

Appendix 11.03 Our view on cost of capital



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1. Summary

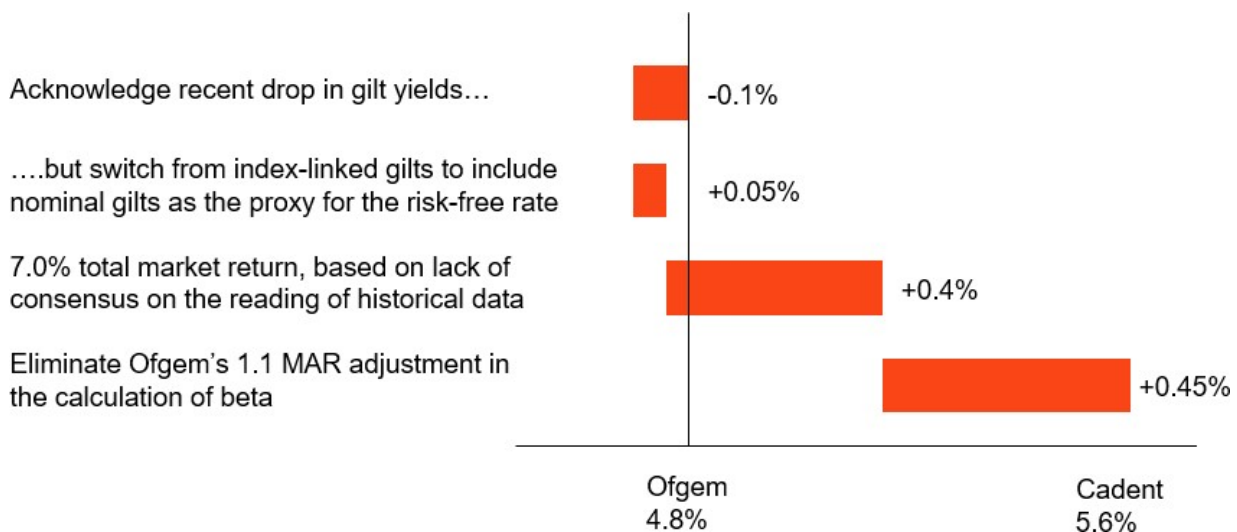
Cost of Equity

We endorse the importance of recognising a legitimate cost of equity within price controls, and the efforts Ofgem has made during the last year to provide stakeholders with a considered and objective ‘early assessment’ of the cost of equity for the 2021-26 period. We agree with Ofgem that the return that shareholders require has fallen since RIIO-GD1 controls were set in 2012. However, when calculating its baseline cost of equity of 4.8% (CPI-stripped), we consider that Ofgem has repeatedly tended towards the low ends of possible parameter values rather than identify central best estimates. This can be seen most clearly in:

- Ofgem’s proposal to focus only on index-linked gilt yields in its estimation of the risk-free rate, to the exclusion of contradictory evidence from nominal gilts;
- making a contentious adjustment to published estimates of the real return that investors earn when they invest their money in the stock market; and
- the use of a novel overlay within Ofgem’s beta computations.

Our assessment is that the skew in Ofgem’s analysis causes the regulator to under-estimate the returns required by shareholders by at least 80 basis points. In our plan we are proposing an alternate view for a cost of equity of 5.6% (CPI-stripped) per annum – i.e. a return that is more than 2 percentage points lower than the return that we were allowed for the 2013-21 period (using comparable inflation indices) – as the minimum level of compensation that equity holders require if they are to continue making finance available.

Figure 1: Comparison of Ofgem’s cost of equity to Cadent View



We are also not making any allowance for the “out-performance wedge” that Ofgem has said necessitates a further downward adjustment to allowed returns. Our planned expenditures for the RIIO-2 period provide for a transformational improvement in efficiency by 2025/26 at a time when productivity growth elsewhere in the UK economy has stalled and as we continue to deliver sector-leading levels of financial performance. We do not consider that Ofgem was entitled to decide back in 2018 that energy networks would produce plans that are easy to out-perform, and certainly not to the equivalent of the ~6% planned totex that Ofgem is envisaging with its provisional 50 basis point deduction from the cost of equity. We hope that Ofgem will be willing to reconsider its whole approach in this area in the lead up to its draft determination, in particular by addressing any concerns

it has about companies' costs and outputs in its cost and output allowances rather than by interfering unnaturally with the allowed return.

Cost of Debt

The indexation of allowed cost of debt in line with market interest rates has worked very well during the RIIO-1 period, delivering significant savings for consumers. To avoid the regional customer bill impacts that would arise from setting debt allowances at network level, we remain supportive of Ofgem's approach to set the cost of debt based on sector-level expectations.

Understandably, Ofgem is seeking to confirm debt allowances for RIIO-2 once it has a chance to assess business plan submissions. Ofgem has already recognised that the existing 10-year trailing average will not be a reasonable proxy for the gas distribution sector's actual debt costs and has adopted a working assumption of an extended index (or "trombone") of 11 to 15 years across the RIIO-2 period, which we have incorporated into our business plan as requested. The average cost of debt for the whole of the RIIO-2 period is projected by Ofgem to be 1.93% on this basis.

