



Paul Jackson
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Competition Commission
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30 May 2013

Dear Mr Jackson

I refer to your letter dated 2 May 2013 inviting Phoenix Natural Gas Limited (**PNGL**) to make a submission in relation to the referral by the Northern Ireland Authority for Utility Regulation (the **Authority**) of the Northern Ireland Electricity Limited (**NIE**) price control to the Competition Commission (the **Commission**) for determination. PNGL is not familiar with all of the details of the NIE price control and therefore our comments are limited to those areas where we feel in a position to offer some observations.

The outcome of the Commission's NIE investigation has important consequences for PNGL because the Authority does not regulate NIE in isolation – its decisions and observed behaviour in relation to NIE's regulation may in a number of respects have a read-across to the perceptions of the regulatory environment for PNGL and other regulated companies in the province. This was recognised by Moody's in its 9 May 2013 Sector Comment on the NIE reference, which noted that the NIE process has wider implications for the regulated energy sector in Northern Ireland, particularly for PNGL.¹

PNGL notes that it is highly unusual for the Commission to be faced with two references from a single regulator within such a short time period. Even in the GB water and electricity distribution sectors, where the regulators are responsible for price controls for multiple companies, there has almost never been a situation where a single regulator has needed to make multiple references.

While, as stated by Moody's, Commission referrals are an inevitable feature of regulation in Great Britain (**GB**), PNGL agrees with Moody's that referrals should be the exception and not the rule. Two references in such quick succession (in relation to two of the three main companies the Authority regulates) might imply that there are fundamental issues in the regulatory process in Northern Ireland. Fitch's decision in February 2013 to retain its Negative Outlook on PNGL, despite the "*favourable*" outcome of the Commission's PNGL12 determination and "*currently ample headroom in financial metrics*", highlights PNGL's concerns about investors' perceptions of the stability and transparency of regulation in Northern Ireland.² These statements from Fitch and Moody's indicate that there is a real

¹ Moody's Investor Services Sector Comment, 9 May 2013, "New Competition Commission Referral Suggests Regulatory Uncertainty Remains in Northern Ireland".

² The Commission will recall that Fitch placed PNGL on Negative Ratings Watch in October 2011 following the announcement of the Authority's proposals for PNGL12. Following the referral of the PNGL12 price control to the Commission, Fitch placed PNGL on Negative Outlook pending the outcome of the Commission's inquiry. In February 2013, Fitch confirmed that it was maintaining the Negative Outlook on

risk that the ratings agencies will downgrade PNGL's credit rating as a direct result of the uncertainty created by the Authority.

In this context, the Commission has an important role to play in ensuring the stability and transparency of the regulatory environment, in the public interest. Were the Commission (as in the PNGL case) to have major misgivings about the Authority's determination for NIE, then this would reinforce the perception that the Authority is not working effectively in the interests of all of its stakeholders, and serve to heighten the importance of the Commission's role in the Northern Ireland regulatory environment, not only for NIE but for all utilities under the Authority's jurisdiction.

PNGL and its investors take comfort that when there is a referral, the Commission acts (and has acted in relation to the PNGL 2012 price control) as a backstop where inappropriate price control settlements are proposed, and where poor regulatory practice is adopted. In a regulatory environment which already suffers from a lower rating than the equivalent GB framework, the Commission's role is of particular importance, including to current and potential investors, who take an active interest in the Commission's role in the regulatory regime.³

Overall approach of the Authority

The Authority appears to have taken an approach to the NIE reference of reopening every issue that has been discussed during the NIE price control review: it has shied away from any helpful approach of trying to help to narrow the investigation to key issues or issues that are disputed (without prejudice, of course, to the ability of the Commission to address all issues it considers relevant). The Authority has effectively invited the Commission to consider all aspects of the Authority's Final Determination in relation to NIE, irrespective of whether agreement on some of those issues has already been reached between the two parties.

PNGL understands that the Authority's work on the RP5 price control review has taken two and a half years. Against this backdrop, it is surprising that the Authority appears to be expecting the Commission to be able to undertake a complete review from a standing start in six months. It is particularly troubling to PNGL that the Authority seems reluctant to stand by and defend areas where it has reached substantial agreement with NIE and encapsulated decisions on those areas in its Final Determination, particularly when such decisions were expressed at the time as being grounded in the Authority's statutory duties.

This approach on the part of the Authority has unfortunate echoes of the opportunistic approach it took on PNGL's price control appeal to the Commission, where the Authority sought to expand the scope of the Commission's review to incorporate topics which the Authority had previously stated were settled and not in dispute, e.g. the rate of return.

More generally, the length of the RP5 price control process and the failure by the Authority to keep to its own published timetables are indicative of poor regulatory practice. As the Commission will be aware, this is not the first example of delay and failure on the part of the Authority to keep to the administrative timetables it sets for itself. The PNGL12 price control

PNGL – see “Fitch Affirms Phoenix Natural Gas at ‘BBB’: Outlook Negative”, February 2013.

³ Paragraph 8.96, PNGL Final Determination: “*we cannot rule out the possibility that investors take into account the CC's role in the regulatory regime. This corresponds with what we have been told regarding ratings' agencies and other stakeholders who are reserving judgement on the predictability of the Northern Ireland regime until after our process has been concluded.*”

also faced significant delays. It is notable that six months after publication of the Commission's Final Determination and 17 months after the start of the price control period to which the Commission's investigation related (17 months into a 24 month price control), PNGL is still awaiting the Authority's publication of the licence modifications required to give effect to the Commission's findings.

While PNGL recognises that the Commission's decision will focus on the exact terms of NIE's price control, it is open to the Commission to make observations and/or non-binding recommendations on the price control and public interest more generally. Given the damaging impact of extended periods of review and uncertainty for all stakeholders, PNGL would encourage the Commission to comment on the disciplines encountered in GB in terms of price control processes and how those disciplines might be injected into the regulatory process in Northern Ireland such that the process is brought more in line with GB norms.

Retrospectivity

The Authority has brought the issue of NIE's historic capitalisation policies to the attention of the Commission:

“An important issue that calls for detailed investigation by the Commission on this inquiry arises in relation to certain changes that NIE T&D made to its capitalisation practices at the end of RP3.”

On the surface, the Authority appears to be looking back in time and re-visiting past decisions it has made. PNGL is not sufficiently familiar with the details of the NIE price control review to know whether these proposals amount to retrospective interventions. However, at the very least it is clear that the Authority is proposing to make adjustments today for outcomes and actions that occurred more than one price control period ago.

As recognised by the Commission in the PNGL12 investigation, retrospective changes to past decisions should be contemplated only with considerable reluctance and made only where necessary, having regard to the Authority's duties and the public interest.⁴ Given the risks which flow from regulatory uncertainty (including reducing the willingness to invest and/or increasing the return required to undertake investment in Northern Ireland), a high threshold of evidence and justification should be required in order for the Commission to overturn previous regulatory decisions and to implement retrospective measures.⁵ Incentive regulation demands that regulated companies must be provided incentives going forward to reduce costs and to innovate. If it is perceived that retrospective adjustments might be made after the regulator has apparently established and finalised its approach for a price control period, incentives will inevitably be blunted in future (not only for the direct mechanisms that have been amended *ex post*, but for the regime more widely, as an apparent propensity for retrospective adjustments can undermine the credibility of any regulatory settlement).

