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An Estimate of the GD23 Costs of Capital
Prepared for the Utility Regulator

30 September 2022

1. Introduction

This report estimates Phoenix Natural Gas's (PNGL's), firmus energy's (FE's) and Scotia Gas Networks' (SGN's) GD23 costs of capital using data up to 28 September 2022. It serves, therefore, as an update to our original GD23 report, which used data only up to October 2021.

Note: the paper does not respond to all of the points that the gas distribution networks (GDNs) put to the Utility Regulator (UR) in their responses to the UR's GD23 draft determination. We have, however, contributed text to the UR's consultation responses report.

2. Gearing

The GD23 gearing ratio is the first of several parameters that have been affected by the spike in inflation over the last 12 months. The rate of economy-wide inflation is relevant to the calculation of the GDNs' gearing ratios because:

- the GDNs' TRVs (i.e. the denominator in the gearing calculation) index in line with RPI inflation; but
- the value of GDNs debts (i.e. the numerator in the gearing calculation) is fixed in nominal terms.

RPI inflation in the year to June 2022 was 11.8% and forecasts for the second half of 2022 indicate that the RPI index will increase by around another 6% in the six months to December 2022. The UR needs to decide how it will deal with the resulting unexpectedly high TRV inflation indexation as part of its GD23 final decision. There are two principal options:

- the UR can assume that a notionally efficient GDN would have been passive in the face of higher inflation and that the GDNs will exit the current GD17 regulatory period with gearing ratios that are significantly lower than the UR has previously modelled; or
- the UR can decide that the notional GDN would have borrowed additional money from lenders, and paid the proceeds of that borrowing out to shareholders as a dividend, in a conscious effort to keep its gearing constant.

For companies whose gearing would otherwise have been at or slightly below 55%, these two options broadly correspond to gearing ratios of 45% and 55% respectively.

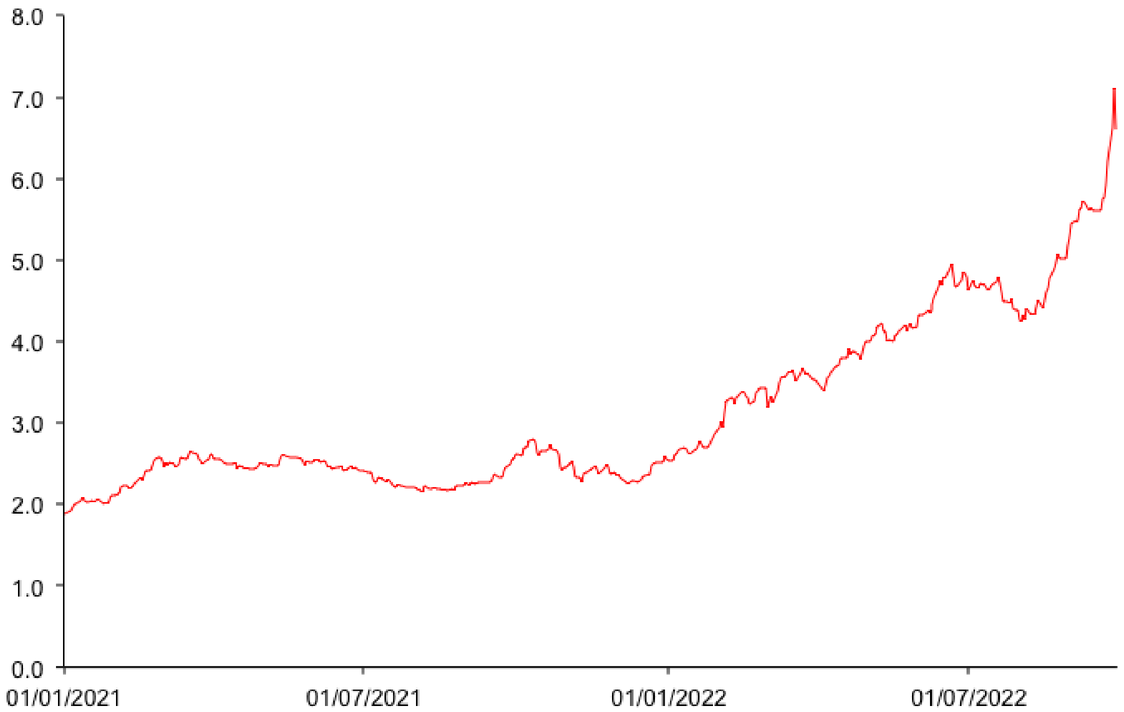
We expect that the UR will wish to evaluate the merits of the options in the context of its modelling of financial ratios during the GD23 period. From purely a cost of capital perspective, we would not expect the cost of capital at 45% gearing to be materially different from the cost of capital at 55% gearing. We therefore continue to calculate the GDNs' costs of capital using the higher 55% figure on the basis that the comparators that Ofgem used when estimating the GB GDN beta exhibited gearing of around 55%.[1] However, we can be clear that this does not in any way preclude the UR from using a lower gearing figure in its financial modelling.