Energy networks' analysis suggests that Ofgem's working assumption for allowed cost of debt is not going to match the sector average interest costs, and an alternative assumption of 14 to 18 year 'trombone' index is proposed instead, which captures market average cost of debt demonstrably more accurately. Among other things, a slightly longer time frame would give proper recognition to the significant quantities of debt issued by gas distribution networks before 2011 (approximately 45% of currently outstanding borrowing) and provide a better, cost-reflective balance between the cost of old, embedded debt and the cost of the new debt that companies will have to issue in the coming years.

Furthermore, analysis by NERA of the network companies' recent actual additional costs of issuing debt, including credit rating agency fees, bond issuance fees and the costs of maintaining essential liquidity, reveals a figure of 0.68%, notably higher than regulators have typically assumed of 0.1% to 0.2%. We urge Ofgem to give full consideration to this detailed study and ensure that the overall Cost of Debt allowance for RIIO-2 properly reflects the average debt profile and additional costs not reflected in the indexation of bond yields. Based on this evidence we believe a minimum of 20 bps allowance should be considered a minimum adjustment to the index.

Conclusions and continued engagement

These assumptions provide a better outcome for customers as they provide greater resilience, are internally consistent with the framework, reduce risk, and support a sustainable robust framework in the long term. We intend on engaging with our customers and stakeholders ahead of final determinations (when we have more clarity on the final outcome) around the overall framework including cost of capital and overall financeability.

2. Cost of Equity

We have used the capital asset pricing model (CAPM) to estimate the returns required by providers of equity capital. CAPM states that the cost of equity can be calculated by reference to the return that investors can obtain by investing in a risk-free asset, the return that they expect to earn if they put their money in a diversified portfolio of stocks, and a firm-specific measure of risk, β , i.e.:

$$\text{Cost of equity} = \text{risk-free rate} + \beta x (\text{total market return} - \text{risk-free rate})$$

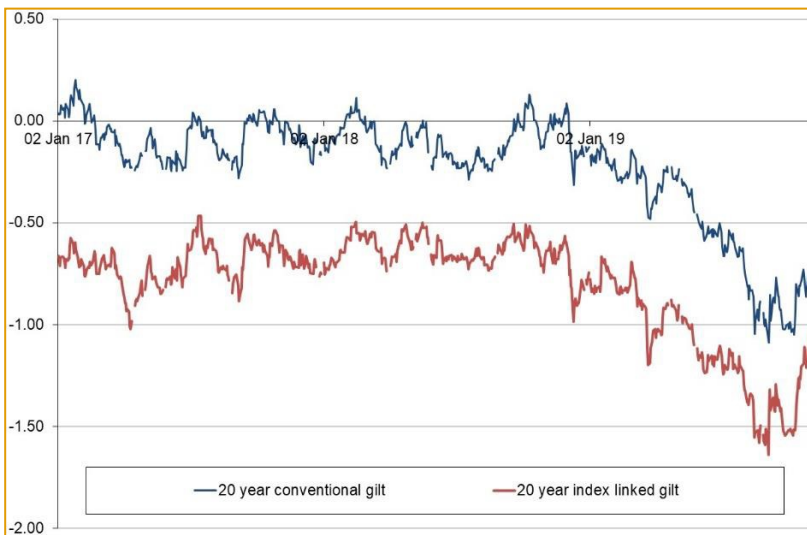
2.1. Risk Free rate

Ofgem has proposed that the CAPM risk-free rate (but not the expected market return or beta) should be indexed in line with prevailing market data during the RIIO-2 period. Where previously regulators might have chosen to arrive at an estimate of the risk-free rate based on an overall reading of financial market data, indexation requires Ofgem to identify a specific reference value based on the observed yields on specific government gilts.

In its May 2019 sector-specific methodology document, Ofgem said that its preferred reference value is the yield on a benchmark 20-year index-linked gilt, as calculated and published on a daily basis by the Bank of England, adjusted for the difference between RPI and CPIH inflation. In opting to focus on this particular data point, Ofgem rejected gilts with a shorter maturity (e.g. 10-year gilts). It also explicitly rejected the option of calculating a risk-free rate directly from nominal gilt yields.

Figure 1 shows that Ofgem’s choices produces a relatively low risk-free rate value in comparison to a reference value derived from nominal gilts it could have reasonably selected.

Figure 2: Proxies for the risk-free rate



In Sector Specific Methodology Decision (SSMD) paragraph 3.31 Ofgem acknowledged the arguments to start from nominal rates and said the issue is: “worth further and more detailed consideration” and that “we will propose an updated approach at Draft Determination”. Our view is that there is no good reason for Ofgem to focus on a single data point to the exclusion of other admissible proxies for the risk-free rate. This is particularly the case when the reference value that Ofgem has chosen appears to give an atypical figure, as seen in figure 1 above.