If the capitalisation proposal is indeed retrospective, then PNGL would expect the Commission to consider the full costs of implementing such proposals (as it did in PNGL's case). As recognised by the Commission,⁶ the impact of any uncertainty created by its

⁴ Provisional Determination, paragraph 24.

⁵ Provisional Determination, paragraph 33.

⁶ Final Determination, paragraph 8.93.

determinations may have a broad effect on the perception of the regulatory environment for regulated Northern Ireland utilities.

Proposals for a Reporter

PNGL notes that some of the Authority's proposals indicate that it intends to switch to a more micro-managed approach to regulating NIE (e.g. the introduction of a reporter and the approach to allowing capex). The Authority also appears to be reverting to a model that involves much more *ex post* sign-off of cost allowances. Such a model bears more resemblance to a "cost plus" model of regulation than to the incentive-based models that have been established as best practice in GB.

The Authority made much in the PNGL case before the Commission and makes much in its public statements of following GB best practice. Yet it is notable that its proposal to move to more intrusive/interventionist regulation runs directly counter to the current trend in best practice regulation in favour of output-based incentive regulation and away from micro-management. In GB, for example:

- Ofgem has recently outlined its commitment to a price control framework under its RIIO model that encourages network companies to deliver in response to commercial incentives with the potential to earn higher returns and face less intensive regulatory scrutiny if they innovate and outperform;
- Ofwat also favours a move towards less burdensome and intrusive regulation where water companies produce high quality business plans.

In the face of best practice, the Authority proposes an increasingly micro-managed regulatory model, where the regulator signs off projects and expenditure on a case-by-case basis, and intervenes more intrusively in management decisions. This model would undermine the concept of incentive regulation, and prevent the proven benefits of an incentive-based model being delivered for customers. The Authority has failed to provide a compelling case that the benefits flowing from the measures it proposes would outweigh the clear detriments, notably the unnecessary and disproportionate interference in matters which more properly fall to the NIE management.

PNGL has previously expressed our concerns to the Commission that the Authority appears to have some "*fundamental misunderstandings about regulatory best practice and the principles of incentive regulation*". It argued that a number of the Authority's statements in relation to its PNGL12 price control "*raise questions about what model of regulation the Authority is trying to implement in Northern Ireland. PNGL understands that it is operating under an ex ante incentive-based regulatory regime. However, these statements seem to show that the Authority favours a "cost-plus" model of regulation over an incentive-based model. Indeed, this is consistent with the fact that the Authority has been a "champion" of the mutual company model, including requiring PNGL to sell its transmission assets to a mutual company.*"⁷

PNGL would urge the Commission, in its investigation, to consider the steps implicit in the price control that could either increase or limit micro-management and that could increase or reduce incentives on regulated businesses in Northern Ireland to outperform (and thereafter share the benefits of outperformance with customers). An absence of comment on this issue

⁷ See PNGL's Response to the Authority's Supplementary Submission, paragraphs 3.2 – 3.6.

could create dangerous precedents for customers of utilities in the province and an unfortunate growing chasm between Northern Irish and GB regulatory approaches.

WACC

PNGL notes that:

- i. there are differences between the activities that PNGL undertakes relative to NIE, and in the sectors in which both companies operate; and
- ii. the regulatory models for the two companies are different: in particular, the Profile Adjustment for PNGL implies longer cash flow duration relative to NIE.

Nevertheless, some of the debate around the allowed cost of capital during the Commission's review of PNGL12 related to issues which PNGL feels may be of relevance to the Commission during its NIE review.

While PNGL is not in a position to comment on the specifics of NIE's WACC, it continues to believe that there is strong evidence of a Northern Ireland premium on the cost of debt relative to GB. The Commission reviewed the evidence in the PNGL12 investigation and concluded that, although it could not definitely explain the cause of this premium: *"Nevertheless we consider that the differential in bond yields, and the widening of that differential since August 2011, may be partly due to Northern-Ireland-specific factors including the regulatory regime."* (8.109).

The Commission also indicated that factors which impact the cost of debt (such as the uncertainty of the regulatory environment) are also likely to impact the cost of equity:

"We have considered UR's argument that there is ambiguous empirical and academic evidence to support the intuition that heightened regulatory uncertainty could increase the cost of capital. However, we note that both Fitch and Moody's take the predictability of the regulatory regime into account when setting credit ratings, hence we consider that there is clear effect on the cost of debt. The effect on the cost of equity is harder to establish, but it is our view that unpredictability increases risk for equity investors and that this may increase beta and may also increase any asset stranding premium." (8.90)

"Aside from the potential effect on the cost of debt, we also consider that the cost of equity is likely to be impacted. This could apply equally to existing equity investments in utilities that are regulated by UR as well as future greenfield investments that fall under UR's remit" (8.94)

Following publication of the Commission's Final Determination of the PNGL12 price control, PNGL appointed an independent academic, Professor Ian Cooper of the London Business School, to undertake a study to investigate the existence of a premium in PNGL's cost of debt relative to that of GB comparators, and the implications of any such premium for the overall cost of capital faced by PNGL relative to GB peers.

Professor Cooper's analysis found that:

1. PNGL has a cost of debt that is at least 110 bps greater than for a similar GB utility with similar leverage;

2. the higher debt spread is not caused by factors such as illiquidity or rating differences;
3. the cause of the higher debt spread is that the capital market perceives PNGL to have higher business risk than similar GB utilities;
4. the cause of this higher risk is mainly regulatory risk, with further factors being the relatively small size of the Northern Ireland market, the immaturity of PNGL relative to GB utilities, and the specific nature of the Northern Ireland gas market;
5. this effect has not diminished over time for PNGL, although there has been some reduction in this effect for NIE;
6. PNGL's cost of debt premium relative to GB also implies an equity risk premium relative to GB. This is because most of the debt premium is caused by regulatory risk that is not compensated elsewhere in the price control mechanism. Professor Cooper's (conservative) estimate is that a multiplier of at least 1.69x should be used to convert the incremental debt spread to an incremental equity risk premium, implying an incremental cost of equity of at least $110 \times 1.69 = 186$ bps.

We enclose a copy of Professor Cooper's paper for the Commission's reference⁸. We hope that this report will be useful to the Commission. The Commission will no doubt, though, recognise that the report has certain limitations in relation to NIE's WACC – as it was commissioned to look at PNGL's specific circumstances and characteristics, not those of NIE.

That said, it is clear from the Cooper analysis that there is a premium in Northern Ireland relative to GB, and that some if not all of this can be attributed to the regulator.

