Cadent Gas Limited, National Grid Electricity Transmission plc, National Grid Gas plc, Northern Gas Networks Limited, Scottish Hydro Electric Transmission plc, Southern Gas Networks plc and Scotland Gas Networks plc, SP Transmission plc, Wales & West Utilities Limited vs the Gas and Electricity Markets Authority

Final determination

Volume 2A: Joined Grounds: Cost of equity

Issued: 28 October 2021

The Competition and Markets Authority has excluded from this version of the final determination information which the inquiry group considers should be excluded having regard to section 23G Gas Act 1986 and section 11H Electricity Act 1989. The omissions are indicated by [✄].

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5. Joined Ground A: Cost of equity

Introduction and standard of review

5.1 This ground covers the appellants' alleged errors in GEMA's allowed cost of equity. All the appellants submitted appeals including a ground concerning the cost of equity. In essence, each appellant contended that the cost of equity which GEMA had chosen was too low and therefore wrong. We have joined these grounds and discuss all the appellants' arguments relating to cost of equity in this chapter.

5.2 In our provisional determination, we indicated that we had not been persuaded that GEMA had erred in reaching its conclusion regarding cost of equity. In response to the provisional determination, the appellants submitted that we had not properly assessed their appeals according to the merits standard. Rather, the appellants argued, we had in effect applied a 'rationality' review.[1] In particular, they argued that we had: (i) failed to grapple properly with the evidence in this appeal; (ii) as an expert body, deferred too much to GEMA's judgement, rather than considering the merits of the appeals; (iii) otherwise failed properly to apply the merits standard of review.

5.3 In support of these arguments the appellants pointed to the fact that we had upheld GEMA's decision on cost of equity, despite the CMA itself having determined a higher cost of equity in its PR19 Redetermination in March 2021.[2] The appellants also pointed to our references to GEMA having a 'margin of appreciation' as evidence that we had deferred too much to its assessment of regulatory issues and they contended that this was particularly inappropriate since the CMA is itself an expert body. Finally, they argued that we had examined the evidence on a piece-by-piece basis, whilst failing to take a step back to consider overall whether GEMA's findings were sustainable (ie whether the decisions, when combined, gave rise to an unsustainable solution).

5.4 We describe the standard of review in Chapter 3 above and do not repeat that discussion here. We consider that it is evident in the Chapter which follows that we have grappled fully with the evidence and have appropriately applied the relevant standard of review. Before turning to that detail, we first address

[1] Cadent Response to PD, paragraphs 7.2 and 7.6; NGET/NGG Response to PD, paragraphs 3.12–3.19; NGN Response to PD, paragraph 7.1(i); SGN Response to PD, paragraphs 18 and 31; SPT Response to PD, paragraphs 8–11; SSEN-T Response to PD, paragraph 1.14 and 2.28–2.36; WWU Response to PD; paragraph 3.3–3.10 and Appellants' Joint Response to PD on Ground A, pages 2–4.
[2] That is, before the application of an outperformance wedge – see Chapter 6 below.

the appellant's supporting arguments set out in the preceding paragraph and explain why they are misplaced.

5.5 First, while we accept that the CMA PR19 Redetermination is very recent and contains material highly relevant to these appeals, this does not mean that it sets down the unquestionable methodological best practice from which a sector regulator cannot depart, nor that subsequent findings of a sector regulator are automatically (or even presumptively) wrong if they differ from it. As explained in Chapter 3, these appeals are not a redetermination of GEMA's Decision. It is not appropriate for us to substitute our judgement for that of GEMA simply on the basis that we might have taken (or indeed did take in the CMA PR19 Redetermination) a different view of a particular matter.[3] Nor should we take the CMA PR19 Redetermination as our starting point and then consider whether any deviation from it on GEMA's part was erroneous. On the contrary, our starting point is the Decision and it is for the appellants to persuade us that the Decision was wrong.[4] Unless its decision-making can be shown to be wrong or that the alternatives (including, where relevant, the CMA's approach in the CMA PR19 Redetermination) clearly have greater merit than the solution adopted by GEMA, it is entirely consistent with the regulatory framework and applicable standard of review in this sector for us to refrain from interfering if GEMA comes to a different view on a matter where there is an element of regulatory judgement involved.