We think that Ofgem needs to consider in greater detail than it has to date the possibility that yields on index-linked gilts might currently be depressed or distorted by mismatches in the supply of gilts and demand from investors. Such distortions have previously made the CMA and other regulators reticent to use longer-dated index-linked gilts as an indicator for risk-free rate estimates¹. In the absence of such an assessment, Ofgem, in our opinion, has been too quick to narrow down to an index-linked proxy index and to dismiss the use of

¹ See, for example: Competition Commission (2010), Bristol Water plc, Appendix N, paras 65 to 73.

nominal gilts (in particular, by attributing the unusually large gap between nominal and index-linked yields to an “inflation-risk premium” despite knowing that there are inexplicable differences between yields across the whole of the yield curve, not all of which can be attributed to inflation risk²).

We also think that Ofgem could reflect more than it has on the economic interpretation of a negative real risk-free rate. During a period when inflation is expected to be in line with target inflation and when actual economic output is projected to be close to potential UK economic output, economic theory (i.e. the so-called “Taylor rule”) states that market interest rates should be at or close to their long-term equilibrium values. However, a negative real equilibrium risk-free rate, implies that all households and all equity investors have an enduring, long-term preference for future consumption over current consumption. This is the exact opposite of the assumption that economists normally make about rational economic actors and thus serves to reinforce our concerns about Ofgem’s selection of a risk-free rate that sits well below zero.

Taking these factors into account, we do not consider that Ofgem’s narrow focus on 20-year index-linked gilts and consequent downward pressure on the cost of equity is justified. We propose instead that the RIIO-2 risk-free rate should be indexed in line with the average of:

- the prevailing yield on a 20-year nominal gilt deflated for CPIH inflation; and
- the prevailing yield on a 20-year index-linked gilt adjusted for the difference between RPI and CPIH inflation.

Figure 2 shows that the first of these benchmarks currently produces an estimate of the risk-free rate that is **approximately 50 basis points higher** than Ofgem’s preferred reference value, meaning that our proposed average index design gives a slightly higher value than Ofgem’s May 2019 proposals. In the SSMD Ofgem noted (paragraph 3.30) “*The difference between these methods should be, after adjusting for risk, relatively small*”. We do not consider in this context that 50 basis point is relatively small and this differential undermines the “price of tomatoes” argument cited from the UKRN study.

Our current estimate of the risk-free rate for the RIIO-2 period under our formula is -1.0%. This value takes account of data that was available up to October 2019, including the reduction that there has been in gilt yields (50 bps) since Ofgem published its May 2019 document.

<i>CPI-stripped</i>	<i>Ofgem May 2019</i>	<i>Including updated macroeconomic data to Oct 2019</i>	<i>Including nominal gilts into the index, as described above</i>	<i>Alternate assumption</i>
<i>Average risk free rate</i>	(0.75%)	<i>Plus: (0.5%)</i>	<i>Plus: 0.25%</i>	(1.0%)

2.2. Total Market Return

The return that investors expect to earn when they put their money in a diversified portfolio of stocks and shares is an inherently unobservable number. Anyone using the CAPM must therefore attempt to gain insights into

² See the Bank of England’s instantaneous implied inflation forward curve at: <https://www.bankofengland.co.uk/statistics/yield-curves>.

investors' expectations from a variety of indirect indicators, including, but not limited to, historical experience, current stock market valuations (e.g. via the dividend discount model (DDM)), and survey work.

None of these ways of approaching the estimation of the total market return is perfect. However, after reviewing the evidence that Ofgem and other UK regulators have assembled during the last two years, we have particular concerns about the precision of several of the methods that we have seen being used to obtain a reading of expected returns.

In the case of the DDM, for instance, we notice that different experts have been able to generate very different estimates of expected returns via the subjective selection of assumptions about future dividend growth (e.g. analyst forecasts vs projected UK GDP growth vs projected global GDP growth). The range of published DDM estimates for the UK extends from below 6% to more than 10%, which tends to suggest that it is difficult, if not impossible, to back out any sort of reliable estimate of expected returns from current share price values.

In the case of survey data, we have observed that different parties often seem to answer to the question "what is the current expected market return?" in different ways. Some respondents to surveys apparently think in terms of a one-year return, while others will cite estimates of compound returns over a period of several years. Similarly, some experts (e.g. reports by investment management firms) factor a degree of prudence into estimates, while other experts do not. This makes it very difficult to interpret survey means/medians or to know how to transfer survey results over to the RIIO-2 cost of capital work.

In our assessment, by far the most reliable way of judging what investors expect from stock market investments is to examine the returns that equity portfolios have historically produced. This is consistent with the recommendation in a 2018 study³ that was commissioned by the UK's economic regulators under the auspices of the UK Regulators Network (the "UKRN report"). It is also in line with Ofgem's conclusions in its sector-specific methodology document. Table 1 presents the historical analysis published by Dimson, Marsh and Staunton in the latest version of their annual yearbook.

Table 1: Dimson, Marsh and Staunton's estimates of returns on equities, 1900-2018

Country	Geometric averages			Arithmetic averages		
	Nominal return	Inflation	Real return	Nominal return	Inflation	Real return
UK	9.2%	3.6%	5.4%	11.0%	3.5%	7.2%

Source: Credit Suisse global investment returns yearbook 2019.

