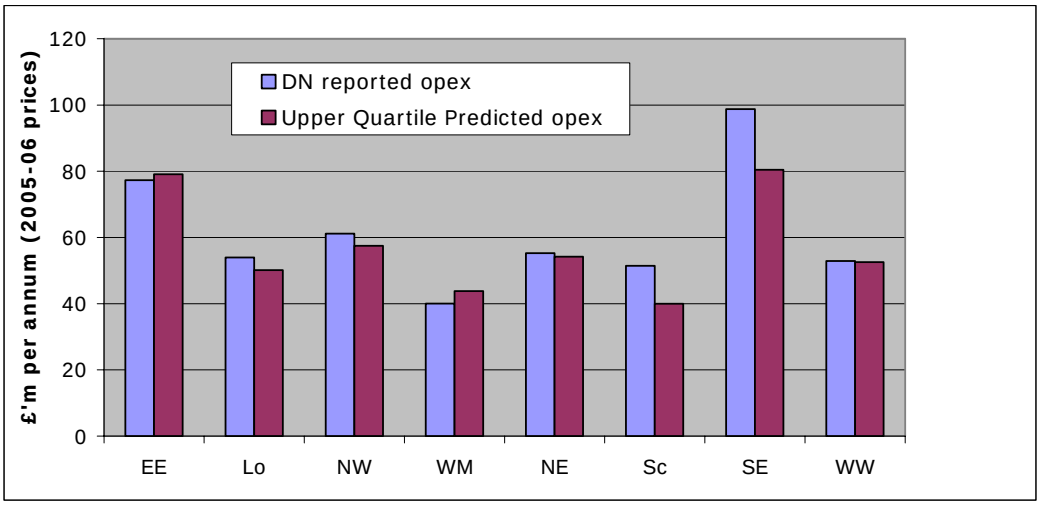
		NGG				NGN	SGN		WWU
Opex Activities	**Summary of analysis undertaken**	**East of England**	**London**	**North West**	**West Midlands**	**North England**	**Scotland**	**South England**	**Wales & west**
Work Management	Bottom up analysis and regression analysis using PREs, repairs, length of <7bar main as drivers; Unit cost analysis comparing submission, upper quartile & result of bottom up analysis	-£22.6m	-£12.4m	-£12.0m	-£9.0m	-£10.9m	-£17.6m	-£11.8m	-£6.3m
Emergency	Regression analysis using PRE & emergency repairs as drivers; Bottom up analysis to calculate cost/PRE; Unit cost analysis comparing submission, upper quartile & result of bottom up analysis; Analysis of loss of meterwork effect	-£7.0m	-£3.1m	-£3.1m	-£10.3m	-£2.0m	-£3.2m	-£10.7m	-£12.3m
Repair	Regression approach in comparing unit cost between GDNs; Ordinary Least Square for setting target benchmark	-£9.9m	-£18.5m	-£5.0m	-£4.6m	-£8.6m	-£2.5m	-£12.9m	-£2.5m
Maintenance: LTS	Comparison of unit cost between GDNs; Relevant findings on NTS maintenance from TPCR	-£9.9m	-£11.4m	-£13.7m	£3.8m	-£3.0m	-£9.0m	-£3.8m	-£0.6m
Maintenance: Storage	Bottom up analysis of inspection and routine maintenance for low pressure storage installations; Regression analysis on costs of gas holder painting	£1.7m	£0.3m	£6.6m	£0.1m	£1.3m	-£2.3m	£2.7m	£4.7m
Maintenance: Other	Regression analysis between GDNs; Bottom up analysis expressed as costs/km	-£9.0m	-£4.9m	-£3.6m	-£3.8m	£3.2m	£1.4m	£1.8m	-£12.4m
Other Direct	Regression analysis between GDNs with network length as the basis;	-£0.2m	-£1.2m	£0.7m	£0.0m	-£3.1m	-£0.3m	-£1.6m	-£4.1m
Shrinkage volume	Consider GDNs' forecast leakage against changes in average system pressure and increasing proportion of PE pipes on the distribution network	No adjustments proposed to shrinkage volumes							

1.4. Please note that to carry out regressions for storage maintenance, the costs of specific projects such as installation of holder hand-rails were removed. The above figures for storage maintenance include both the efficiency adjustment and the add back of the cost of those specific projects.

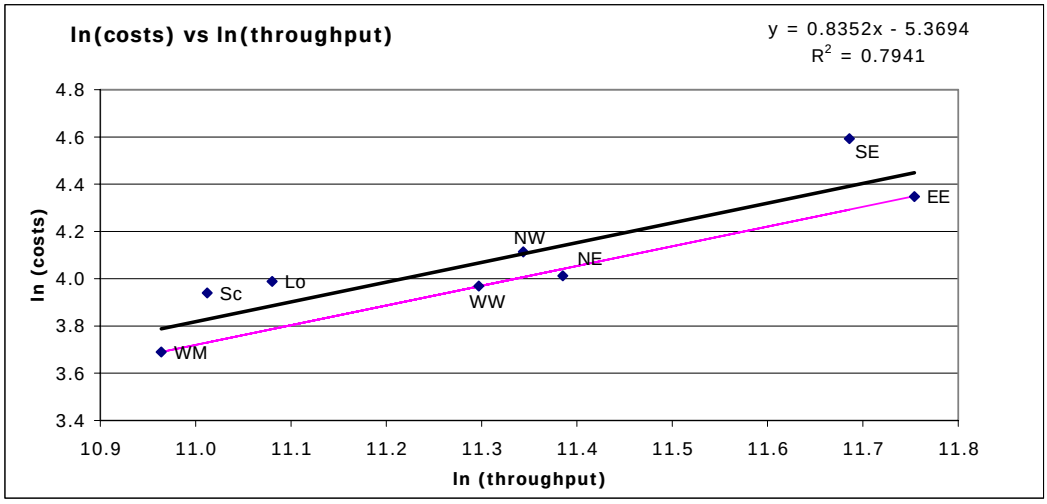
1.5. The following table and graphs show the regression of total direct operating costs (excluding shrinkage) against customer numbers for 2006-07 and the impact of moving each GDN to upper quartile efficiency levels.



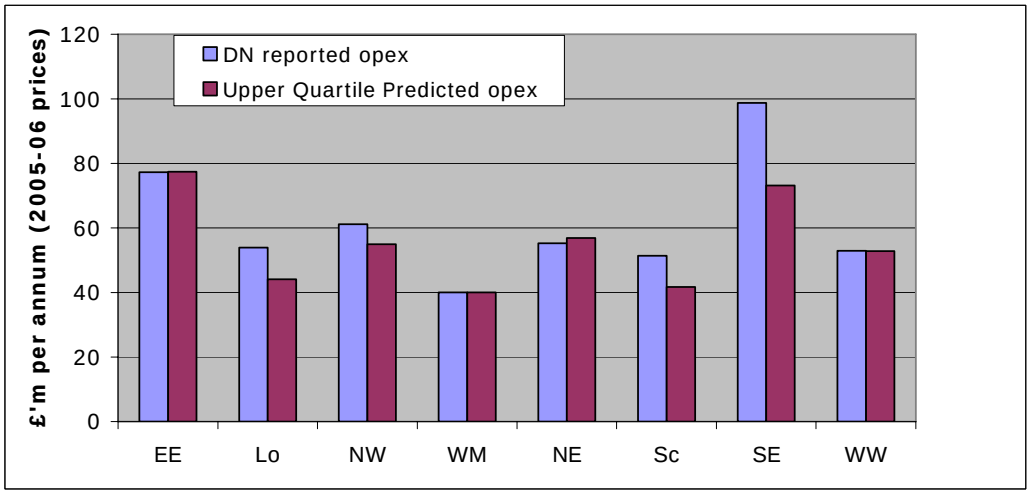
£'m (2005-06 prices)	Customers	Direct Opex	Upper Quartile Predicted opex	Variance
East England	3,896,365	77.3	79.1	1.8
London	2,258,665	54.0	50.1	-3.9
North West	2,661,270	61.2	57.5	-3.7
West Midlands	1,925,234	40.0	43.8	3.8
North England	2,480,147	55.2	54.2	-1.0
Scotland	1,725,717	51.4	40.0	-11.4
South England	3,977,807	98.8	80.5	-18.3
Wales & West	2,387,595	52.9	52.5	-0.4
Total		**490.8**	**457.7**	**-33.1**



1.6. The following table and graphs show the regression of total direct operating costs (excluding shrinkage) against throughput numbers for 2006-07 and the impact of moving each GDN to upper quartile efficiency levels.