5.6 Second, the appellants appear to misunderstand what we mean where we refer to GEMA's margin of appreciation. Where the CMA describes GEMA's actions as falling within that margin it merely reflects the fact that, in the arena of financial and economic regulation, there may not be a single method or approach that can be identified as being 'correct' or superior to all others. The CMA has used the term 'margin of appreciation' to reflect the fact that, whilst there may be pros and cons of a particular approach, it nevertheless cannot be described as wrong, unless the appellants can demonstrate that there is a clearly better alternative approach. In contrast, where there is only one correct answer – or where only one approach is appropriate in the circumstances – then the GEMA enjoys no margin of appreciation.

5.7 The CMA acknowledges that GEMA's margin of appreciation is not unbounded.[5] Furthermore, and as set out more fully in Chapter 3, we also accept that the CMA is an expert body and should not uncritically accept GEMA's assessment and weighting of the considerations before it simply

[3] See Chapter 3.
[4] See in particular paragraphs 3.33–3.54
[5] See in particular paragraph 3.68 in Chapter 3.

because GEMA is itself an expert body.[6] As such, we have carefully scrutinised the substance of GEMA's decision-making in line with the grounds of the appeal advanced before us. However, we do not accept that according GEMA some margin of appreciation is inconsistent with the applicable standard of review and we reject the appellants' contention that we have adopted a judicial review standard in our assessment of GEMA's decisions.

5.8 Third, we have been mindful not to be myopic in our assessment of the evidence in these appeals. The sheer number of points raised in these appeals necessitates a structure in which individual arguments are first assessed point-by-point before we take a step back to assess the evidence in the round. In this chapter, we take account of the merits of the evidence on cost of equity both in isolation and in combination in the section headed 'in the round'.

5.9 Having carefully considered the parties' arguments we are satisfied that we have correctly applied the standard of review in our assessment of this joined ground.

Background

5.10 The cost of equity and the cost of debt, along with an assumption about the level of gearing,[7] are the key inputs into the Weighted Average Cost of Capital (**WACC**). The WACC is an input to the calculation of the appellants' allowed revenue and is used to calculate the profit that the companies need to earn to repay their debt and equity investors within the RIIO-2 price control.

5.11 The cost of equity is an estimate of the returns required by equity investors over the course of the price control. The actual cost of equity is unknowable in advance and must be estimated. GEMA used the Capital Asset Pricing Model (**CAPM**) as the basis of its 'Step-1' estimate of the cost of equity within the WACC. The CAPM relates the cost of equity *(K_E)* to the risk-free rate *(R_{rf})*, the expected return on the market portfolio *(R_m)*, and a firm-specific measure of investors' exposure to systematic risk (beta[8] or β) as follows:

$$K_E = R_{rf} + \beta(R_m - R_{rf})$$

5.12 The CAPM is an established methodology with well understood theoretical foundations and which makes use of observable market data as far as

[6] See in particular paragraph 3.78 in Chapter 3.
[7] Gearing is defined as $g = D/(D+E)$ where *D* is Debt and *E* is Equity.
[8] We will discuss the concept of beta in paragraphs 5.294–5.302.

possible. The CAPM is used by all UK regulators when calculating the cost of capital. The appellants have alleged errors in GEMA's CAPM metrics and the overall level of the cost of equity, but the 'in principle' use of the CAPM was not specifically challenged in this appeal.

5.13 Regulators often use a range of non-CAPM 'cross-checks' of their cost of equity estimate. Regulators also assess whether their chosen capital structure and costs (both debt and equity) allow the regulator to discharge their finance duty (often called the financeability test). The use of cross-checks and the approach to financeability are features of this appeal.

The ground of appeal

5.14 The appellants have alleged that GEMA made a series of errors in its estimation of the cost of equity within RIIO-2, and that as a result of these errors, GEMA's RIIO-2 allowed cost of equity was wrong. The appellants have alleged errors in the following areas:

a) In relation to the calculation of individual CAPM metrics:

(i) Risk-Free Rate (**RFR**);

(ii) Total Market Return (**TMR**); and

(iii) Beta.

b) In relation to the overall level of the cost of equity 'in the round' and the cross-checks associated with GEMA's 'Step-2' assessment;

c) In relation to GEMA's decision not to 'aim-up' above the midpoint of its CAPM-based range; and

d) In relation to GEMA assessment of compliance with the finance duty (known as the 'financeability' test).