Up until recently, there was a consensus among regulators that the evidence in table 1 points towards a benchmark for the total market return of around 6-7% per annum in real, RPI-stripped terms (NB: it is common ground that the expected market return should be constructed from a weighted average of geometric and arithmetic average returns). This changed last year when regulators, including Ofgem, started to reinterpret the 6-7% range to be in real, CPI- or CPIH-stripped terms. Given that the wedge between RPI and CPI/CPIH is forecast to be approximately 1 percentage point over the RIIO-2 period, this is the equivalent of a 1 percentage point reduction in expected market return component in the regulators' CAPM cost of equity formula.

The stark change in position appears to have come about because the measure of inflation that Dimson, Marsh and Staunton and others have tended to use when calculating realised real returns has never, strictly speaking, been a "RPI" measure of inflation. Due to limitations in the availability of data, it is impossible to identify a consistent and statistically robust measure of inflation that goes all the way back to 1900. This has meant that

³Wright, Burns, Mason & Pickford (2018), Estimation of the cost of capital for implementation of price controls by UK regulators.

researchers have had to blend together various different measures of inflation in order to obtain estimates of the after-inflation returns that investors have earned on a market portfolio over a 120-year period.

In their recent work, Ofgem and its advisors have, in effect, attempted to alter the way in which inflation is allowed for by rebasing published academic work to strip out a CPI-like measure of inflation over the whole of the 1900-2018 period. However, they have hit the same obstacle that other researchers have hit, insofar as ONS data for CPI begins only in 1989. For the years prior to 1989, and particularly for the years prior to 1947, Ofgem has therefore had to use increasingly imperfect proxies for CPI inflation, and it is only after stripping out these proxy measures that Ofgem et al have been able to conclude that the real return earned historically by investors is 6-7% in CPI-stripped terms.

A number of voices have criticised this reconstruction of the data, including Phil Burns, one of the authors of the aforementioned UKRN study, and the consultants at Frontier Economics, NERA and Oxera. Their view is that the available inflation data from prior to 1947, in particular, is more RPI-like than CPI-like and, hence, that the supposedly CPI-stripped estimates of historical real returns that have emerged in the last 12-24 months are not, in fact, CPI-stripped at all. They in turn have sought to construct a fully RPI-stripped time series and have each obtained values for the total market return that sit within the regulators' old 6-7% RPI-stripped range (implying that the CPI-stripped total market return should be at least 7%).

In the light of the evidence presented by these experts, we cannot accept Ofgem's proposed 1 percentage point reduction in its estimate of the total market return. If there were a clear consensus among economists that previous estimates of historical returns had been significantly overstated, we would agree that it is appropriate for regulators to make a commensurate correction in their CAPM calculations. However, it is clear that no such consensus exists.

We anticipate that the Competition & Markets Authority (CMA) will offer its opinion on this matter as part of forthcoming inquiries in the aviation and/or water sectors, and we expect that Ofgem will want to take the CMA's findings into account before fixing the RIIO-2 rate of return. Pending the CMA's report(s), we think that it is prudent for us to use a value for the expected market return of 7% in CPIH-stripped terms, as the point at which the competing perspectives set out above intersect.

CPI-stripped	<i>Ofgem May 2019, mid-point</i>	<i>Alternate assumption</i>
<i>Total Market Return</i>	6.5%	(1.0%)

2.3. Beta

The CAPM beta for a gas distribution network is also difficult to estimate with precision. As of 2019, none of the GB GDNs are listed on the London stock exchange, meaning that we do not have direct share price data which shows the covariance that there is between GDN equity valuations and the value of the stock market as a whole. The best that we can do is to examine the betas of other UK regulated businesses – notably National Grid, Severn Trent and United Utilities – and infer what might be a reasonable beta estimate for a gas network based on the evidence from these similar, but not identical, comparator companies.

Even with this data, there is no single right way of calculating betas. Any beta estimates we calculate unavoidably come with wide statistical errors. This points towards approaching beta estimation from a number of possible directions (e.g. in relation to sampling frequencies, data periods, statistical techniques etc.) and forming a view on the appropriate value for beta based on the full range of available evidence.

In the lead up to the publication of its May 2019 sector-specific methodology decision, Ofgem, with the help of its advisors, was able to compile an extensive database of possible beta values, and we are happy that this data set should provide the underpinnings to the RIIO-2 beta calculation. We especially support the relatively long time horizons that Ofgem used in this work – although we do not agree that Ofgem should be using data from before and during the global financial crisis – given that beta estimates compiled from very short-run data can be distorted by company- or sector-specific announcements, including price control milestones.

The picture that emerged from Indepen’s work is that observed “raw” betas for regulated network companies have tended to be in the range 0.57 to 0.65. We agree with this assessment. Ofgem is, however, required to adjust these observed betas to be compatible with the RIIO-2 notional 60% net debt-to-RAV value (NB: all other things being equal, higher gearing results in a higher beta). It is at this point our views diverge from Ofgem’s views.

In all previous cost of capital work carried out in the UK’s regulated industries, a regulator would first note the size of a company’s market capitalisation relative to the value of its debt. It would then de-gear observed equity betas into asset betas using the formula:

$$\beta_a = \beta_e \cdot (1 - g_H) + \beta_d \cdot g_H$$

where g_H denotes a firm’s historical level of gearing, β_e is the observed equity beta, β_d is the assumed debt beta and β_a is the derived asset beta,

The regulator would then re-gear to beta at its preferred notional gearing (e.g. 60% gearing) using the formula:

$$\beta_N = (\beta_a - \beta_d \cdot g_N) / (1 - g_N)$$

where g_N is the notional level of gearing and β_N is the equity beta that the firm would have if it maintains the notional level of gearing.