£'m (2005-06 prices)	Throughput	Direct Opex	Upper Quartile Predicted opex	Variance
East England	127,278	77.3	77.4	0.1
London	64,882	54.0	44.1	-9.9
North West	84,438	61.2	55.0	-6.2
West Midlands	57,747	40.0	40.0	0.0
North England	88,016	55.2	56.9	1.7
Scotland	60,603	51.4	41.7	-9.8
South England	118,868	98.8	73.1	-25.6
Wales & West	80,578	52.9	52.9	0.0
Total		**490.8**	**441.1**	**-49.7**



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Appendix 8 - Capital and replacement expenditure tables

1.1. This appendix shows tables for each GDN with costs on a consistent basis, PB Power's recommended efficiency adjustments and its recommended projections for 2008-09 to 2012-13.

National Grid Gas

East England

Table A8.1 PB Power adjustments and recommendations for Net Capex, East England (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	6.9	7.8	9.1	19.0	10.5	53.3
Connections	9.6	9.4	9.3	9.5	9.8	47.5
Mains Reinforcement	3.5	2.2	3.1	2.7	2.8	14.2
Governors	0.5	0.7	0.5	0.5	0.7	2.9
Other Operational	1.9	2.0	1.8	1.8	1.8	9.3
Non Operational	14.1	10.2	17.0	24.5	19.0	84.8
Total Net Capex	**36.4**	**32.2**	**40.7**	**58.0**	**44.5**	**211.9**
PB recommended adjustments- Capex						
LTS & Storage	-0.2	-0.9	-1.9	-3.6	-0.2	-6.8
Connections	-2.1	-2.1	-2.2	-2.5	-3.0	-12.0
Mains Reinforcement	0.3	0.2	0.0	-0.1	-0.2	0.2
Governors	0.0	0.0	0.0	0.0	0.0	0.0
Other Operational	0.0	0.0	-0.3	-0.4	-0.5	-1.3
Non Operational	0.3	0.0	-0.2	-0.2	0.0	-0.2
Total Net Capex	**-1.7**	**-2.8**	**-4.7**	**-6.8**	**-4.0**	**-20.0**
PB recommended projections- Capex						
LTS & Storage	6.7	6.9	7.2	15.4	10.3	46.5
Connections	7.4	7.3	7.1	6.9	6.7	35.5
Mains Reinforcement	3.8	2.3	3.1	2.6	2.6	14.4
Governors	0.5	0.7	0.5	0.5	0.7	2.9
Other Operational	1.9	2.0	1.5	1.4	1.3	8.0
Non Operational	14.4	10.2	16.8	24.3	19.0	84.6
Total Net Capex	**34.7**	**29.4**	**36.1**	**51.2**	**40.6**	**191.9**

Table A8.2 PB Power adjustments and recommendations for Net Repex, East England (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	57.9	66.3	67.9	72.5	74.4	338.9
Services	32.9	36.4	36.7	35.9	37.0	178.9
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**90.8**	**102.7**	**104.5**	**108.4**	**111.3**	**517.8**
PB recommended adjustments- Repex						
Mains	9.6	1.0	-0.3	-0.6	-3.1	6.5
Services	-2.4	-6.2	-6.7	-6.6	-7.8	-29.6
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**7.1**	**-5.2**	**-6.9**	**-7.2**	**-11.0**	**-23.2**
PB recommended projections- Repex						
Mains	67.5	67.2	67.6	71.9	71.2	345.4
Services	30.5	30.2	30.0	29.4	29.2	149.3
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**97.9**	**97.5**	**97.6**	**101.2**	**100.4**	**494.6**

London

Table A8.3 PB Power adjustments and recommendations for Net Capex, London (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	26.3	8.6	8.8	22.7	17.9	84.3
Connections	5.9	5.9	6.1	6.2	6.3	30.3
Mains Reinforcement	1.6	1.5	1.5	3.2	3.3	11.1
Governors	2.2	2.2	2.3	2.4	0.6	9.7
Other Operational	1.6	1.5	1.7	1.5	1.6	7.9
Non Operational	12.4	7.3	10.7	15.8	12.8	59.0
Total Net Capex	**50.0**	**27.0**	**31.1**	**51.7**	**42.5**	**202.3**
PB recommended adjustments- Capex						
LTS & Storage	-1.1	-2.0	-1.8	-14.7	3.0	-16.6
Connections	-0.7	-0.8	-1.2	-1.4	-1.6	-5.7
Mains Reinforcement	-0.3	-0.2	-0.2	-0.7	-0.8	-2.2
Governors	-1.6	-1.6	-1.7	-1.8	0.0	-6.8
Other Operational	0.0	-0.1	-0.1	-0.1	-0.4	-0.7
Non Operational	0.2	0.0	-0.1	-0.1	0.0	-0.1
Total Net Capex	**-3.6**	**-4.7**	**-5.2**	**-18.8**	**0.2**	**-32.0**
PB recommended projections- Capex						
LTS & Storage	25.2	6.6	7.0	8.0	20.9	67.7
Connections	5.1	5.0	4.9	4.8	4.7	24.6
Mains Reinforcement	1.3	1.3	1.3	2.5	2.5	8.9
Governors	0.6	0.6	0.6	0.6	0.6	2.9
Other Operational	1.6	1.4	1.6	1.4	1.2	7.2
Non Operational	12.6	7.3	10.6	15.7	12.8	58.9
Total Net Capex	**46.5**	**22.3**	**25.9**	**33.0**	**42.7**	**170.3**

Table A8.4 PB Power adjustments and recommendations for Net Repex, London (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	70.6	62.4	66.3	67.9	64.9	332.1
Services	31.9	29.2	30.9	33.2	32.7	157.9
LTS	0.0	0.0	0.0	0.1	0.1	0.2
Total Net Repex	**102.4**	**91.5**	**97.2**	**101.2**	**97.8**	**490.1**
PB recommended adjustments- Repex						
Mains	0.4	7.6	1.7	-3.1	-1.8	4.7
Services	-6.6	-6.8	-7.8	-8.6	-9.4	-39.2
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**-6.2**	**0.7**	**-6.0**	**-11.7**	**-11.2**	**-34.4**
PB recommended projections- Repex						
Mains	70.9	69.9	68.0	64.8	63.1	336.8
Services	25.3	22.3	23.1	24.7	23.3	118.7
LTS	0.0	0.0	0.0	0.1	0.1	0.2
Total Net Repex	**96.2**	**92.3**	**91.1**	**89.5**	**86.5**	**455.6**