We are happy to discuss with you any aspect of these comments.

Yours sincerely

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Commercial Operations Director
Phoenix Natural Gas Limited

⁸ Section 4 of Professor Cooper's paper addresses the impact that PNGL's unusually long cash flow duration could have on the cost of capital.

**Evidence concerning whether there is a premium in
the WACC of Phoenix Natural Gas Limited relative
to the WACC of mature GB utilities**

Ian Cooper
Professor of Finance
London Business School
22 May 2013

SUMMARY

I have been asked by Phoenix Natural Gas Limited (“PNGL”) to consider whether there is a premium in its cost of capital relative to mature GB utilities. In particular, I have been asked to examine the following:

- a. How much premium yield do investors in PNGL debt require over the rate on mature GB utility debt?
- b. What are the implications of any premium in its cost of debt for the cost of equity of PNGL?
- c. How should the debt yield premium affect the estimated asset beta or other components of the cost of capital?
- d. What is the impact of the cash flow profile of PNGL on its cost of capital?

Regarding the incremental cost of debt of PNGL I conclude, using data up to 16 November 2012, that (1) PNGL has a cost of debt that is at least 110 bps greater than for a similar GB utility with similar leverage; (2) the higher debt spread is not caused by factors such as illiquidity or rating differences; (3) the cause of the higher debt spread is that the capital market perceives PNGL to have higher business risk than similar GB utilities; (4) the cause of this higher risk is mainly regulatory risk, with further factors being the relatively small size of the Northern Ireland (“NI”) market, the immaturity of PNGL relative to GB utilities, and the specific nature of the NI gas market; (5) this effect has not diminished over time for PNGL, although it has diminished somewhat for Northern Ireland Electricity.

Regarding the incremental cost of equity, I conclude that this extra debt spread implies also an extra equity risk premium. In my opinion the principle source of the incremental debt spread is regulatory risk that is not compensated elsewhere in the price control mechanism. Another part of the debt spread may be caused by incremental asset risk of a more general type. For both types of risk I estimate a multiplier of at least 1.69x to convert the incremental debt spread to an incremental equity risk premium. That implies an incremental cost of equity of at least $1.10\% \times 1.69 = 1.86\%$.

Regarding the impact of revenue deferral I conclude that the issue is whether the deferral of the cash flow at a constant cost of capital is sufficient to compensate for the combination of regulatory and competitive risk for PNGL combined with its revenue deferral. In my opinion it is possible that this combination will cause a risk of regulatory shortfall that increases faster than allowed for by a constant risk premium. I am not an expert in the operations of PNGL, but the comments of other experts suggest that this type of risk is material. To the extent that this is the case I expect it to increase more than proportionately with time and, therefore, to result in a higher return required to compensate as income is deferred.

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1. Introduction

1.1 I have been asked by Phoenix Natural Gas Limited (“PNGL”) to consider whether there is a premium in its cost of capital relative to mature GB utilities. In particular, I have been asked to examine the following:

- (a) How much premium yield do investors in PNGL debt require over the rate on mature GB utility debt?
- (b) What are the implications of any premium in its cost of debt for the cost of equity of PNGL?
- (c) How should the debt yield premium affect the estimated asset beta or other components of the cost of capital?
- (d) What is the impact of the cash flow profile of PNGL on its cost of capital?

2. How much extra yield do investors in Phoenix debt require over the rate on mature GB utility debt?

2.1 The data used in this section are up to 16 November 2012.

2.2 Analysis of the yield spread between PNGL debt and the debt of mature GB utilities has been provided by PNGL in the document *Response to questions to the Regulator and Phoenix of 21 May 2012: Question 73*, (“Response to Question 73”) submitted by PNGL to the Competition Commission as part of the Investigation into the Price Control Conditions for Phoenix Natural Gas Limited. It concludes that there has been a yield premium of 110 basis points (bps) on the debt of PNGL relative to mature UK utilities and that this yield premium reflects higher business risk of PNGL compared with these peers.

2.3 This conclusion is based on a comparison between the yield on the PNGL bond maturing in 2017 and bonds of three GB utilities listed in Table 1. The comparison bonds are matched as closely as possible to the PNGL bond by maturity and rating. They also have broadly similar amounts outstanding, as the table shows. Based on a comparison of the yield on PNGL with the average yields on the other three bonds in Table 1 during April 2010-April 2012, the Response to Question 73 concludes that the cost of debt of PNGL includes a premium yield of 110bps relative to GB utilities.

Table 1: Bonds used in making the comparison for the Response to Question 73

Issuer	PNGL	Wls.& Ws.Util	Sthn. Gas	United Utils
Maturity	July 2017	Feb 2016	Feb 2018	May 2018
Coupon	5.5%	5.125%	5.125%	5.375%
Rating:				
Moody's	Baa2	Baa1	Baa1	A3
S&P	NA	A-	BBB	BBB+
Fitch	BBB+	A-	BBB+	A-
Bloomberg composite	BBB	BBB+	BBB	BBB+
Amount outstanding (GB£ millions)	275	200	300	150

- 2.4 In broad terms I agree with the above analysis. However, it relies on the comparison in Table 1 being unbiased, in the following sense. The issuers and bonds should be similar, with the only material difference being the NI location, stage of development, and regulatory environment of PNGL. To confirm that other factors, such the choice of sample for comparison, liquidity, or rating are not the explanation for the difference in yields I now perform some robustness tests.
- 2.5 To verify the validity as far as the choice of comparison bonds is concerned, I used two alternative peer groups of UK utility bonds chosen independently by third parties. One is the set of comparable bonds listed by Bloomberg. The other is the “peer group” chosen by Fitch in its rating analysis of PNGL.
- 2.6 Bloomberg lists seven bonds as comparable to the 2017 PNGL bond. Of these, one is a New Zealand bond that is not relevant to the comparison here. Another is a bond issued by Southern Water Services Finance in the Cayman Islands. Issuance in a tax haven makes this bond different to the PNGL bond. Excluding these two bonds leaves the five comparable bonds shown in Table 2.

Table 2: Yield comparison based on Bloomberg comparable bonds, 16/11/2012

Issuer	Coupon	Maturity	Bloomberg composite rating	Yield spread bps
PNGL	5.50%	July 2017	BBB	244
Southern Gas Network	5.125%	Nov 2018	BBB	138
Wales & West Util Fin	5.125%	Dec 2016	BBB+	124
Severn Trent Water	6.00%	Jan 2018	BBB+	112
Scotland Gas Network	4.75%	Feb 2017	NA*	110
SSE Plc	5.00%	Oct 2018	A-	108

*Bloomberg has not assigned a composite rating to Scotland Gas Network. The current agency ratings are Baa1/AA-/BBB+.