Early in its RIIO-2 work, Ofgem elected to depart from usual regulatory practice and argued that it is necessary to allow for the likelihood, in its opinion, that a regulated firm will trade at a market-to-asset ratio (MAR) of more than 1. Crucially, the implication this has is that the firm’s future gearing calculated as market capitalisation divided by market capitalisation plus the value of debt will, in Ofgem’s view, be less than 60%. In its May document, Ofgem chose therefore, in effect, to re-gear its calculated asset beta to a notional gearing of only 54.5%, to be consistent with an assumption that energy networks will typically trade in future at a MAR of 1.1.

Our view is that it is not reasonable for Ofgem to break from the conventional approach to de-gearing and re-gearing betas in this way.

The value that the market places on gas distribution networks is primarily a function of the revenues that Ofgem hands companies through the RIIO price review process and, subsequently, companies’ out- or under-performance against the regulator’s allowances. We do not see how Ofgem could have determined at a very early stage of the RIIO-GD2 review that its price control decision in December 2020 would give rise to a situation in which gas networks will out-perform and trade at premia to RAVs – i.e. before Ofgem had finalised its RIIO-2 framework, before companies produce their business plans, and before Ofgem has had a chance to assess the projections that are contained within those plans.

It would be much more realistic for Ofgem to think that its December RIIO-2 decision will offer companies and customers a ‘fair bet’ in which the likelihood of a company out- or under-performing is evenly balanced. We explain the rationale behind this thinking in greater detail under the heading “Allowed return on equity” below. Crucially, this means that the best estimate of the MAR for 2021-16 period is 1.0, not 1.1.

If we undo Ofgem’s novel approach to de-gearing and re-gearing, and instead use the more conventional formulae given above, the equity beta for a gas distribution network with a 60% debt-to-RAV ratio is 0.70 to 0.91. We judge that this is the most suitable range for us to insert into our CAPM calculations.

Debt Beta

Ofgem’s proposed debt beta range of 0.1 to 0.15 (supported by the latest Oxera report which provides analysis of why this is lower than the estimate provided by Ofgem) is based on its reading of regulatory precedents going back to 2007. We do not think that this approach gives a reliable way of obtaining a forward-looking estimate of the debt beta for the period 2021 to 2026. We note, in particular, that earlier estimates of debt beta will have been based on then prevailing credit spreads, which have since fallen to historical low levels. Similarly, debt beta calculations made several years ago were tied to an equity-risk premium that is significantly smaller than the equity-risk premium in Ofgem’s RIIO-2 cost of capital calculations.

Pending the further research that Indepen recommended Ofgem and other regulators should carry out, it is reasonable to think that the combination of a lower debt premium and a higher equity-risk premium have reduced the value of the debt beta below the values identified by regulators in previous price reviews. Accordingly, we use only the low end of Ofgem’s range – i.e. a debt beta of 0.1 – in our calculations.

	<i>Ofgem May 2019, mid-point</i>	<i>Remove Ofgem's MAR = 1.1 assumption</i>	<i>Including nominal gilts into the index, as described above</i>	Alternate assumption
<i>Equity Beta</i>	0.75	<i>Plus: 0.06</i>	<i>Plus: 0.01</i>	0.84

2.4. Conclusion on Cost of Equity

The picture that emerges from the preceding analysis is one in which Ofgem has generally undertaken a thorough and rigorous examination of the cost of equity finance, but in key areas has erred by selecting low-end values from the available evidence. This is apparent in:

- Ofgem’s proposal to focus only on index-linked gilt yields in its estimation of the risk-free rate, to the exclusion of contradictory evidence from nominal gilts;
- the insistence on making a highly contentious adjustment to published estimates of the real return that investors earn when they invest their money in the stock market; and
- the novel overlay within the beta computations.

Our assessment, therefore, is that there is a skew in Ofgem’s analysis which causes the regulator to underestimate the returns required by shareholders by a material amount.