North West

Table A8.5 PB Power adjustments and recommendations for Net Capex, North West (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	8.8	13.5	22.2	9.3	3.9	57.7
Connections	3.8	4.2	4.3	4.7	4.7	21.7
Mains Reinforcement	0.8	2.8	2.8	2.2	4.2	12.8
Governors	2.8	2.7	3.5	3.0	3.7	15.7
Other Operational	1.5	1.6	1.5	1.6	1.6	7.8
Non Operational	9.8	8.2	13.7	17.8	14.2	63.7
Total Net Capex	**27.5**	**33.0**	**48.1**	**38.5**	**32.3**	**179.3**
PB recommended adjustments- Capex						
LTS & Storage	-0.1	-6.3	-16.0	0.3	12.2	-9.8
Connections	0.1	-0.4	-0.6	-1.1	-1.1	-3.0
Mains Reinforcement	0.1	0.0	0.0	-0.2	-1.9	-2.0
Governors	-2.2	-2.3	-2.9	-2.6	-3.3	-13.2
Other Operational	0.0	0.0	0.0	0.0	-0.4	-0.5
Non Operational	0.3	0.0	-0.2	-0.2	0.0	-0.2
Total Net Capex	**-1.8**	**-9.0**	**-19.7**	**-3.7**	**5.5**	**-28.7**
PB recommended projections- Capex						
LTS & Storage	8.7	7.2	6.2	9.6	16.1	47.9
Connections	3.9	3.8	3.7	3.6	3.6	18.6
Mains Reinforcement	0.9	2.8	2.8	2.0	2.3	10.8
Governors	0.6	0.4	0.6	0.4	0.4	2.4
Other Operational	1.5	1.6	1.5	1.6	1.2	7.3
Non Operational	10.1	8.2	13.5	17.6	14.2	63.5
Total Net Capex	**25.7**	**24.0**	**28.3**	**34.8**	**37.8**	**150.6**

Table A8.6 PB Power adjustments and recommendations for Net Repex, North West (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	70.7	71.0	70.0	71.7	68.3	351.6
Services	30.5	30.5	29.7	29.8	28.8	149.4
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**101.2**	**101.5**	**99.7**	**101.5**	**97.1**	**500.9**
PB recommended adjustments- Repex						
Mains	-10.6	-11.1	-10.3	-12.0	-12.7	-56.7
Services	-6.3	-6.5	-5.8	-5.9	-6.0	-30.5
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**-16.9**	**-17.5**	**-16.1**	**-17.9**	**-18.7**	**-87.2**
PB recommended projections- Repex						
Mains	60.1	59.9	59.6	59.7	55.6	294.9
Services	24.2	24.0	24.0	23.9	22.8	118.8
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**84.3**	**83.9**	**83.6**	**83.5**	**78.3**	**413.7**

West Midlands

Table A8.7 PB Power adjustments and recommendations for Net Capex, West Midlands (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	2.0	2.2	2.1	1.7	1.7	9.7
Connections	3.3	3.4	3.5	3.6	3.6	17.5
Mains Reinforcement	1.9	2.1	2.5	2.7	2.2	11.4
Governors	1.1	0.2	0.2	0.6	1.1	3.1
Other Operational	1.2	1.5	1.4	1.5	1.5	7.1
Non Operational	8.2	5.4	8.9	11.7	8.9	43.1
Total Net Capex	**17.7**	**14.8**	**18.7**	**21.8**	**19.0**	**92.0**
PB recommended adjustments- Capex						
LTS & Storage	0.0	0.0	0.0	0.0	0.0	-0.1
Connections	-0.4	-0.5	-0.7	-0.8	-0.8	-3.2
Mains Reinforcement	0.3	0.3	-0.5	0.0	-0.2	-0.1
Governors	-0.8	0.0	0.0	-0.1	-0.9	-1.9
Other Operational	0.0	0.0	0.0	0.0	-0.3	-0.4
Non Operational	0.2	0.0	-0.2	-0.2	0.0	-0.2
Total Net Capex	**-0.8**	**-0.2**	**-1.4**	**-1.2**	**-2.3**	**-5.8**
PB recommended projections- Capex						
LTS & Storage	2.0	2.2	2.1	1.7	1.7	9.6
Connections	3.0	2.9	2.9	2.8	2.8	14.3
Mains Reinforcement	2.2	2.4	2.0	2.7	2.0	11.4
Governors	0.2	0.2	0.2	0.4	0.2	1.2
Other Operational	1.2	1.5	1.4	1.5	1.2	6.7
Non Operational	8.4	5.4	8.7	11.5	8.9	42.9
Total Net Capex	**16.9**	**14.6**	**17.3**	**20.6**	**16.7**	**86.1**

Table A8.8 PB Power adjustments and recommendations for Net Repex, West Midlands (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	48.8	47.2	46.1	47.1	45.3	234.5
Services	22.0	22.5	22.3	21.4	21.9	110.2
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**70.8**	**69.6**	**68.5**	**68.5**	**67.2**	**344.6**
PB recommended adjustments- Repex						
Mains	-4.4	-4.9	-6.3	-6.9	-7.4	-29.9
Services	-5.0	-5.4	-5.5	-5.1	-5.6	-26.6
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**-9.4**	**-10.3**	**-11.8**	**-12.0**	**-13.1**	**-56.6**
PB recommended projections- Repex						
Mains	44.4	42.2	39.9	40.2	37.9	204.5
Services	17.0	17.1	16.8	16.3	16.3	83.5
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**61.4**	**59.3**	**56.7**	**56.5**	**54.2**	**288.0**

Northern Gas Networks

North England

Table A8.9 PB Power adjustments and recommendations for Net Capex, North England (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	4.1	8.8	3.0	29.0	30.3	75.2
Connections	9.0	9.2	9.5	9.5	9.7	47.0
Mains Reinforcement	4.8	4.8	5.0	5.0	5.1	24.7
Governors	1.6	1.8	1.8	1.9	1.8	8.9
Other Operational	7.4	5.2	4.7	4.7	4.2	26.3
Non Operational	26.3	17.5	10.8	14.5	9.3	78.3
Total Net Capex	**53.2**	**47.3**	**34.8**	**64.6**	**60.4**	**260.3**
PB recommended adjustments- Capex						
LTS & Storage	-0.1	-0.4	-0.3	-4.0	-2.0	-6.9
Connections	-2.1	-2.2	-2.5	-2.5	-2.7	-12.0
Mains Reinforcement	0.1	0.0	-0.3	-0.3	-0.5	-1.0
Governors	0.0	0.0	-0.1	-0.1	-0.1	-0.3
Other Operational	-0.7	-0.9	-1.0	-1.1	-1.1	-5.0
Non Operational	-5.2	-2.7	0.3	0.8	0.0	-6.8
Total Net Capex	**-8.1**	**-6.3**	**-3.9**	**-7.2**	**-6.3**	**-31.9**
PB recommended projections- Capex						
LTS & Storage	3.9	8.4	2.7	25.0	28.4	68.4
Connections	6.9	6.9	7.0	7.1	7.1	35.0
Mains Reinforcement	4.9	4.8	4.7	4.7	4.6	23.7
Governors	1.5	1.7	1.8	1.8	1.7	8.6
Other Operational	6.7	4.3	3.6	3.6	3.1	21.3
Non Operational	21.2	14.7	11.1	15.2	9.3	71.5
Total Net Capex	**45.1**	**40.9**	**30.9**	**57.4**	**54.1**	**228.5**

Table A8.10 PB Power adjustments and recommendations for Net Repex, North England (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	46.2	48.9	51.2	52.7	54.4	253.4
Services	25.0	25.4	25.6	26.0	26.4	128.3
LTS	6.5	27.5	1.5	0.9	0.9	37.1
Total Net Repex	**77.7**	**101.8**	**78.3**	**79.5**	**81.7**	**418.9**
PB recommended adjustments- Repex						
Mains	0.2	-1.7	-3.9	-6.0	-8.0	-19.3
Services	0.7	-0.3	-1.0	-1.8	-2.7	-5.0
LTS	-0.1	-0.9	-0.1	0.0	-0.1	-1.2
Total Net Repex	**0.7**	**-2.9**	**-4.9**	**-7.8**	**-10.7**	**-25.6**
PB recommended projections- Repex						
Mains	46.4	47.2	47.4	46.7	46.4	234.1
Services	25.6	25.1	24.6	24.2	23.8	123.3
LTS	6.3	26.6	1.4	0.8	0.8	35.9
Total Net Repex	**78.4**	**98.9**	**73.4**	**71.7**	**71.0**	**393.3**