- 2.7 From Table 2 it is immediately apparent that the yield spread of PNGL relative to the gilt rate is considerably higher than the peer group of bonds, despite the fact that they are matched quite closely on rating and maturity. The average yield spread of the other bonds is 118 bps, while the yield spread of the PNGL bond is 244 bps. The extra spread relative to this peer group is 126 bps, which is slightly higher than the 110 bps in the Response to Question 73.
- 2.8 Table 2 is based on a snapshot on 16 November 2012 rather than the period used in the Response to Question 73. It also uses a different peer group. To further test the robustness of the conclusion, Table 3 reports the premium of the PNGL yield relative to each peer bond considered individually. It gives the current spread on 16 November 2012 as well as the average spread over the prior 6 months, which Bloomberg reports. The average spread of the PNGL bond over 6 months relative to this sample of bonds is 136 bps.
- 2.9 In its analysis of the PNGL bond rating, Fitch uses only two of the issuers in Tables 2 as a peer group. These are Southern Gas Network and Scotland Gas Network. From Table 3 the spread of PNGL's bond versus the bonds of these issuers are 106 bps and

134 bps on 16 November 2012, with an average of 120 bps. Using the 6-month average they are 115 bps and 134 bps, with an average of 124 bps. Hence, using the peer group chosen by Fitch confirms the results of the Bloomberg broader peer group.

Table 3: Yield comparison based on Bloomberg comparable bonds, 16/11/2012

Issuer	Bloomberg composite rating	Spread relative to gilts	PNGL spread relative to peer bond current market	PNGL spread relative to peer bond 6-month average
PNGL	BBB	244	0	0
Southern Gas Network	BBB	138	106	115
Wales & West Utl Fin	BBB+	124	120	141
Severn Trent Water	BBB+	112	132	143
Scotland Gas Network	NA*	110	134	134
SSE Plc	A-	108	136	145
Average			126	136

*Bloomberg has not assigned a composite rating to Scotland Gas Network. The current agency ratings are Baa1/AA-/BBB+.

2.10 Both Southern Gas Network and Scotland Gas Network have equity ownership that is concentrated in the hands of a single shareholder, like PNGL. Therefore, this comparison does not suffer from the concern expressed by the Competition Commission that it is the ownership structure of PNGL that is causing part of the higher yield spread.¹

2.11 A similar conclusion about the immaterial nature of equity ownership structure for debt spreads is reached in the most comprehensive study of the issue, Sergei Davydenko and Ilya Strebulaev, 2007, Strategic actions and credit spreads: An empirical investigation, *Journal of Finance* 62.6, 2633-2671. Ownership structure is

¹ Competition Commission, 2012, *Phoenix Natural Gas Limited price determination*, Paragraph 8.107.

one aspect of what is called strategic debt service. They conclude that “the economic effect [of strategic debt service] is small”. Empirically, they estimate that a 10% change in the institutional ownership of equity of a firm changes its debt spread by only 2.3b.p. (Table VI of their paper).

- 2.12 The effect of this adjustment can be seen by using only Severn Trent and SSE for the comparison. These are the two companies in the table that do not have a concentrated equity ownership structure like PNGL. The average spread of PNGL relative to them is 134 b.p. if the current date is used and 144 b.p. if the 6-month average is used. Thus even if their institutional equity ownership is 50% less than that of PNGL the adjustment based on the Davydenko and Strebulaev estimate would be only $5 \times 2.3 \text{ bp} = 11.5 \text{ b.p.}$. Even if this adjustment were made to the incremental spread of PNGL it would still be greater than 110 b.p..
- 2.13 In conclusion, using different comparison groups of bonds chosen by independent third parties and using different measurement periods confirms that the estimate of 110bps for the extra yield on PNGL debt relative to GB utilities is fully justified. If anything the other estimates are higher.
- 2.14 One other possibility that would negate the conclusion that PNGL suffers a higher cost of debt than similar GB utilities is that the rating which is used as the benchmark of comparison in Tables 1-3 masks fundamental differences between these companies. For instance, it could be that PNGL is more highly leveraged and that this is somehow not captured in the rating. If that were true, the comparison of the bonds would simply reflect different amounts of leverage rather than any fundamental difference in the underlying risks of the companies.
- 2.15 To check this alternative explanation I examined the leverage of Southern Gas Network and Scotland Gas Network, the peer companies used by both Bloomberg and Fitch. In August 2011 Fitch conducted a detailed analysis of the fundamental factors affecting the risk of the debt of these companies, including their leverage. Table 4 reports the leverage measures used in their comparison. I use these measures of leverage because they are the primary indicators of medium-term leverage expectations that drive bond ratings and yield spreads.

Table 4: Fitch comparison of leverage ratios, August 2011

Issuer	Fitch rating	Outlook	Target gearing	Forecast interest coverage ratio
PNGL	BBB	Stable	60-70	1.9-2.0
Southern Gas Network	BBB	Stable	73	At or above 1.6
Scotland Gas Network	BBB	Stable	73	Above 1.6

Source: Fitch Ratings, Phoenix Natural Gas Limited, 23 August 2011

- 2.16 It is apparent from Table 4 that PNGL has better leverage ratios than these two peer companies: lower target gearing and higher forecast interest coverage. Therefore, the extra yield spread is not explained by PNGL having worse leverage despite having the same rating. If anything, the spread of PNGL should be lower than these peers, because it has better leverage than these two closely-matched firms.
- 2.17 A final possibility that could explain some of the large yield spread between PNGL debt and matched bonds is that the matching is not perfect. Bonds differ in characteristics such as liquidity as well as rating, maturity, amount issued, and risk. For instance, examination of the ratings in Table 3 shows that the comparison bonds have, on average, a slightly higher rating than the PNGL bond.
- 2.18 To examine whether differences of characteristics between the PNGL bond and the average of peer bonds used in the comparisons could explain part of the spread I used two empirical studies of the determinants of bond spreads. These measure the empirical relationship between corporate bond yields and characteristics such as amount issued, rating, and liquidity.²
- 2.19 These studies conclude that factors other than risk have a relatively small influence on the difference between the yields of investment-grade bonds. For instance, Longstaff et al (2005) conclude that a difference of \$100 million in the amount issued changes the yield by only 0.6 bps. Examination of the sizes of the issues in Table 1

² The studies are Corporate yield spreads and bond liquidity, Long Chen, David A Lesmond, and Jason Wei, *Journal of Finance* 62.1, 2007, 119-149, and Corporate yield spreads: Default risk or liquidity, Francis A Longstaff, Sanjay Mithal, and Eric Neis, *Journal of Finance* 60.5, 2005, 2213-2253.

shows that this cannot possibly explain any significant part of the yield spread of PNGL. Although liquidity is a significant factor in determining the level of the spread for an individual bond, it is much less significant in determining the difference between the spreads of bonds that are similar in the amounts issued.