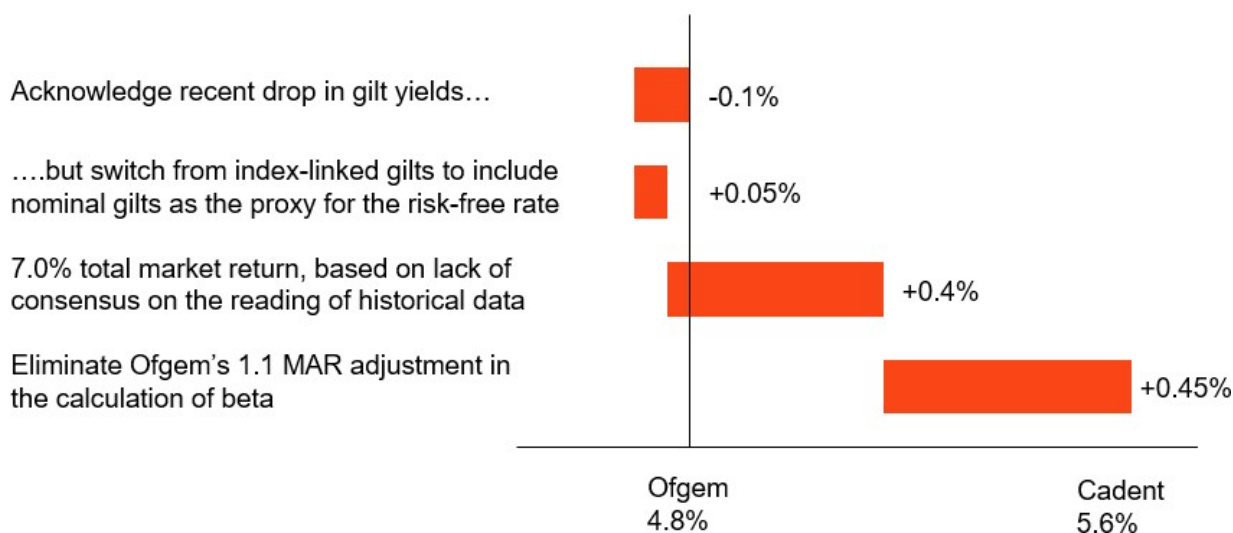
Table 2 shows how our cost of equity estimates come out above Ofgem’s May 2019 calculations when we replace Ofgem’s low-end parameters with more natural, central estimates. (NB: we also update the risk-free rate calculation to reflect market data at October 2019.

Table 2: Cost of equity estimates

<i>CPI-stripped</i>	<i>Ofgem, May 2019</i>			<i>Cadent, December 2019</i>		
	Low	Mid	High	Low	Mid	High
<i>Gearing</i>	0.6	0.6	0.6	0.6	0.6	0.6
<i>Risk-free rate</i>	-0.75%	-0.75%	-0.75%	-1.0%	-1.0%	-1.0%
<i>Total market return</i>	6.25%	6.5%	6.75%	7.0%	7.0%	7.0%
<i>Asset beta</i>	0.35	0.38	0.40	0.35	0.39	0.43
<i>Debt beta</i>	0.15	0.125	0.1	0.1	0.1	0.1
<i>Equity beta</i>	0.66	0.75	0.85	0.72	0.83	0.91
<i>Cost of equity</i>	4.0%	4.8%	5.6%	4.8%	5.6%	6.4%

In figure 1 below, we depict how our cost of equity estimate is 0.8% above Ofgem’s May 2019 calculations when we replace Ofgem’s low-end parameters with more natural, central estimates of the risk-free rate, total market return and beta. (NB: we also update the risk-free rate calculation to reflect market data at October 2019.)

Figure 1: Comparison of Ofgem cost of equity to Cadent View



In coming to a decision on the level of return that we need to factor into this business plan, we have sought to weigh the benefit to customers from low prices with the detriments that customers could suffer if returns are set too low, if it becomes impossible to attract new capital to support new investment and/or if, in extremis, our business is not financeable. Our judgment is that a return on equity of 5.6% best safeguards the long-term interests of users.

2.5. Allowed return on equity

Ofgem explained in its May 2019 document that it is minded to set RIIO-2 allowed returns below its best estimate of the cost of capital. Ofgem will decide next year how much of a deduction to make, but its “working assumption” is that it might be appropriate to set the allowed return on equity 50 basis points below the calculated cost of equity.

The rationale for this overlay comes originally from the 2018 UKRN study. The study’s authors pointed out in their paper that UK regulators have tended to use the terms “cost of capital”, “allowed return” and “expected return” interchangeably, and suggested that in future much greater rigour should be shown in relation to use of terminology. They suggested that:

- “cost of capital” is the annual return that lenders and equity investors require in exchange for making finance available to a regulated firm;
- the “allowed return” is the rate of return that a regulator applies to a company’s RAV in order to calculate the £m profit entitlement that it factors into the company’s revenue cap; and
- “expected return” is the return that investors expect to earn on their investment after receiving a regulator’s price control determination and assessing likely scenarios for expenditure and performance.

(NB: for ease of presentation, we adopt the above definitions in the remainder of this appendix.)

After establishing terminology, three of the authors – Mason, Pickford and Wright – wrote about the approach that a regulator should take to the calibration of the allowed return. They identified two main reasons why the cost of capital, allowed return and expected return might logically have different values:

- the first reason stems from the inevitable imprecision that there will be in a regulator’s estimate of a regulated firm’s cost of capital. In the presence of uncertainty, regulatory practice across a range of jurisdictions has entailed ‘aiming up’ in the selection of WACC parameters and/or the selection of a point estimate from within an estimated WACC range on the grounds that the adverse consequences of setting an allowed return that is too low (e.g. possible under-investment, financial distress) are more severe than the adverse consequences of setting an allowed return that is too high (e.g. customers pay higher prices or there is overinvestment); and
- the second reason relates to the quality of information that a regulator has vis-à-vis the regulated firm’s management when they are negotiating price caps. Here, the authors argued that the “informational advantage firms possess over regulators will almost certainly always result in a positive ‘informational wedge’”. That is to say that regulators will tend inadvertently to set price caps too high and set the average regulated firm up in such a way that it can expect to out-perform and earn a supernormal return for its shareholders.