5.15 The appellants also submitted evidence in relation to GEMA's 'Step-3' adjustment to the cost of equity to reflect anticipated outperformance (referred to as the 'outperformance wedge'). We consider this issue separately in Chapter 6.

The extent of difference between GEMA and the appellants

5.16 GEMA and the appellants had very different views on the appropriate estimate of the cost of equity. GEMA chose a cost of equity of 4.55%[9] (**CPIH[10]**-real),[11] which the appellants have alleged is too low and so wrong. The appellants had varying views on what the appropriate cost of equity should be, but all agreed that it should be higher than GEMA's estimate. In Table 5-1 below we summarise, to the extent possible, the appellants' views on what the 'right' cost of equity would be.

Table 5-1: GEMA's RIIO-2 cost of equity versus appellant estimates

CPIH-real point estimate or midpoint of stated range	*GEMA RIIO-2**	*Cadent*	*National Grid†*	*NGN*	*SGN*	*SSEN-T ‡*	*SPT §*	*WWU ¶*
Cost of Equity	4.55%	5.60%	>5.6%	5.71%	5.71%	6.20%	5.84%	6.20%

Sources: GEMA FD Finance Annex, Table 13; Cadent NoA, paragraph 4.163; NGG NoA, paragraph 3.425 and NGET NoA, paragraph 3.426; NGN NoA, paragraph 77; SGN NoA, paragraph 133; SSEN-T NoA, paragraph 4.103; SPT figure based on NERA cost of equity report, Table 7.1; WWU NoA, Part IV paragraph 1.3.
* GEMA figure (and all company figures) are presented at 60% gearing for consistency.
† National Grid figure represents suggested remedy for NGG and NGET.
‡ SSEN-T figure is the midpoint of the Oxera range at 60% gearing.
§ SPT figure is the midpoint of the NERA range at 60% gearing.
¶ WWU's estimate represents the midpoint of the Oxera range. WWU recommends that, following aiming, the point estimate should be 6.59%.

5.17 In this chapter we will assess the evidence presented on each sub-ground listed in paragraph 5.14 above, and will conclude with our overall assessment of whether GEMA's allowed cost of equity of 4.55% was wrong. For each alleged error (or group of errors), we:

a) summarise the evidence from the parties;

b) state our provisional determination;

c) summarise the responses to the provisional determination; and

d) state our final determination of the appeal.

[9] For companies at 60% gearing and before the application of any return on equity adjustment.
[10] CPIH refers to the Consumer Price Index including owner occupiers' housing costs.
[11] The WACC is multiplied by each Company's RAV to calculate the allowed return within the price control. The RAV is also indexed by inflation in each year, and therefore the cost of capital is expressed in 'real' or 'stripped of inflation' terms.

RFR

Introduction

5.18 This section covers the errors alleged by the appellants relating to GEMA's methodologies and eventual estimate of the RFR within the estimation of the overall allowed cost of equity.

Background to the alleged error

5.19 The RFR is a measure of the rate of return that an investor can expect to earn without taking any systematic risks. The RFR is a hypothetical number as no investment has absolutely zero risk. As a result, it has become common practice to use the interest received (usually termed 'yield') on very high-quality debt instruments, often government bonds with strong credit ratings, as the best proxy for a risk-free investment rate. In the UK, this has traditionally meant using the yield on a Retail Price Index (**RPI**) index-linked gilt (**ILG**)[12] at a relevant maturity (time until redemption).

5.20 In recent years there has been significant debate about the correct way to estimate the RFR. In the preceding decades, falling and subsequently negative yields on government bonds had led to concern that government bond yields may be distorted, leading regulators to set the RFR at levels which exceeded prevailing yield on government bonds. This approach was challenged in the UKRN Report.

The RIIO-2 Decision

5.21 GEMA's FD:[13]

a) used a 1-month average of the yields on the 20-year ILG;

b) uplifted this figure based on forward curve expectations; and

c) inflated this figure by 0.81% expected wedge between CPI and RPI.