- 2.20 Chen et al (2007) conclude that liquidity differences can account for a maximum of 7% of the yield differences between investment-grade bonds. If liquidity is accounting for 7% of the difference between PNGL and other bonds it would still be only a maximum of 8 bps. However, liquidity is related to both rating and issue size and the comparison bonds are reasonably well matched on both of these dimensions, so the true effect of liquidity differences is likely to be smaller than this.
- 2.21 One factor that does have a big influence on yields is the bond rating. The comparison bonds in Tables 1-3 are, on average, slightly higher rated than the PNGL bond. There is a difference of one notch (BBB+ versus BBB) in some of the comparisons. It is possible that the different ratings involved in the comparison may explain part of the yield difference. The analysis below shows that this is not the explanation. However, even if it were it is not clear that it would affect the conclusions. A worse rating for PNGL than comparable utilities would itself indicate additional risk. Eliminating that effect would be eliminating the very issue being addressed.
- 2.22 To examine this issue I use the benchmark utility corporate bond yields provided by Bloomberg. The difference between the UK utility 10-year benchmark yield curves for A bonds and BBB bonds is 26 bps on 16 November 2012. This difference reflects a whole rating grade (BBB versus A). The difference caused by a single notch would be approximately one third of this (9 bps). This cannot account for more than a small fraction of the yield difference between PNGL debt and GB utility debt. Even if an adjustment of this size were made to the yield differences in Table 3 they would still be higher than the 110bps estimated in the Response to Question 73.
- 2.23 Finally, I examined the seniority of the bonds in Table 3. All are Senior Unsecured, other than the Wales and West bond, which has a First Lien. Excluding that bond from the analysis does not materially affect the conclusion.

- 2.24 In summary, using criteria for the choice of comparison bonds very similar to those used by the Competition Commission in its analysis³ I conclude that the 110 bps yield difference between PNGL debt and similar GB utility debt is robust to a series of alternative measurement adjustments. I conclude that the only explanation for this large difference is that the capital market views the underlying business of PNGL as more risky than similar GB utilities.
- 2.25 In the Response to Question 73 there is also analysis of the yield spread on Northern Ireland Electricity (“NIE”) debt, which shows that it also has a significant spread over comparable GB utilities. To confirm this I conducted an exercise similar to that in Table 3 for NIE using the comparable firms selected by Bloomberg.
- 2.26 Bloomberg lists 8 comparable bonds for the NIE bond maturing in 2018. Although it does not report a rating for the NIE debt, the comparables will have been chosen to make the implied rating similar between the bonds. Of these peers, two are listed in the Cayman Islands and I exclude them. One is a very large jumbo issue (£850million GB£ face value) issued by E.ON, and I exclude that because it may possibly have a yield that is affected by a different level of liquidity than the PNGL bond. The remaining 5 bonds are shown in Table 5.
- 2.27 Comparing the final column of Table 5 with the final column of Table 3, the spread of NIE debt over its GB peers has been 133 bps on average over the last 6 months, compared with the average for PNGL of 136 bps. Thus the average picture over this period is very similar. However, within this average there is a trend in the NIE spread that is not present in the PNGL spread. As of 16 November 2012 the current spread relative to its peers is 66 bps for NIE, significantly lower than the 126 bps for PNGL. Hence it appears that there is a perception of diminishing risk for NIE that has not yet occurred for PNGL.
- 2.28 The comparison with NIE confirms that the higher debt spread comes partly from a general Northern Ireland and UReg effect, but that the impact is now greater for PNGL than for NIE. The NIE effect appears to have diminished somewhat, but the PNGL effect has not.

³ Competition Commission, 2012, *Phoenix Natural Gas Limited price determination*, footnote 86, page 8-24.

Table 5: Yield comparison for Northern Ireland Electricity based on Bloomberg comparable bonds, 16/11/2012

Issuer	Bloomberg composite rating	Spread relative to gilts	NIE spread relative to peer bond current market	NIE spread relative to peer bond 6-month average
NIE	NA*	227	0	0
Scottish Power	BBB+**	198	29	78
Northern Powergrid	A-	175	52	123
Northern Powergrid	A-	169	58	127
United Utilities	BBB+	126	95	170
London Power	BBB+	124	98	167
Average			66	133

*No ratings are provided by Bloomberg for the NIE bond. **Bloomberg does not provide a composite rating for this Scottish Power bond, the S&P rating is BBB+, Moody's is baa1, and Fitch is A-.

2.29 The nature of the higher level of risk that is affecting PNGL debt has been discussed by the rating agency Fitch. It states the primary rating drivers of PNGL debt as being “*Performance in terms of efficiency targets set by the Utility Regulator (UReg).*” and “*Inadequate tariff settlements or evolution of the regulatory regime could increase the sector’s business risk and adversely affect the credit ratings.*” (Fitch rating report, PNGL, 23 November 2009). Fitch further notes that:

“While these rating drivers apply equally to gas distribution networks in GB, the regulator in NI cannot pursue as clear a benchmarking approach due to lack of comparables. Therefore, future tariff settlements are likely to involve a higher degree of negotiation, on a less transparent basis and with more discretion for UReg, than would be seen in GB.”

2.30 Thus, in Fitch’s opinion, the source of the increased risk that has resulted in a higher cost of debt is the nature of the regulatory regime and utility market in NI. In particular, uncertainty about how regulation will evolve and the possibility of

inadequate tariff settlements are contributing to the risk that is driving the higher cost of debt.

2.31 Another opinion on the cause of the higher debt spread of PNGL spread has been given in a report to Ofgem by its advisors, CEPA (Cambridge Economic Policy Associates) (CEPA, Cashflow profiles and the allowed WACC, July 2010). They examine debt spreads on 16 May 2010 and conclude that the spread on PNGL's debt "represents a premium of about 80 bps on similar debt issued in GB and about 60 bps on the most appropriate NI comparator, NI Electricity". In my opinion, this conclusion based on a snapshot at a single date is consistent with my conclusion that the extra spread is 110bps. The spread in May 2010 was lower than has been typical in the more recent past (see PNGL Response to Question 73 of the Competition Commission Figure 7).

2.32 CEPA's conclusion about the cause of the higher spread is (p3 of CEPA report):

"The question then becomes, is this observed 60 bp premium due to the duration of PNG's cashflows or is it explained by other factors. It is, in our view, due to other factors. The gas sector in NI faces greater competitive pressures, in particular demand risk, than in its GB equivalent, in part because the market is being built in a different situation where switching is predicated on replacing oil rather than electricity. It is not clear that the full cost of the investment in NI, including the WACC, will be recovered over the depreciable life the asset base. It was for this reason that the asset's revenue stream was extended in the first instance. It is these factors that are most likely to explain the premium observed on PNG debt rather the extension of the cashflow duration."

2.33 Thus the conclusion of CEPA is consistent with that of Fitch, in the sense that both conclude that part of the risk derives from regulation. CEPA further expresses the view that the risk is a downside risk resulting from a combination of factors that are specific to PNGL NI regulation that may not allow the full WACC to be earned on the full cost of the asset base. This is similar to the concern of Fitch about the possibility of inadequate tariff settlements. However, the mechanism put forward by CEPA is somewhat different, involving a risk of competition from other fuels restricting the

ability of PNGL to recover a fair return on its investment, even if the regulator were supportive.