The second of these factors provides the motivation for Ofgem’s proposed deduction from the calculated RIIO-2 cost of equity (NB: Ofgem has largely dismissed the relevance of the first factor in its RIIO-2 documents to date). Its proposal to set the allowed return below the CAPM cost of equity is the regulator anticipating future company out-performance and adjusting allowed returns down by an amount that, in its opinion, ensures that GDN shareholders expect to make a return that is broadly in line with the cost of capital during the FY21/22-FY25/26 period once the base level of return and the value of out-performance are added together.

Table 3 gives a sense of the out-performance that Ofgem is envisaging when it talks about a possible 50 basis points adjustment. The figures in the table are our calculation of the amount by which we would need to underspend on the totex projections set out in Chapter 9 of this plan if we are to make up a 0.5% shortfall in our return.

Table 3: Totex out-performance needed to offset a 0.5% downward adjustment to the return on equity

Cost Category	Outperformance Required		
	15% Sharing Factor	32.5% Sharing Factor	50% Sharing Factor
Totex	12.2%	5.7%	3.7%
Opex only	31.0%	14.3%	9.4%
Repex only	26.9%	12.5%	8.3%
RIIO-2 Totex (Pre-sharing, 2018/2019)	£649m	£302m	£198m

Source: management analysis

The calculations show that a 50 basis points deduction from the cost of equity is the equivalent of a ~6% stretch efficiency target applied to the whole of our 2021-26 planned expenditures, or approximately £304m assuming a sharing factor of 32.5%.

We wholly reject Ofgem’s proposal to make this kind of deduction from our allowed revenue, for the following reasons:

First, as a point of principle, we think Ofgem is wrong to accept the argument that there is an ‘informational wedge’ and that shareholders will, as a matter of course, expect to earn returns in excess of the cost of capital. Earlier this year, Ofgem was presented with evidence from price controls set by the CAA, Ofwat, ORR, the WIC and the CMA, and from Ofgem’s price reviews from before the global financial crisis, which shows that regulators have in the past set controls which have led to broadly comparable amounts of out- and under-performance even in spite of information asymmetry. The experience of the past across a number of sectors therefore gives no reason to think that Ofgem is inherently incapable of providing companies with a ‘fair bet’ when it makes its determinations at the end of next year, in which the likelihood of companies out- and under-performing is evenly balanced.

Second, at a practical level, we do not consider that Ofgem is entitled to factor stretch targets of the magnitude shown in table 3 into a price control without first identifying and presenting robust evidence that the required cost reductions (or equivalent output out-performance) are practically achievable. It is especially concerning to us that Ofgem decided that it would be necessary to allow for additional efficiencies over and above the savings that we have included in this plan before we had even begun developing our RIIO-2 cost projections with customers. Were Ofgem to identify during the course of 2020 that one or more of the GDNs have overestimated their RIIO-GD2 costs, it is right and proper that Ofgem should intervene and protect customers from paying more than is necessary. However, it is not right or proper for Ofgem to conclude before its process of review has begun that every energy network must as matter of policy be asked to deliver significant additional savings irrespective of the level of ambition shown in plans and irrespective of the results of Ofgem’s cost assessment.

Third, we feel strongly that any discussion that Ofgem feels it needs to have with a company about its expenditure plans and service levels should lead, where necessary, to revisions to totex allowances and output targets and not to an adjustment to the allowed rate of return. A policy which artificially lowers the marginal return on investment has obvious potential to distort incentives and result in under-investment to the detriment of customers. A blanket sector-wide lowering of returns will also very likely impose unjustifiably different burdens on different licensees depending on the scale of their expenditures vs RAVs and Ofgem’s chosen RIIO-2 sharing factors.

Finally, we note that none of the other regulators to which the 2018 UKRN study was addressed have adopted the policy position that Ofgem is taking. In the last six months, the CAA, Ofcom and Ofwat

have each made draft or final price control decisions for companies in the aviation, communications and water sectors and in every case the regulator has deemed it appropriate set allowed returns exactly in line with its best estimate of the cost of capital. This leaves Ofgem as a clear outlier amongst its fellow regulators and helps to emphasise that Ofgem is being unnecessarily pessimistic when it states that it is “not probable” that it will be able to set fair price controls unless it makes an arbitrary deduction from returns.

For the above reasons, we are providing in this plan for a rate of return that exactly matches our 5.6% estimate of the cost of equity. We hope that Ofgem will eventually be persuaded to do likewise when it makes its determinations next year. Contrary to Ofgem’s line of thinking, investors do not have irrevocably fixed opinions about the scope for companies to out-perform regulatory settlements, but will instead evaluate the threats and opportunities that each new price control presents on its own merits. Ofgem wishes to avoid a situation in which shareholders expect to make windfall gains and it has a vast array of powerful regulatory tools at its disposal, many of which are being deployed in RIIO-2 and so does not need to resort to an unevidenced deduction from allowed returns.

3. Cost of Debt

Following the positive experience with annual adjustments to the allowed cost of debt during the RIIO-1 period, the RIIO-GD2 cost of debt will once again be indexed to take account of changes in market interest rates.