[1] A consistent gearing figure minimises the risk that we might erroneously increase or reduce the cost of capital when moving to a different notional gearing figure.

3. Cost of Debt

Figure 1 shows that corporate interest rates have increased significantly since we wrote our October 2021 report.

Figure 1: iBoxx £ non-financials 10+ year bond yield index



Source: IHS Markit website.

Higher interest rates will not affect PNGL and FE in the short term because the companies are locked into fixed costs of debt until mid-2024 and mid-2025 respectively. However, the increase in rates shown in figure 1 is likely to have an adverse impact on the costs that the companies will pay after planned refinancings.

The UR has confirmed to us that the GD23 regulatory framework will once again include a cost of debt adjustment mechanism through which PNGL's and FE's allowed costs of capital can be adjusted up or down in accordance with prevailing market rates in the month(s) in which the GDNs borrow. We have been asked to identify the 'placeholder' values that the UR should insert into this mechanism as part of its GD23 determination based on our best predictions of the iBoxx £ non-financials BBB 10+ year index at the points when PNGL and FE are expected to refinance. This is not a straight-forward task in the wake of the market "dysfunction" caused by the Chancellor's fiscal statement on 23 September. Our advice to the Utility Regulator is that we can think of no better alternative than to use the yield as at the cut-off date for this report of 28 September 2022, the day of the Bank of England's stabilising intervention in the gilt market.

Table 1: Placeholder values for the cost of new debt

	PNGL	FE
Yield as at 28 September 2022	6.60%	6.60%
Forward uplift	nil	nil
Forecast cost of new debt	6.60%	6.60%

Most of our other inputs into our overall cost of debt – including the cost of embedded debt, the weights for embedded debt and new debt, and our proposed allowance for fees – remain unchanged from our earlier paper. We have been asked, however, to use the following up-to-date forecasts of future inflation when converting from nominal to real.

Table 2: The UR's CPIH inflation forecasts

	2023	2024	2025	2026	2027	2028
Forecast	5.55%	2.28%	1.09%	2.09%	2.09%	2.09%

Our estimates of PNGL's and FE's real costs of debt in each year of the GD23 period are set out in tables 3 and 4.

Table 3: PNGL's cost of debt

	2023	2024	2025	2026	2027	2028
Cost of embedded debt	1.90%	1.90%	-	-	-	-
Placeholder cost of new debt	-	6.60%	6.60%	6.60%	6.60%	6.60%
Weights	100:0	50:50	0:100	0:100	0:100	0:100
Fees etc.	0.33%	0.33%	0.33%	0.33%	0.33%	0.33%
Inflation	(5.55%)	(2.28%)	(1.09%)	(2.09%)	(2.09%)	(2.09%)
Real cost of debt	(3.15%)	2.25%	5.78%	4.74%	4.74%	4.74%