Scotia Gas Networks

Scotland

Table A8.11 PB Power adjustments and recommendations for Net Capex, Scotland (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	21.2	11.1	27.8	8.0	10.3	78.4
Connections	10.7	10.7	10.6	10.5	10.4	52.8
Mains Reinforcement	7.9	7.7	7.5	7.0	8.2	38.3
Governors	4.0	3.9	3.7	3.6	3.7	19.0
Other Operational	6.0	5.1	8.6	3.6	3.2	26.5
Non Operational	12.0	7.1	3.6	3.9	9.2	35.9
Total Net Capex	**61.9**	**45.6**	**61.7**	**36.6**	**45.0**	**250.8**
PB recommended adjustments- Capex						
LTS & Storage	-8.0	-2.2	-9.2	-0.7	-1.8	-21.8
Connections	-1.7	-1.8	-2.0	-2.1	-2.2	-9.8
Mains Reinforcement	-1.0	-1.3	-2.0	-1.8	-2.5	-8.6
Governors	-1.0	-0.2	-0.3	-0.4	-0.4	-2.3
Other Operational	-0.4	-0.5	-4.5	-0.5	-0.5	-6.4
Non Operational	-0.5	0.0	0.6	0.6	0.0	0.7
Total Net Capex	**-12.6**	**-6.0**	**-17.4**	**-4.8**	**-7.4**	**-48.2**
PB recommended projections- Capex						
LTS & Storage	13.2	8.9	18.6	7.4	8.6	56.6
Connections	9.1	8.8	8.6	8.4	8.1	42.9
Mains Reinforcement	6.9	6.4	5.4	5.2	5.7	29.6
Governors	3.0	3.7	3.4	3.2	3.3	16.7
Other Operational	5.5	4.7	4.1	3.1	2.7	20.1
Non Operational	11.5	7.1	4.3	4.5	9.2	36.6
Total Net Capex	**49.3**	**39.6**	**44.4**	**31.7**	**37.6**	**202.6**

Table A8.12 PB Power adjustments and recommendations for Net Repex, Scotland (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	40.5	41.1	43.1	44.8	46.3	215.7
Services	25.8	26.6	27.4	28.2	29.1	137.0
LTS	0.3	0.0	0.0	0.0	0.0	0.3
Total Net Repex	**66.6**	**67.6**	**70.4**	**73.0**	**75.4**	**353.0**
PB recommended adjustments- Repex						
Mains	-9.1	-10.2	-11.7	-13.2	-14.7	-59.0
Services	-8.0	-8.8	-9.7	-10.5	-11.5	-48.5
LTS	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Repex	**-17.2**	**-19.0**	**-21.4**	**-23.8**	**-26.2**	**-107.5**
PB recommended projections- Repex						
Mains	31.4	30.9	31.4	31.6	31.6	156.7
Services	17.8	17.7	17.7	17.6	17.6	88.4
LTS	0.3	0.0	0.0	0.0	0.0	0.3
Total Net Repex	**49.4**	**48.6**	**49.0**	**49.2**	**49.2**	**245.5**

South England

Table A8.13 PB Power adjustments and recommendations for Net Capex, South England (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	31.0	105.9	23.2	15.0	38.7	213.8
Connections	9.6	9.5	9.4	9.3	9.2	47.1
Mains Reinforcement	13.2	15.4	14.6	14.0	14.7	71.9
Governors	9.7	10.5	10.6	10.9	11.3	53.0
Other Operational	6.7	4.7	9.6	3.0	3.6	27.6
Non Operational	19.7	11.7	6.7	6.8	16.9	61.8
Total Net Capex	**90.0**	**157.7**	**74.1**	**59.0**	**94.3**	**475.2**
PB recommended adjustments- Capex						
LTS & Storage	-3.3	-17.1	-3.7	-9.9	-31.1	-65.1
Connections	-1.8	-1.9	-1.9	-2.0	-2.1	-9.7
Mains Reinforcement	-1.5	-2.6	-2.4	-2.7	-3.4	-12.6
Governors	-2.1	-2.8	-2.7	-3.0	-3.3	-14.0
Other Operational	-0.5	-0.4	-4.6	-0.4	-0.6	-6.5
Non Operational	-0.6	0.0	0.9	0.9	0.0	1.2
Total Net Capex	**-9.8**	**-24.8**	**-14.4**	**-17.2**	**-40.4**	**-106.6**
PB recommended projections- Capex						
LTS & Storage	27.7	88.8	19.6	5.1	7.6	148.7
Connections	7.9	7.7	7.5	7.3	7.1	37.4
Mains Reinforcement	11.7	12.8	12.2	11.3	11.4	59.3
Governors	7.6	7.7	7.8	7.9	8.0	39.0
Other Operational	6.3	4.2	5.0	2.6	3.0	21.1
Non Operational	19.1	11.7	7.6	7.7	16.9	63.0
Total Net Capex	**80.2**	**132.9**	**59.6**	**41.9**	**53.9**	**368.5**

Table A8.14 PB Power adjustments and recommendations for Net Repex, South England (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	83.7	96.4	106.6	114.7	119.7	521.2
Services	69.6	74.9	77.8	79.6	81.9	383.7
LTS	2.1	16.0	0.3	0.0	0.0	18.4
Total Net Repex	**155.4**	**187.3**	**184.7**	**194.2**	**201.6**	**923.2**
PB recommended adjustments- Repex						
Mains	-8.5	-17.5	-27.5	-35.1	-41.0	-129.5
Services	-20.3	-25.0	-29.4	-32.6	-36.1	-143.4
LTS	-0.1	-0.9	0.0	0.0	0.0	-1.0
Total Net Repex	**-28.8**	**-43.4**	**-56.9**	**-67.7**	**-77.1**	**-273.9**
PB recommended projections- Repex						
Mains	75.2	78.9	79.1	79.6	78.8	391.6
Services	49.3	49.9	48.4	47.0	45.8	240.3
LTS	2.0	15.1	0.3	0.0	0.0	17.4
Total Net Repex	**126.6**	**143.9**	**127.8**	**126.5**	**124.5**	**649.3**

Wales and West Utilities

Wales and West

Table A8.15 PB Power adjustments and recommendations for Net Capex, Wales and West (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Capex						
LTS & Storage	16.0	44.2	29.3	11.9	9.6	111.0
Connections	8.7	9.1	9.4	9.7	9.8	46.7
Mains Reinforcement	5.5	10.2	6.0	6.3	6.5	34.5
Governors	1.9	2.0	1.9	2.0	1.6	9.4
Other Operational	8.3	7.4	5.2	4.9	3.7	29.5
Non Operational	20.1	9.8	9.7	17.8	18.4	75.9
Total Net Capex	**60.5**	**82.7**	**61.6**	**52.5**	**49.7**	**306.9**
PB recommended adjustments- Capex						
LTS & Storage	-2.4	-28.5	-4.5	1.3	1.2	-32.8
Connections	-2.4	-2.8	-3.1	-3.5	-3.7	-15.5
Mains Reinforcement	0.3	0.1	-0.2	-0.4	-0.7	-0.9
Governors	-1.3	-1.4	-1.3	-1.3	-1.0	-6.4
Other Operational	-3.7	-3.7	-1.4	-1.4	-1.0	-11.1
Non Operational	-5.2	-1.3	0.3	0.3	-1.2	-7.2
Total Net Capex	**-14.8**	**-37.5**	**-10.1**	**-5.1**	**-6.3**	**-73.9**
PB recommended projections- Capex						
LTS & Storage	13.6	15.7	24.9	13.2	10.8	78.2
Connections	6.3	6.4	6.3	6.2	6.1	31.2
Mains Reinforcement	5.8	10.3	5.8	5.9	5.9	33.6
Governors	0.6	0.6	0.6	0.6	0.6	3.0
Other Operational	4.6	3.7	3.9	3.5	2.7	18.3
Non Operational	14.9	8.5	10.0	18.1	17.2	68.7
Total Net Capex	**45.7**	**45.1**	**51.4**	**47.5**	**43.4**	**233.0**