Ofgem has asked companies to assume in their December 2019 business plans, for the purposes of illustration only, that the index will be an extending index (or “trombone”) of 11 to 15 years in length with a start date of 1 November 2009. The allowed cost of debt is defined as:

- the average yield on the iBoxx A and BBB non-financial 10+ year corporate bond series between 1 November 2009 and 31 October in the year prior to each price control year; less
- a forecast of long-term CPIH inflation.

Our projections for this index are set out in table 4 below:

Table 4: Forecast values for the allowed cost of debt under Ofgem’s indicative index design (based on iBoxx and Bloomberg data updated to 31 October 2019)

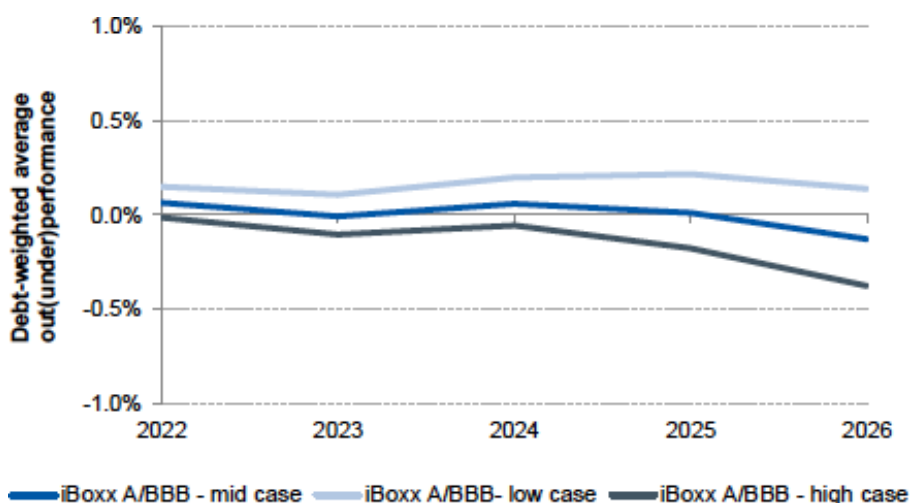
%	2021/22	2022/23	2023/24	2024/25	2025/26
Allowance (CPI Real)	1.982%	1.871%	1.782%	1.709%	1.649%

Ofgem has also said that it will make a decision on the actual design of the index only once it knows the final shape of companies’ expenditure and resultant borrowing over the 2021 to 2026 period. To assist Ofgem in this work, the GDNs earlier this year commissioned the consultancy NERA to assess how candidate index designs might compare to actual industry interest costs, based on current information. The key point of principle underpinning this analysis is that the RIIO-GD2 index ought to produce allowed revenues which match as closely as possible to the actual interest costs that the GDNs will collectively pay to lenders over the next five years – i.e. customers should not be asked to pay in bills more than companies pay in interest, but neither should they leave companies out of pocket.

The main conclusion to emerge from NERA’s analysis is that a “trombone” of 14 to 18 years in length appears to provide the best available match to industry costs. Figure 3 is taken from NERA’s report, and shows that, under high, mid and low scenarios for future interest rates, the difference between allowed revenue and actual costs is unlikely to be material.

NB: The 14 to 18 year index differs from Ofgem’s illustrative 11 to 15 year index only in that the start date is 1 November 2006 rather than 1 November 2009. In all other respects the indices are identical.

Figure 3: Forecast out-/under-performance against a 14 to 18 year “trombone” index



The better match that an earlier start date generates makes intuitive sense insofar as around 45% of sector debt was issued before 2010 and ought to be adequately recognised within the cost of debt calculations – something that does not happen if Ofgem were to elect to cut off all data prior to November 2009.

Our forecast of the allowed cost of debt for a 14 to 18 year extending index is given in table 5.

Table 5: Forecast values for the allowed cost of debt under a 14 to 18 year extending index (based on iBoxx and Bloomberg data updated to 31 October 2019)

	2021/22	2022/23	2023/24	2024/25	2025/26
Allowance (CPI real)	2.507%	2.384%	2.279%	2.190%	2.113%

We note that the index in tables 4 and 5 capture interest costs only and would not cover transaction and liquidity costs. It is standard regulatory practice to add approximately 10-20 basis points to the cost of debt for such expenses, necessitating a 10-20 basis points supplement to the above values. In RIIO-1 Ofgem considered that these costs were off-set by a perceived “halo” effect of network companies consistently issuing debt at rates lower than comparable companies and the iBoxx index.

The Energy Networks Association commissioned NERA to conduct analysis into the perceived “halo effect” and to analyse actual data from companies which gives estimates of the costs of issuing new debt ahead of the maturity of old debt (the “cost of carry”) and the additional costs that companies will incur when they have to

issue CPI-indexed debt. This report is submitted along with our Plan and concludes that there is no evidence for the halo and that additional borrowing costs are at least 53 and up to 82 basis points. NERA take a mid-point of 68 bps for modelling. Cadent believes that such costs should also be factored into Ofgem's RIIO-2 determinations, either via an explicit cost allowance or by ensuring the design of the cost of debt index provides sufficient headroom to cover these items.