Table 4: FE's cost of debt

	2023	2024	2025	2026	2027	2028
Cost of embedded debt	2.80%	2.80%	2.80%	-	-	-
Placeholder cost of new debt	-	-	6.60%	6.60%	6.60%	6.60%
Weights	100:0	100:0	50:50	0:100	0:100	0:100
Fees etc.	0.41%	0.41%	0.41%	0.41%	0.41%	0.41%
Inflation	(5.55%)	(2.28%)	(1.09%)	(2.09%)	(2.09%)	(2.09%)
Real cost of debt	(2.22%)	0.91%	3.98%	4.82%	4.82%	4.82%

SGN is in a slightly different position from PNGL and FE because it borrows from its parent company and does not have a planned refinancing during the GD23 period. We continue to calculate a 'transfer price' for SGN's cost of debt in line with the average yield on the iBoxx £ utilities 10+ year index since the date of SGN's licence award. We also retain our previous 75:25 weights for embedded and new debt over the whole of the GD23 period. However, we adjust our allowance for transaction costs to 37 basis points so that the allowance that SGN receives is in line with the expenses identified by PNGL and FE.

Our calculation of SGN's overall real cost of debt is set out in table 5 overleaf.

Table 5: SGN's cost of debt

	2023	2024	2025	2026	2027	2028
Cost of embedded debt	3.10%	3.10%	3.10%	3.10%	3.10%	3.10%
Cost of new debt	6.60%	6.60%	6.60%	6.60%	6.60%	6.60%
Weights	0:100	10:90	20:80	30:70	40:60	50:50
Fees etc.	0.37%	0.37%	0.37%	0.37%	0.37%	0.37%
Inflation	(5.55%)	(2.28%)	(1.09%)	(2.09%)	(2.09%)	(2.09%)
Real cost of debt	(1.97%)	1.51%	3.05%	2.38%	2.72%	3.07%

4. Beta

Share price data from the last year does not give us any reason to revise our previous recommendation that the GD23 betas should be positioned logically next to Ofgem's estimate of the GB GDN asset beta of 0.35.

We continue to take the view that PNGL and FE could be viewed as less risky investments due to their relatively low totex-to-TRV ratios and relatively low operational intensity. We also defer to the UR's judgment on the question of whether differences in the frameworks of regulation in NI and GB affect investors' perceptions of risk. Our range for PNGL's and FE's betas is set ±0.02 around Ofgem's 0.35 asset beta value, pending the UR's views on these matters.

We remain of the view that SGN's beta should be positioned above Ofgem's beta and in line with the uplift that SGN proposed in its original licence application.