Table A8.16 PB Power adjustments and recommendations for Net Repex, Wales and West (£m, 2005-06 prices)

	08-09	09-10	10-11	11-12	12-13	Total
GDN Net Repex						
Mains	40.1	45.8	50.1	53.8	57.8	247.7
Services	27.2	28.2	29.3	30.4	31.5	146.7
LTS	1.6	12.6	8.4	7.7	6.2	36.4
Total Net Repex	**68.9**	**86.7**	**87.8**	**91.9**	**95.5**	**430.8**
PB recommended adjustments- Repex						
Mains	2.1	-0.4	-3.1	-5.8	-8.9	-16.1
Services	-3.7	-5.2	-6.6	-8.0	-9.4	-32.8
LTS	-0.1	-0.6	-0.5	-0.6	-0.6	-2.4
Total Net Repex	**-1.7**	**-6.2**	**-10.2**	**-14.4**	**-18.9**	**-51.3**
PB recommended projections- Repex						
Mains	42.2	45.4	47.1	48.0	49.0	231.6
Services	23.5	23.1	22.7	22.4	22.1	113.9
LTS	1.6	12.0	7.9	7.1	5.5	34.0
Total Net Repex	**67.3**	**80.5**	**77.6**	**77.5**	**76.6**	**379.5**

Appendix 9 - PB Power analysis results from Capex and Repex

1.1. This appendix shows detailed summary tables of the results of PB Power analysis on capex and repex[1].

Table A9.1 Summary table on PB Power analysis: LTS and Storage and Connections (all costs are 2005-06 prices)

Capex	Analysis undertaken	East of England	London	North West	West Midlands	North England	Scotland	South England	Wales West
LTS and Storage	Capacity adjustment, pipelines, PRSs, NTS offtakes and Other Storage analysis. Adjustments for 5 year total are shown.	Pipelines adjustment -£0.1m. PRSs adjustment -£6.6m and other storage adjustment -£0.1m.	Pipelines adjustment -£14.7m. PRSs adjustment -£1.4m and other storage adjustment -£0.4m.	Pipelines adjustment -£9.4m. PRSs adjustment -£0.2m and other storage adjustment -£0.2m.	PRSs adjustment -£0.1m.	Pipelines adjustment -£6m. NTS offtake adjustment -£0.2m. PRSs adjustment -£0.6m.	Capacity adjustment -£6.9m. Pipelines adjustment -£8.7m. NTS offtake adjustment -£4.4m. PRSs adjustment -£1.9m.	Pipelines adjustment -£56.3m. NTS offtake adjustment -£1.6m. PRSs adjustment -£7.2m.	Pipelines adjustment -£30.2m. NTS offtake adjustment -£0.6m. PRSs adjustment -£1.9m and -£0.1m other storage adjustment.
Connections	Regression of 2006-07 costs performed at total connections level -Out and underperformance are shown for base year.	Under performance £2.8m	Under performance £1.8m	Under performance £1.1m	Out performance £0.5m	Under performance £0.5m	Out performance £0.9m	Under performance £0.9m	Under performance £0.3m
	Volume analysis: based on analysis of historical trends and forecast values.						12,000 existing housing services disallowed		20% of mains excluded equivalent to 60.2metres on the basis as mains length over 30% the national average.

[1] Note all adjustments expressed as negative are a reduction from the GDN submission and those expressed as positive are higher than the GDN submission.

Table A9.2 Summary table on PB Power analysis: Mains reinforcements, Governors, Other operational and Non-operational Capex (all costs are 2005-06 prices)

		NGG				NGN	SGN		WWU
Capex	**Analysis undertaken**	**East of England**	**London**	**North West**	**West Midlands**	**North England**	**Scotland**	**South England**	**Wales West**
Mains reinforcement	Regression of 2005-06 costs- out and underperformance are shown for base year	Out performance £0.2m	Under performance £0.2m	Under performance £0.0m	Under performance £0.0m	Under performance £0.4m	Out performance £0.1m	Under performance £0.3m	Under performance £0.6m
Governors	Analysis of growth, renewal and service governors based on historical and forecast trends. Adjustments shown are 5 year total.		Growth adjustment -£0.2m. Renewal adjustment -£6.6m.	Renewal adjustment -£13.2m.	Renewal adjustment -£1.9m.	Growth adjustment -£0.2m. Renewal adjustment -£0.1m.	Growth adjustment -£0.6m. Renewal adjustment -£1.7m.	Growth adjustment -£1.3m. Renewal adjustment -£12.7m.	Growth adjustment -£0.1m. Renewal adjustment -£6.2m.
Other Operational	Benchmarking on GDNs costs (no adjustments to workload) and allowances were based on the upper quartile expenditure. The adjustments are the 5 year totals.	Plant and Equipment adjustment -£0.1m. Land and buildings adjustment -£1.2m.	Plant and Equipment adjustment -£0.3m. Land and buildings adjustment -£0.4m.	Plant and Equipment adjustment -£0.1m. Land and buildings adjustment -£0.4m.	Plant and Equipment adjustment -£0.1m. Land and buildings adjustment -£0.3m.	Plant and Equipment adjustment -£0.5m. Land and buildings adjustment -£4.4m.	Plant and Equipment adjustment -£2.3m. Land and buildings adjustment -£4.1m.	Plant and Equipment adjustment -£2.4m. Land and buildings adjustment -£4.1m.	Plant and Equipment adjustment -£11.1m.
Non Operational	Adjustment of SO Capex relating to SOMSA exit costs. The adjustments are the 5 year totals.	SO Capex adjustment -£0.2m	SO Capex adjustment -£0.1m	SO Capex adjustment -£0.2m	SO Capex adjustment -£0.2m	SO Capex adjustment -£6.8m	SO Capex adjustment +£0.7m	SO Capex adjustment +£1.2m	SO Capex adjustment -£7.2m

Table A9.3 Summary table on PB Power analysis: Mains and Services and LTS Repex (all costs are 2005-06 prices)

		NGG				NGN	SGN		WWU
Repex	**Analysis undertaken**	**East of England**	**London**	**North West**	**West Midlands**	**North England**	**Scotland**	**South England**	**Wales West**
Mains and Services	Regression of 2005-06 costs- Out and underperformance are shown for base year.	Under Performance £3.7m	Under Performance £5.0m	Under Performance £3.3m	Out performance £8.3m	Out performance £9.3m	Under Performance £0.5m	Under Performance £13.9m	Out Performance £4.5m
	Workload adjustments feeding into the regression including Mains installed (Km) and Domestic services (numbers of services) for the 5 year period are shown.	Mains -361.3Km adjustment and Domestic Services adjustment by -71029.	Mains +104.8Km adjustment	Mains -398.8Km adjustment and Domestic Services adjustment by -54135.	Mains -173.3Km adjustment and Domestic Services adjustment -30932.	Domestic Services adjustment of -1297.	Mains -77.4Km adjustment and Domestic Services adjustment by -23015.	Mains +13Km adjustment and Domestic Services adjustment by -13366.	Mains -26.5Km adjustment
LTS						Adjustment of -£1.2m		Adjustment of -£1m	Adjustment of -£2.4m

Appendix 10 - Financeability issues

Introduction

1.1. This section discusses some of the adjusted interest cover ratios used by the credit rating agencies in assessing the creditworthiness of the GDNs. It considers what weight we should give to these ratios in our assessment of the financeability of a price control package.