2.34 In summary, I conclude that (1) PNGL has a cost of debt that is at least 110 bps greater than for a similar GB utility with similar leverage; (2) the higher debt spread is not caused by factors such as illiquidity or rating differences; (3) the cause of the higher debt spread is that the capital market perceives PNGL to have higher business risk than similar GB utilities; (4) the cause of this higher risk is mainly regulatory risk, with further factors being the relatively small size of the Northern Ireland (“NI”) market, the immaturity of PNGL relative to GB utilities, and the specific nature of the NI gas market; (5) this effect has not diminished over time for PNGL, although it has diminished somewhat for NIE.

3. What is the implication for the cost of equity of Phoenix of the premium in its cost of debt?

3.1 PNGL has a debt spread higher than similar GB utilities with similar leverage. Hence, the market perceives that PNGL has a higher chance of financial distress than similar GB utilities with similar leverage. This has a direct effect on the cost of capital because the higher spread implies a higher cost of debt.

3.2 In addition, the higher risk of distress must reflect higher business risk. That higher business risk implies a higher cost of equity. A higher debt spread and a higher cost of equity are both manifestations of a common underlying cause: higher business risk. Hence, the incremental debt spread of PNGL can be used to infer the extra cost of equity it has relative to comparable GB utilities. In this section I assess the increment to the cost of equity implied by the higher spread in the cost of debt.

The incremental debt spread and the incremental equity risk premium

3.3 In order to assess the incremental equity risk premium that corresponds to the incremental debt spread it is important to be clear about the cause of the incremental debt spread. Table 6 lists the factors that can affect the debt spreads of different companies on the same date. The comparisons made above attempt to equalize the effects of all factors other than the expected default loss and the pure (CAPM) risk

premium. Therefore, the incremental spread that is measured by the comparisons must reflect just these two elements.

Table 6: The factors that can affect debt spreads

Factor possibly affecting debt spread	PNGL	Comparison company
Lack of liquidity	SAME	SAME
Maturity	SAME	SAME
Tax treatment	SAME	SAME
Strategic factors (e.g. equity ownership structure)	SAME	SAME
Expected default loss	DIFFERENT	DIFFERENT
Pure (CAPM) risk premium	DIFFERENT	DIFFERENT

- 3.4 In seeking to investigate the implication of the incremental debt spread for the cost of equity it is, therefore, necessary to estimate the incremental equity risk premium corresponds to the incremental debt spread if it derives from expected default loss or if it derives from a pure (CAPM) risk premium.
- 3.5 If the higher debt spread is caused by a risk of default loss that is not compensated with an equivalent upside potential for the equity it will correspond to a higher equity risk premium. I discuss this type of risk in the next subsection (called “Regulatory risk and expected default loss”) and use the standard model of default loss to convert the incremental debt spread into an incremental equity risk premium. This gives a ratio between the incremental cost of equity and the incremental debt spread that will apply if this is the source of the incremental debt spread.
- 3.6 The second type of risk that may be affecting the debt spread is systematic risk, in the CAPM sense. If the debt of a firm has higher systematic risk then it is likely that the equity does also. To convert the incremental systematic risk of the debt into an

estimate of the incremental systematic risk of the equity requires a model. The standard model that can be used to do this is called a structural model, the classic example of which is given in Robert Merton, 1974, On the pricing of corporate debt: The risk structure of interest rates, *Journal of Finance* 29, 449-470. In the next-but-one subsection (called “The risk premium related to general asset risk”) I use information derived from this standard model to convert the incremental debt spread into an incremental equity risk premium. This gives a ratio between the incremental cost of equity and the incremental debt spread that will apply if this is the source of the incremental debt spread.

- 3.7 For each of the two types of risk I estimate the ratio that should be used to convert the part of the debt spread arising from that source into an incremental equity risk premium. In the final subsection of this section I give my conclusions regarding the incremental cost of equity that corresponds to the incremental debt spread.

Regulatory risk and expected default loss

- 3.8 The main cause of the higher risk of PNGL debt identified by Fitch and CEPA is higher regulatory uncertainty and the immaturity of the regulatory process in NI, combined with the demand risk of PNGL’s business. CEPA concludes that this combination of factors means that “*It is not clear that the full cost of the investment in NI, including the WACC, will be recovered over the depreciable life the asset base.*”
- 3.9 This risk may not entirely be a systematic risk that affects the asset beta. However, it should still affect the allowable WACC if it is not compensated directly in the regulatory system. The higher debt spread indicates that the market expects PNGL to have a higher chance of suffering from downside risk. When the debt suffers in this way the equity will also. If this downside risk is not compensated by an equivalent amount of regulatory upside, then the risk will feed through to expected equity returns.
- 3.10 Ofgem’s advisor, Europe Economics, has discussed in a report to Ofgem what should happen if regulatory risk of this type that is not accounted for directly in the price control mechanism, even if it is diversifiable risk (Europe Economics, The weighted average cost of capital for Ofgem’s future price control – Final Phase 1 Report, December 2010, p 88):

“Of course, if the effect of diversifiable regulatory risk upon expected cash flows is not accounted for elsewhere in the price control, one second-best “correction” mechanism would be to offer a higher WACC, above the expected WACC of corporate finance theory, such that once diversifiable regulatory risk is taken into account, the regulatory determined WACC, adjusted for diversifiable regulatory risk, equals the expected WACC. We recommend against this approach, but if it were adopted, then in principle changes in the time profile of diversifiable regulatory risk could affect the adjustment between “determined” and “expected” WACC.”

- 3.11 Europe Economics “recommends against this approach”, presumably because it believes that this type of risk should be compensated directly in the price control mechanism. However, the fact that PNLG’s debt spread is higher than GB utilities shows that the market perceives that the risk is not compensated directly in the price control mechanism. Therefore, the “second best” solution discussed by Europe Economics is the standard way to deal with it and I agree with that approach. This means that the risk reflected in the higher debt spread needs to be translated into an equivalent return on equity to use as a component of the cost of capital.
- 3.12 The standard way of linking debt spreads to default risk is to use the probability of default and the loss in default. A practical implementation of this approach is given in Almeida and Philippon, Estimating risk-adjusted costs of financial distress, *Journal of Applied Corporate Finance* 20.4, 2008.⁴ This approach says that the debt must be high enough to compensate for the expected default probability combined with the expected loss in default.
- 3.13 Suppose that the entire 110bp increment in the debt spread is due to a higher chance of default that is not compensated by regulatory upside. Then using the above approach, a 110bp increment to the debt spread must be enough to compensate for the incremental probability of default combined with the expected loss given default.⁵

⁴ This paper is an applied version of the approach developed in Duffie, Darrell, and Kenneth Singleton, 1999, Modeling term structures of defaultable bonds, *Review of Financial Studies* 12, 687–720 and Heitor Almeida and Thomas Philippon, (2007), “The Risk-Adjusted Cost of Financial Distress“, *Journal of Finance* 62, pp. 2557-2586.