Table 6: GDN betas

	PNGL	FE	SGN
Asset beta	0.33 to 0.37	0.33 to 0.37	0.39 to 0.42

5. Risk-free Rate

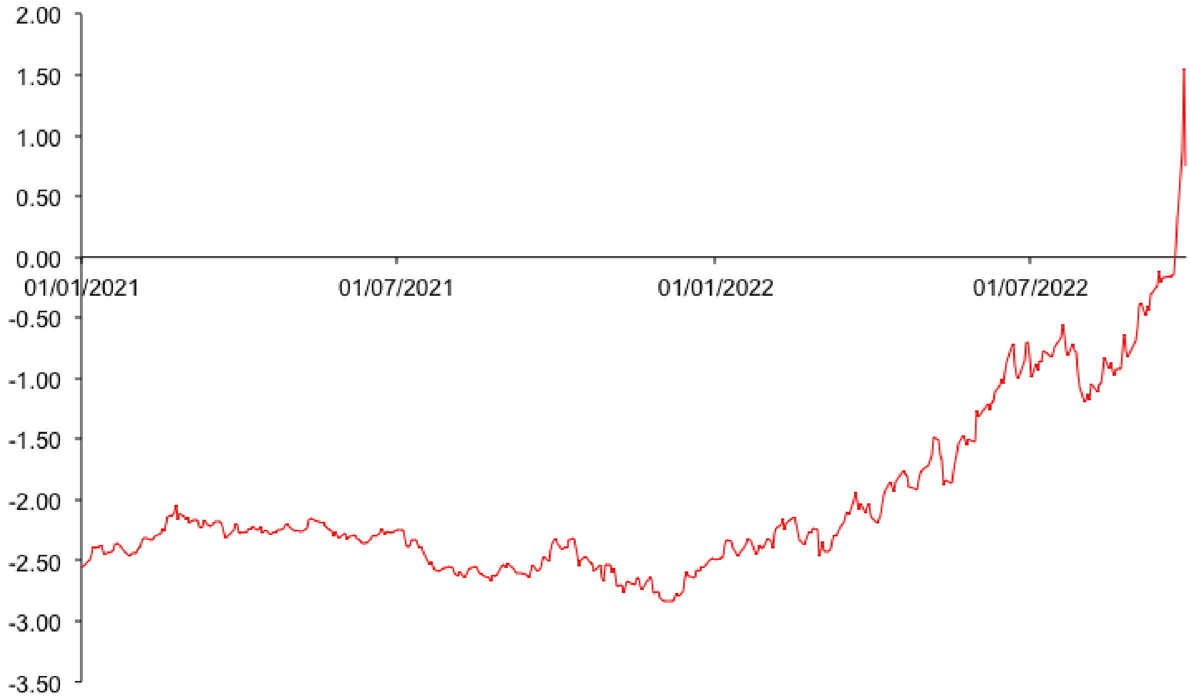
Benchmarks for the risk-free rate have moved in a similar way to the cost of debt.

Figure 2 plots the yield on index-linked gilts.

Figure 3 plots the nominal yield on two corporate bond indices that the CMA has previously identified as proxies for the risk-free asset.

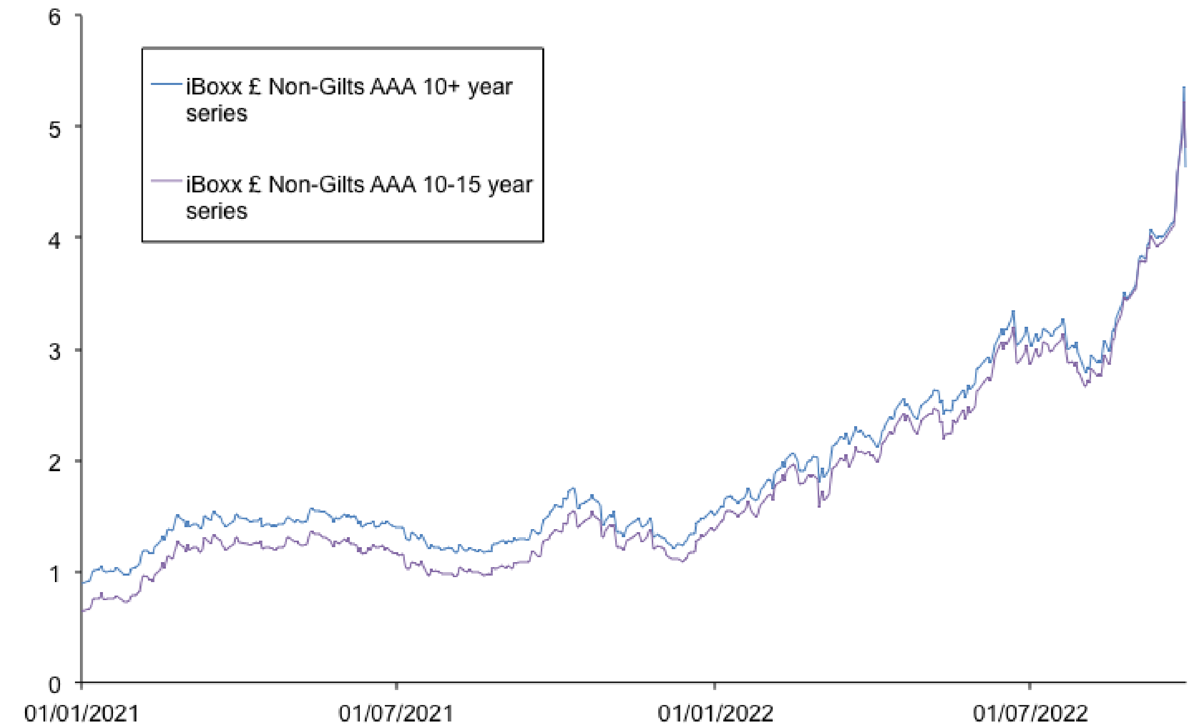
(NB: the numbers in the charts are not directly comparable because figure 2 plots an RPI-stripped real rate of return and figure 3 plots a nominal rate of return.)