1.2. The three main credit ratings agencies (Moody's, Standard and Poor's and Fitch) all use an adjusted interest cover ratio as one of their metrics for assessing the creditworthiness of gas distribution businesses. Adjusted interest cover ratios measure whether the cash flow generated by operations in each year, after subtracting certain additional investment costs excluded from the cash from operations calculation, is sufficient to meet fixed financing costs. The difference between the ratio and 1.0 provides an indication of the margin of safety between cash generated and cash interest payments. In respect of the GDNs, the agencies adjust their calculation of FFO (Funds From Operations) by subtracting the 50 per cent of repex which Ofgem treats as operating expenditure in the year incurred. The table below interprets the calculation of these ratios in regulatory terms. The agencies calculate ratios using net income, adjusted for depreciation, amortisation and other non-cash items, pension deficits and operating leases. In addition, FFO is normally calculated post-interest, but interest is then added back when calculating interest coverage ratios.

Table 10.1 Adjusted interest cover ratios

Agency	**Moody's**	**Standard and Poor's**	**Fitch**
Ratio	PMICR	Adjusted FFO interest cover	PMICR
Being	Adjusted FFO/cash interest	Adjusted FFO/cash interest	Adjusted FFO/cash interest
Definition of Adjusted FFO	Revenues - cash opex (excluding repex) - Tax paid - 50% repex - Regulatory depreciation	Revenues - cash opex (excluding repex) - Tax paid - 50% repex[2]	Revenues - cash opex (excluding repex) - Tax paid - 50% repex - Regulatory depreciation
Comfortably investment-grade level[3]	c1.6	c2.5	c1.5

[2] S&P comment that they treat 50% of replacement expenditure as opex in line with regulatory assumptions, *but* if it's treated differently in group a/cs they will make adjustments accordingly
[3] Ofgem's interpretation of agencies' views – not necessarily explicitly stated by agencies themselves.

1.3. Paragraphs 1.4 – 1.27 below discuss the use of adjusted interest cover ratios generically, but specifically refer to the Post-Maintenance Interest Cover Ratio ("PMICR") as used by Moody's and Fitch. This ratio has been raised by the GDNs throughout GDPCR within consultation responses and wider dialogue. Ofgem understands that PMICR is used by these two agencies for analysing the creditworthiness of regulated water companies, will be used for the GDNs during the GDPCR review period, and may be used for other network companies in the future. The agencies make it clear that this is only one ratio, and that they rate companies based on a range of financial ratios, having regard to compliance with short-term target levels as well as medium-term trends, a review of financial strategy, and other qualitative judgments including business risk assessment.

Review of the rationale behind PMICR

1.4. Based on published commentary from the rating agencies, and also on additional discussions between Ofgem and the agencies, we outline below our understanding of the use of PMICR within gas distribution.

1.5. The primary rationale is that PMICR measures the ability of GDNs to meet cash interest costs, after adjusting for RAV maintenance capex, defined as the level of capital expenditure required to maintain the value of the RAV. Moody's describe their adjusted interest cover ratio as "the ability of the company to cover its cash interest expenses once maintenance capex has been funded"[4]. They take as a proxy for maintenance capex the sum of regulatory depreciation and the 50 per cent of repex that we fund in the year it is incurred. Fitch define this as Economic Capital Maintenance Expenditure (ECME) in a 2007 paper on PMICR[5].

1.6. We note that this approach is not intended to imply that this represents the level of capex required to maintain the physical characteristics of the network. The 50 per cent repex funding was introduced in the light of the scale of the mains replacement programme. Since this is based on a safety case rather than asset maintenance needs, the work is being carried out at a much greater rate than a maintenance capex programme would require. The accelerated repex funding was intended to aid financeability, not to represent maintenance expenditure, which absent the HSE-mandated mains replacement programme, we might expect to be materially lower.

1.7. Since the PMICR deducts RAV maintenance capex, not actual maintenance capex, if we were minded to increase the proportion of repex that is funded as operating expenditure, the agencies would simply adjust their assessment of maintenance capex to include this higher proportion. Alternatively, if we capitalised it all, but used accelerated depreciation as a financeability aid, then all the regulatory depreciation would be deducted. Therefore we effectively have no NPV-neutral tools

[4] "UK Independent Gas Distribution Companies" Moody's (www.moodys.com), March 2004
5 "Post-Maintenance Interest Cover Ratios for UK regulated utilities", Fitch (www.fitchratings.com), February 2007

for improving financeability if we solely use PMICR as a benchmark. We discuss this further in paragraph 1.11 below.

1.8. A second rationale, which we understand to be the reason for the use of RAV maintenance capex in the ratio, is that the agencies are concerned about maintenance of the RAV in comparison to debt outstanding, on the basis that this is what will ensure that bondholders are repaid at maturity. Expensing part of the repex or accelerating depreciation both tend to reduce the RAV over time.

1.9. One counter-argument to this approach is that the ratio fails to take account of the RAV indexation allowance, which provides significant additional protection for bondholders that lend based on current levels of nominal RAV. Fitch has indicated that it makes no adjustment for indexation in the calculation of PMICR because of a desire to be prudent and to reflect the fact that holders of index-linked debt are concerned with the maintenance of the real value of the RAV. Such financing represents a material proportion of total GDN financing, although not all GDNs are currently using index-linked finance. The same can be observed in the water sector, to which this ratio is also applied. We discuss this further in paragraph 1.15 below.

Analysis of PMICR

1.10. When we model key financeability ratios, we cannot assume outperformance on opex, incentives or financing costs. So the GDNs' cash profit before interest is equal to the return on the RAV, regulatory depreciation and the 50 percent repex funding[6]. Since the latter two are excluded from PMICR, the ratio is simply comparing the return on the RAV with the notional interest expense. PMICR reduces to:

*Vanilla WACC/(nominal cost of debt * gearing)*

1.11. This means that the only way we can change the model PMICR results is via the cost of capital (whether explicitly or by the use of NPV-positive financeability adjustments). We gather a wide range of evidence in determining the appropriate cost of capital for a price control, and our judgment is taken in the context of the settlement as a whole, including the opportunities for outperformance and gains from incentive schemes or risks of underperformance and incentive losses. In regulatory modelling, the ratio of the cost of capital to the cost of finance is the only relevant factor when assessing financeability using PMICR, which, if it were treated as a binding constraint, would restrict the regulator's ability to take account of the wider impact of a price control package.

1.12. The potential cost to consumers of treating a PMICR benchmark that we can only achieve by raising the cost of capital as a binding constraint should not be

[6] Excluding the impact of prior control incentives and over- or under-recoveries of allowed costs.