⁵ Technically, this is the risk-adjusted probability of default, but the distinction does not matter here.

Almeida and Philippon use a loss given default of 59% (page 107).⁶ Thus the extra debt spread satisfies the condition:

110bps extra debt spread is equivalent to:

Incremental probability of default combined with loss given default of 59%

- 3.14 The implications for the cost of equity can be derived by noting that if the firm defaults on its debt the equity holders will expect to lose everything, whereas the debt-holders expect to lose only 59%. The probability of default is obviously the same for equity as debt. Therefore, the extra equity return required must satisfy:

X% extra equity return is equivalent to:

Incremental probability of default combined with loss given default of 100%

Solving for X yields a value of $110\text{bp} \times (100\%/59\%) = 186\text{bp}$.

- 3.15 The ratio that converts the incremental debt spread to a cost of equity is $(100\%/59\%) = 1.69x$. This ratio may be applied to the part of the incremental debt spread that derives from this cause. Essentially, the extra cost of equity is simply the extra cost of debt scaled up to reflect the higher loss that will be experienced by equity-holders if the firm defaults. I consider this estimate to be conservative, for the following reasons.
- 3.16 First, the effect will be larger than this if the risk causes losses for equity even when the firm does not default on its debt. Second, it is likely that the loss for debt when a utility company defaults is smaller than the average loss for all bonds. Altman and Kishore (1996), in their classic study of recovery rates on bonds, report a recovery rate for Gas Utilities of 81%-90% depending on the weighting scheme.⁷ A higher recovery rate on debt implies a higher multiplier to convert the debt spread to an equity premium. I am not equating PNGL with the utility firms in this study, but the relatively high recovery rates for those utilities indicates that there might be a similar effect for PNGL. On the other hand there is the possibility that the equity will recover

⁶ They use a recovery rate of 41%, which implies a loss of 59%.

⁷ Edward Altman and Vellore Kishore, 1996, Almost everything you wanted to know about recoveries on defaulted bonds, *Financial Analysts Journal* 52.6, 57-64.

something in default, which would lower the multiplier. However, I consider the balance of these factors makes the multiplier of 1.69x conservative.

The risk premium related to general asset risk

- 3.17 I consider that most of the incremental debt spread of PNGL is caused by default risk uncompensated by regulatory upside and, therefore, the multiplier of 1.69 estimated in the previous section should be applied. However, a small portion of the incremental debt spread may represent a higher level of pure (CAPM) risk premium. In that case, the higher debt spread will signify a higher level of systematic risk of the debt. A higher level of systematic debt will derive from a higher level of asset beta and this will, in turn, signify a higher equity beta, all else equal. To convert the part of the incremental debt spread deriving from this cause into an equivalent incremental equity risk premium requires a model of the way equity risk and debt risk are related.
- 3.18 The standard model of this type is Merton (1974). This model is widely used in the analysis of risky debt to examine risk premia. It has empirical shortcomings in measuring the absolute level of risk premia, but has recently been shown by Schaefer and Strebulaev (2008) to be useful in estimating the relative risks of debt and equity.⁸ This type of model provides the important insight that both equity and debt are contingent claims on the same assets, so they must share similar systematic risk factors. This means that if we know the risk premium on debt we should be able to back out the corresponding risk premium on equity, provided we have a reasonable model to do it.
- 3.19 This type of model links debt spreads to asset and equity risk in two ways. First there is an expected chance of default and second there is a pure (CAPM) risk premium. The pure risk premium on debt reflects the same asset risk that drives the equity risk premium of the firm. Therefore, the elasticity of equity returns with respect to debt returns can be used to translate debt risk of this type to equity risk. This elasticity gives a measure of the relative risks of debt and equity and their risk premia should be proportional to those risks.

⁸ Stephen Schaefer and Ilya Strebulaev, 2008, Structural models of credit risk are useful: Evidence from hedge ratios on corporate bonds, *Journal of Financial Economics* 90, 1-19.

- 3.20 In the context of this report, the steps required to convert the part of the extra debt spread of PNGL that derives from this source to an equivalent amount of incremental equity risk premium are:
- (a) Assess how much of the incremental debt spread of PNGL represents an incremental pure risk premium;
 - (b) Multiply this by the elasticity of equity with respect to debt to convert it into an incremental equity risk premium.
- 3.21 Regarding step (a), Campello et al (2008) have shown that on average 51.5% of the Baa spread represents an incremental expected excess return.⁹ This is a relatively conservative estimate. Other studies, such as Elton et al (2001), estimate that a larger proportion of the spread represents an expected excess return.¹⁰
- 3.22 For step (b), Schaefer and Strebulaev (2008) have estimated the elasticity of the equity return with respect to the debt return. They confirm that the numbers given by the Merton model are consistent with direct empirical estimates.
- 3.23 Schaefer and Strebulaev show that the elasticity of equity with respect to debt falls as leverage increases and as asset volatility increases.¹¹ Therefore, to be conservative I use leverage and volatility figures that are towards the high end of the possible range for a utility firm. I use leverage of 70% and volatility of 25%. The resulting elasticity of equity with respect to debt is 6.79.¹²
- 3.24 For the portion of the incremental debt spread that is caused by this type of risk, this gives a multiplier to convert to an incremental equity risk premium of:

⁹ Murillo Campello, Long Chen, and Lu Zhang, 2008, Expected returns, yield spreads, and asset pricing tests, *Review of Financial Studies* 21.3, 1297-1338. Table 6 shows that the average Baa spread is 1.805% and the average expected excess return is 0.930%. The calculation of the proportion of the spread that is the expected excess return is $51.5\% = 0.930/1.805$.

¹⁰ Edwin Elton, Martin Gruber, Deepak Agrawal, and Christopher Mann, 2001, Explaining the rate spread on corporate bonds, *Journal of Finance* 56.1, 247-277.

¹¹ Table 5 of their paper shows that the elasticity of debt with respect to equity rises with leverage and volatility. So the elasticity of equity with respect to debt, which is the inverse, falls. The reason for the relationship with volatility is that assets with low volatility cannot generate much debt risk so the ratio of debt risk to equity risk is low when volatility is low.

¹² Schaefer and Strebulaev (2008) The elasticity is reported in Table 5 as an elasticity of the bond return relative to the equity return of 14.73 basis points (i.e. 0.1473). The elasticity of the equity with respect to the debt is the inverse of this: $6.79 = 1/0.1473$.

$$\begin{aligned} \text{Incremental equity risk premium} &= \text{Incremental debt spread} * \text{Proportion that is} \\ &\text{expected excess return} * \text{Elasticity of equity return with respect to debt return} \\ &= \text{Incremental debt spread} * 0.515 * 6.79 = 3.49x \text{ Incremental debt spread} \end{aligned}$$

- 3.25 This multiplier applies to the part of the debt spread that represents systematic business risk of an amount that is typical for Baa firms with this level of leverage and asset volatility. The data used to make the calculation are averages for US bonds over extended periods of time, and so give only an indicative level for the incremental equity return that corresponds to the extra debt spread. PNGL's extra debt spread may reflect more diversifiable risk than this average. In that case the part of the extra debt spread caused by diversifiable risk should not cause a higher equity risk premium. However, even if only half of the extra debt spread is used in the calculation the multiplier would still be 1.74x (= 3.49x/2).