Figure 2: Yield on 20-year index-linked gilts (%)



Source: Bank of England website.

Figure 3: iBoxx non-gilt AAA bond indices (%)



Source: IHS Markit website.

The UR has informed us that it will put in place a new risk-free rate indexation mechanism for the GD23 period. Our estimate of the risk-free rate is therefore a 'placeholder' value that will be updated in due course in line with actual market data. Our proposed estimate is 1.77%, calculated as a 50:25:25 weighted average of the yields on the three series shown above, after adjustments for expected inflation, as at 28 September 2022.

6. Expected Market Return

We retain our previous estimate of the expected market return of 6.5%.

The CMA's stated range for the TMR in its PR19 report was approximately 6.1% to 7.4% in CPI-stripped terms. We are aware that the ONS published a new backcast of CPIH inflation during the summer and that, all other things being held equal, this points to a small increase in estimates of the after-inflation returns that investors have historically taken from stock market investments. However:

- the end points in the CMA range were positioned, respectively, in line with estimates of historical ex ante returns and RPI-stripped historical ex post returns. Our understanding is that the new ONS backcast does not directly impact either of these reference values; and
- table 2 shows that average annual CPIH inflation is likely to be elevated during the GD23 period. Pairing the CMA's TMR range with the table 2 inflation forecasts is tantamount to assuming that the expected market returns move 1-to-1 with expected inflation, which is unlikely to be a realistic characterisation of real-life investor experience.

We also note that it is not clear that even the extreme market conditions that we have seen in the days prior to the finalisation of the UR's FD have pushed the real risk-free rate of return above long-term historical averages. This suggests that there is still merit in selecting a point estimate for the TMR that sits no higher than the mid-point of the range.

The CMA stated in a 2021 appeal decision that a 6.5% figure could not be said to be "wrong". After reviewing the above-mentioned new information, we are of the view that 6.5% remains a reasonable value for the UR to input into its price controls during a period of elevated inflation.

7. Tax

The UK government has scrapped the increase in the corporation tax rate that was due to take effect from April 2023. We therefore use a 19% tax rate in our pre-tax cost of equity calculation.

8. Cost of Equity

Table 7 combines our CAPM component estimates into ranges for the overall pre-tax costs of equity.

Table 7: Cost of equity

	PNGL		**FE**		**SGN**	
	Low	**High**	**Low**	**High**	**Low**	**High**
Gearing	0.55	0.55	0.55	0.55	0.55	0.55
Risk-free rate (%)	1.77	1.77	1.77	1.77	1.77	1.77
Market return (%)	6.5	6.5	6.5	6.5	6.5	6.5
Asset beta	0.33	0.37	0.33	0.37	0.39	0.42
Equity beta	0.64	0.73	0.64	0.73	0.78	0.84
Post-tax cost of equity (%)	4.81	5.23	4.81	5.23	5.44	5.75
Tax rate	19	19	19	19	19	19
Pre-tax cost of equity (%)	5.93	6.45	5.93	6.45	6.71	7.10