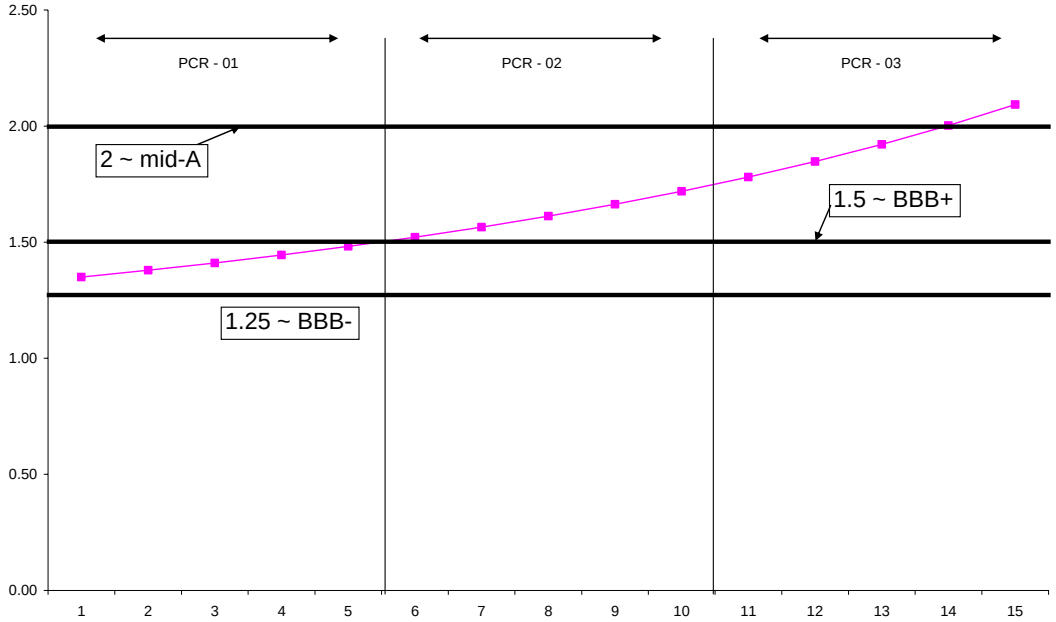
underestimated. Taking the DPCR4 settlement as an example, and assuming a PMICR threshold for comfortably investment grade to be 1.6, the Vanilla WACC would need to rise by over 50 basis points. This would have required consumers to pay over £100 million extra. Since the final price control settlement was subject to rigorous financeability tests, and market reaction supported our assessment that it was reasonable, this appears to be an unnecessary cost. Such a circumstance has been raised by the DTI as an argument for regulators to take a wider approach to assessing financeability[7].

1.13. In practice, the rating agencies do not claim to treat the PMICR as a binding constraint in such a way. All ratings are based on a package of financial and non-financial considerations, including the individual financial structures of the rated companies. Specifically, we understand that the PMICR has been introduced to gas distribution and water as a complement to debt/RAV, in order to measure the ability of highly leveraged regulated networks to meet short-term financing costs. Where the notional structure of the regulated entity is comfortably-investment grade, the PMICR is unlikely to be a binding constraint, unless it is exceptionally weak. In a review of the water sector[8], Moody's indicated that they "place less weight on interest cover ratios for companies which maintain an overall good level of financial flexibility, including strong liquidity". Fitch also refer to PMICR levels not being a binding constraint in the case of less highly geared structures in a review of National Grid Electricity Transmission, where they expect debt / RAV to be targeted at around 60 per cent.[9].

1.14. While the ratio is concerned with adjusting for factors which reduce the RAV, it does not include the impact of the offsetting effect of indexing the RAV in line with changes in RPI over time. This means that over the medium term, the growth in RAV will outstrip the growth in the nominal value of the debt principal. Other things being equal, the return on the RAV will outstrip interest costs, and PMICR will improve. An example of this is modelled in Figure 10.1 below. This indexation provides additional protection for debt investors.

[7] DTI and HM Treasury, "The Drivers and Public Policy Consequences of Increased Gearing", 2004.
8 Moody's, "UK Water Sector", November 2004.
9 Credit Update on National Grid Electricity Transmission plc, Fitch, February 2007.

Figure 10.1 Medium-term PMICR trend (assuming 62.5% opening gearing and ongoing investment to maintain stable real RAV)



1.15. In their February 2007 paper[10], Fitch recognise that their approach is conservative. However, they are concerned about the interests of the providers of index-linked finance, as well as nominal finance. This implies that if Ofgem apply Fitch's target ratio to a notional GDN with no index-linked debt, this will provide an inconsistent picture of the risk taken by the nominal bondholders. This would explain why the indicative PMICR levels for a notional GDN are weaker than those which the model suggests for other ratios. In regulatory modelling, debt / RAV is not materially affected by the choice between fixed and index-linked financing, since the lower cash interest paid is offset by the debt indexation.

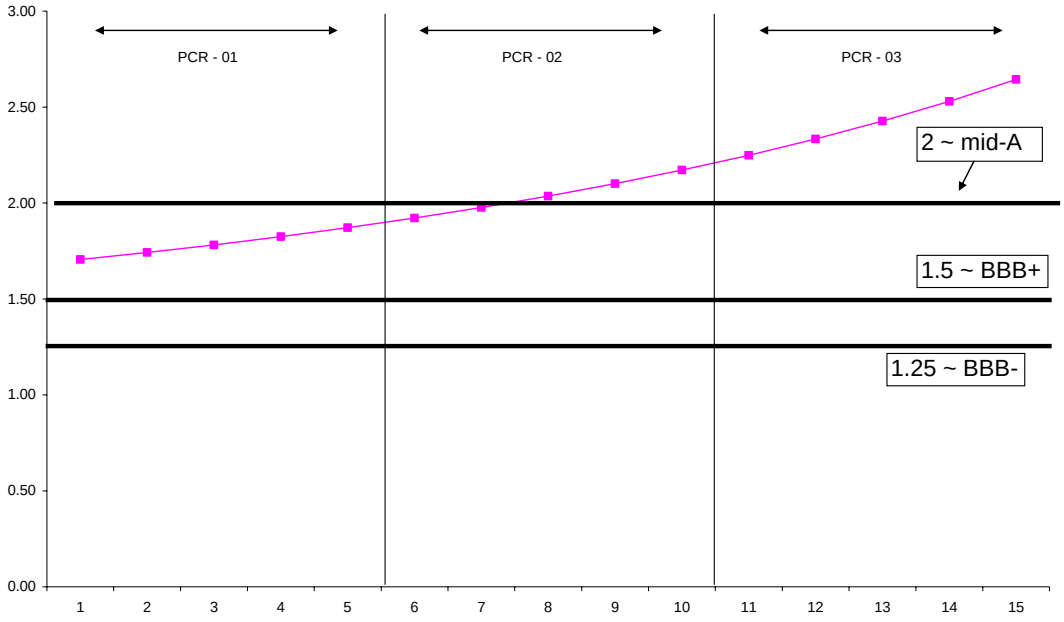
1.16. An additional justification of the use of PMICR is that it reflects the current approach to structured financing taken by GDNs (and water companies) where the key driver of financing policy is to hit target debt/RAV levels. Dividends are then paid out of additional borrowings, where debt/RAV would otherwise fall. This is likely to be appropriate for the rating agencies in reviewing the actual financing policies of GDNs. Separately, Ofgem's duty is to ensure that the GDNs are financeable, which implies the ability to pay a normal market dividend yield. If the GDN owners choose a more aggressive dividend policy, it is for them to assess any impact on their credit ratings.

[10] "Post-Maintenance Interest Cover Ratios for UK regulated utilities", Fitch, as footnote 5 above

1.17. Ofgem's policy of indexation of the RAV in line with changes in RPI over time, and its impact on the allowed return on RAV, means that the GDNs would match their debt profile to their allowed revenues and asset base more closely by index-linking their debt. The balance of the debt rises in line with a stable RAV, but the cash interest is much lower for a given interest rate (and this is a cash ratio). The agencies recognise this within the PMICR, but our model does not, since we are modelling a notional GDN and make generic assumptions about the companies' financing structures, based on 100 per cent of debt being at nominal interest rates.

1.18. One option would be to change our modelling assumptions and assume that a portion of GDNs' financing is index-linked, on the basis that this is a rational reaction to the rating agencies' focus on PMICR for highly leveraged companies. At minimum, it will be appropriate to consider the impact of index-linked financing on the out-turn PMICR for the GDNs. The PMICR profile of a notional GDN using the same assumptions as above, except with 50 per cent index-linked debt, is shown below.