Conclusion regarding the incremental equity risk premium

- 3.26 My estimate of the extra return on equity that corresponds to the extra debt spread coming from regulatory risk that is not compensated elsewhere in the price control mechanism is a multiplier of 1.69x. In my opinion that is the principle source of the incremental debt spread, as identified by both CEPA and Fitch. For the part of the incremental debt spread caused by incremental asset risk of a more general type I estimate a multiplier of at least 1.69x.
- 3.27 Therefore, whatever is the split between these two source of the incremental debt spread I estimate the extra cost of equity as at least $1.10\% * 1.69 = 1.86\%$. In my opinion this is a conservative estimate of the extra risk premium on the equity of PNGL that corresponds to the incremental spread on its debt relative to mature GB utilities.
- 3.28 As a sanity check on the robustness of the multiplier of 1.69x I perform a simple test. The report by Ofgem, 2011, *Phase 2 Final Report: Updating the Cost of Capital for the Transmission Price Rollover* recommends a debt premium of 1.25% and an equity risk premium of 5%. The ratio between these is 4.0x. In other words, a debt spread of this level is viewed as consistent with an equity risk premium 4 times as great. While it is not possible to use this multiplier as a direct estimate of the multiplier that should be applied to the PNGL incremental debt spread, it suggests that the estimated

multiplier of 1.69x is by no means unreasonable. It confirms my conclusion that this estimate is, if anything, conservative.

4. Cash flow maturity and risk

- 4.1 A special feature of PNGL's regulatory regime is that part of its cash flow has been deferred, in order to smooth tariffs for customers. I have been asked to comment on how this deferral should be reflected in its cost of capital, and in particular how the deferral is affected by the risks reflected in the incremental debt spread of PNGL.
- 4.2 One approach that has been proposed to address this issue is to use the so-called intertemporal capital asset pricing model ("ICAPM"). This relates the cost of equity to the duration of the cash flows of the firm. In the UK regulatory context its use has been suggested by Oxaera (What is the cost of equity for RIIO-T1 and RIIO-GD1? Oxaera, February 2011, section 5) and PNGL in its Response to Question 73. However, the use of this approach, and in particular its validity as a way of understanding the extra spread on PNGL's debt, has been disputed by CEPA and Europe Economics.¹³
- 4.3 The thrust of the ICAPM approach is that a cash flow stream with longer until it is received (a longer duration) should, on average, cause a higher cost of capital. The motivation for this result is partly theoretical and partly empirical.
- 4.4 In my opinion, the issue facing PNGL regarding revenue deferral is rather more specific than is reflected in the more general ICAPM approach. PNGL faces a deferral of its cash flow combined with significant regulatory and competitive risk, as discussed in Section 2 above. The issue is whether the deferral of the cash flow at a constant cost of capital is sufficient to compensate for this combination.
- 4.5 To put this in context it is important to realise that the issue is not simply whether deferred cash flows have greater risk. That is generally the case, but that extra risk is compensated within a standard cost of capital. The risk premium allowed in a standard cost of capital is a per annum risk premium. So if a cash flow is deferred by a year it is deemed to have greater risk by an amount equivalent to one year's risk premium.

¹³ CEPA, Cashflow profiles and the allowed WACC, July 2010, and Europe Economics, The weighted average cost of capital for Ofgem's future price control – Final Phase 1 Report, December 2010, section 8.

- 4.6 For the deferral of a cash flow to increase the cost of capital the amount of risk must rise faster with time than is allowed for by a constant risk premium. Only then will the cost of capital rise as the duration of the cash flows rises. For instance, this type of effect can be seen in investment grade debt spreads, which generally rise as maturity increases. For these bonds the per annum risk of the longer maturities is judged by the market to be higher than that for short maturities. This increase is caused by the fact that starting from a “normal” situation the chance of adverse events affecting payoffs increases more than linearly with time.
- 4.7 In my opinion, it is possible that the combination of regulatory and competitive risk for PNGL combined with its revenue deferral will cause a risk of regulatory shortfall that increases faster than allowed for by a constant risk premium. As noted in Section 2 above, PNGL faces both regulatory and demand risk (as reflected for instance in its higher debt spread). At the moment PNGL is able to recoup the return the regulator allows it. However, as time goes by the chance will increase that assets will become “stranded” or competitive pressures will make it impossible to recoup the full return.
- 4.8 This “stranded asset risk” should be compensated by a higher tariff, which can be achieved by either lowering the expectation of future asset values or increasing the cost of capital. Either can be used to create an equivalent amount of compensation for the risk.
- 4.9 I am not an expert in the operations of PNGL, but the comments of CEPA quoted in Section 2 above suggest that this type of risk is material. To the extent that this is the case I expect it to increase more than proportionately with time and, therefore, to result in a higher return required to compensate as income is deferred.

5. Conclusions

- 5.1 Regarding the incremental cost of debt of PNGL I conclude, using data up to 16 November 2012, that (1) PNGL has a cost of debt that is at least 110 bps greater than for a similar GB utility with similar leverage; (2) the higher debt spread is not caused by factors such as illiquidity or rating differences; (3) the cause of the higher debt spread is that the capital market perceives PNGL to have higher business risk than similar GB utilities; (4) the cause of this higher risk is mainly regulatory risk, with further factors being the relatively small size of the Northern Ireland (“NI”) market,

the immaturity of PNGL relative to GB utilities, and the specific nature of the NI gas market; (5) this effect has not diminished over time for PNGL, although it has diminished somewhat for NIE.

5.2 Regarding the incremental cost of equity, I conclude that this extra debt spread implies also an extra equity risk premium. In my opinion the principle source of the incremental debt spread is regulatory risk that is not compensated elsewhere in the price control mechanism. Another part of the debt spread may be caused by incremental asset risk of a more general type. For both types of risk I estimate a multiplier of at least 1.69x to convert the incremental debt spread to an incremental equity risk premium. That implies an incremental cost of equity of at least $1.10\% * 1.69 = 1.86\%$.

5.3 Regarding the impact of revenue deferral I conclude that the issue is whether the deferral of the cash flow at a constant cost of capital is sufficient to compensate for this combination. In my opinion, it is possible that the combination of regulatory and competitive risk for PNGL combined with its revenue deferral will cause a risk of regulatory shortfall that increases faster than allowed for by a constant risk premium. I am not an expert in the operations of PNGL, but the comments of CEPA quoted in Section 2 of this report suggest that this type of risk is material. To the extent that this is the case I expect it to increase more than proportionately with time and, therefore, to result in a higher return required to compensate as income is deferred.