Figure 10.2 Medium-term PMICR trend with 50 per cent index-linked debt



Ofgem's views

1.19. Ofgem's preference is not to make judgments about the financial structures to be used by network utilities. Instead we look to the financeability of a notional GDN with a notional level of debt financed at a notional nominal interest rate, and a notional dividend policy consistent with equity market practice. It seems appropriate, in principle, that this policy should be unaffected by the choice of ratios used by the rating agencies.

1.20. Our approach to financeability is not to model compliance with target ratios in a mechanistic way. It would be inappropriate to test the ability of GDNs to meet PMICR targets without registering the different assumptions taken by us in modelling a notional GDN, and the rating agencies in developing indicative target ratios.

1.21. As discussed in paragraph 1.12 above, a notional GDN with 100 per cent of debt at nominal interest rates may have ratios consistent with comfortably investment-grade (A-/BBB+) levels using all ratios except PMICR. Based on the target levels for PMICR indicated by the rating agencies, the same GDN would have indicative PMICR levels consistent with investment-grade levels around the mid-BBB ratio category.

1.22. This pattern indicates that the rating agencies believe that for a GDN with revenues linked to RPI, a proportion of index-linked financing will reduce the risk taken as measured by PMICR. The index-linked financing reduces the level of cash interest to be paid out of real revenues, offset by an increase in future debt repayment, which will be linked to RAV indexation. This is consistent with the graphs 10.1 and 10.2 above.

1.23. We do not intend to take a view on this approach. Our duty is to consider whether the GDNs are able to finance their activities. The evidence from the GDNs since the introduction of PMICR, and also from the water industry, is that the rational response for network companies is either:

- to introduce a proportion of index-linked debt into their financing structures; or
- to maintain nominal debt, and to maintain interest/RAV at levels which mean that the overall package of ratios is consistent with comfortably investment grade levels, although the level of PMICR may be weaker than the other ratios used. As discussed in paragraph 1.13. above, this is consistent with the rating agencies considering PMICR as one indicator of credit quality, as opposed to a binding constraint.

1.24. We will review the package of ratios, including PMICR, of a GDN with 100 per cent of debt at nominal interest rates. We will consider whether, overall, the package of ratios is consistent with indicative levels for comfortably investment grade. One factor in our judgement will be the level of notional gearing assumed, (62.5 per cent in the current price control) in the light of Moody's and Fitch's comments regarding the relevance of PMICR in less highly leveraged structures.

1.25. In any case where PMICR is exceptionally weak, so as to materially impact the overall rating assessment, we will consider whether it would be plausible, having regard to all relevant factors, to assume a proportion of index-linked financing sufficient to ameliorate the overall assessment to a comfortably investment-grade level.

Summary

1.26. We have reviewed the position taken by the rating agencies and the GDNs, that PMICR is now an important ratio for GDNs and one which we should consider when assessing financeability. We have also analysed the reasons behind the weak indicative levels of PMICR from a notional financial model relative to the indicative levels of other ratios used by credit rating agencies. We have put forward a proposed approach to the inclusion of adjusted interest cover ratios within the analysis of financeability.

1.27. We would welcome respondents' feedback on how to take account of PMICR in our analysis of financeability, and whether the approach proposed above is consistent with ensuring that GDNs are able to finance their activities.

Appendix 11 - Further analysis on the revenue driver

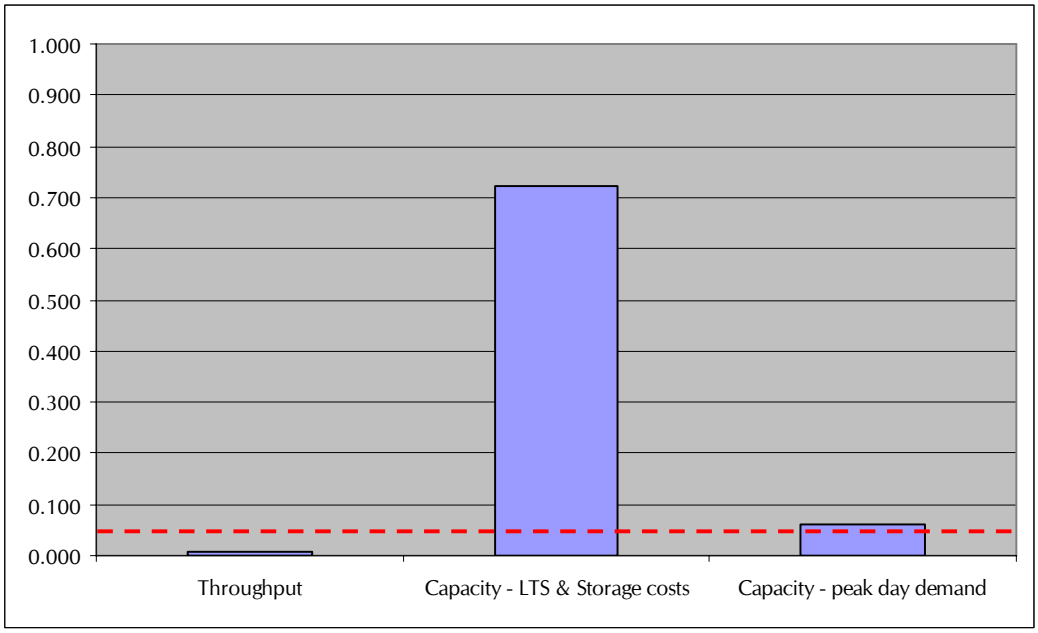
Introduction

1.1. In the main document we have set out our findings and initial views on a range of potential revenue drivers. This section sets out specific analysis which we undertook, comparing actual data for throughput volumes, LTS and storage costs and peak day demand volumes with the allowances forecast at the time of the 2002 price control review, using t test and variance analysis. In the main document we set out the criteria for considering a revenue driver. We used the t test analysis to review whether costs or volumes are difficult to forecast and in particular whether the actual volumes or costs were within the range of the initial forecasts. We have calculated the percentage variation between actual data and forecasts to provide an indication of whether differences between total forecast costs or volumes are materially different to actual costs or volumes. We undertook this analysis on a GDN basis but for the purposes of this section we have set out the averages across all the GDNs.

The analysis

1.2. The two sample unequal variance t test, which was used in this analysis, tests whether actual data and the forecasts are broadly similar over the five year period i.e. 2002 to 2007. The results of the analysis are given as the probability associated with the outcome of the t test. A probability close to zero suggests that there is good reason to believe that actuals and forecasts are not similar. Figure 11.1 below shows the results on a GDN average basis. We have used a probability of 0.05 as the threshold for determining whether or not any difference between the two samples is significant. This is indicated by the red dashed line.

Figure 11.1 - t test for forecast and actual throughput volumes, LTS and storage costs and peak demand volumes in aggregate for all GDNs



1.3. The outcome of a t test depends heavily on the variance within each sample, that is, the extent of variation between different years. As the variation between years increases, it becomes less likely that actual data and forecasts with different means will meet the threshold for a statistically significant difference. For example, a large percentage variance between actual data and forecasts may not be statistically significant if both actual data and forecasts vary greatly between different years.

1.4. The t test analysis indicates that LTS and storage costs have been broadly within the range of the forecasts and this was the case for each of the GDNs. However, average variance between average forecast costs and average actual costs was approximately 46 per cent.

1.5. In comparison the data on throughput volumes indicates that actual throughput volumes are outside the forecast range. However, the average variance between average forecast volumes and average actual volumes has only been around 12 per cent.

1.6. Overall the t test indicates that peak day demand has been within the range of the forecasts however on an individual GDN basis the picture is less clear. Average variance between average forecast volumes and average actual volumes has been relatively immaterial at approximately 3 per cent.