5.22 In addition, GEMA chose to index the level of the RFR to 20-year ILG yields, so the rate used will change on an annual basis.

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[12] ILGs are bonds that do not pay a dividend, but rather increase in value each year (until maturity) at the prevailing rate of RPI inflation. As a result, they are 'safe' both in terms of being issued by the government (a creditworthy issuer) and in terms of the holder of the bond not being exposed to the risk of inflation being higher or lower than expected.

[13] GEMA FD Finance Annex, paragraphs 3.6–3.23.

5.23 GEMA noted a preference for a shorter (1-month) averaging period to ensure the mechanism was more responsive to current market conditions.

5.24 GEMA noted the CMA's use of AAA bonds as an input in the CMA PR19 Redetermination calculation of the RFR, but stated that the overwhelming weight of academic theory and suggested practice supported the use of ILGs.

5.25 GEMA cross-checked its approach against 20-year Sterling Overnight Index Average (**SONIA**) swaps and 20-year nominal gilts and concluded that its estimate was appropriate.

The alleged errors

5.26 Each of the appellants contended that GEMA had erred in its approach to estimating the RFR at -1.58% (CPIH-real). The appellants argued that GEMA's estimation of the RFR was too low, which in turn contributed to the overall alleged error of GEMA having estimated the cost of equity too low.

5.27 The appellants gave a number of reasons the RFR was set too low, broken down into the following sub-categories of error:

a) alleged shortcomings of using ILGs as the sole proxy for the RFR;

b) disregard of AAA-rated corporate bonds when estimating the RFR;

c) deviations from the approach in the CMA PR19 Provisional Findings;

d) the alleged erroneous use of the nominal gilt cross-check;

e) the alleged erroneous use of a SONIA swap rate cross-check;

f) objections to GEMA's approach to indexation; and

g) the alleged erroneous choice of inflation metrics.

5.28 In the paragraphs below we summarise the evidence that has been presented to us, set out our provisional assessment and then consider the parties' responses to our provisional determination before providing our final conclusion of whether GEMA's decision not to aim up or down on the cost of equity was wrong.

Alleged shortcomings of using ILGs as the sole proxy for the RFR

Appellants' submissions

5.29 Multiple appellants told us that government ILG yields alone were not a suitable proxy for the RFR within a CAPM calculation, as a key requirement of the RFR in the CAPM was that all relevant market participants can borrow as well as lend at the relevant RFR. The appellants told us that while all market participants could lend at the ILG rate, even the non-government market participants with the highest credit rating had borrowing costs that were higher than ILG yields.

5.30 In relation to ILG yields being too low to represent the RFR:

a) Cadent told us that ILG yields did not adequately capture the rates at which market participants, other than the government, can borrow.[14] Cadent also submitted that the rate the government can borrow at was explained in the corporate finance literature[15] by the presence of a 'convenience yield' premium for government securities (which reflects the safe, money-like, liquid asset features of government debt).[16]

b) NGET/NGG told us that non-government investors cannot access debt at the spot rate of ILGs, regardless of their credit rating.[17,18] NGET/NGG also told us that the Oxera Consulting LLP (**Oxera**) report for the Energy Network Association (**ENA**) demonstrated that UK government bonds were not zero-beta assets and that the true lower bound for a CAPM RFR was 50 basis points (**bps**) to 100bps higher than government bond yields.[19,20,21,22]

c) NGN told us that non-government market participants were not able to issue debt on the same basis as the government and that ILGs did not represent the riskless rate at which non-government market participants can borrow.[23] NGN also submitted that in relying exclusively on ILGs,

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14 Cadent NoA, paragraph 4.33.
15 KPMG (NGN) report, 'Estimating the Cost of Equity for RIIO-GD2', paragraph 6.3.11.
16 Cadent NoA, paragraph 4.33.
17 NGET NoA, paragraph 3.34.
18 NGG NoA, paragraph 3.34.
19 *Pettifer 1 (NGET)*, paragraph 83.
20 *Pettifer 1 (NGET)*, paragraph 79.
21 NGET NoA, paragraph 3.38.
22 NGG NoA, paragraph 3.38.
23 NGN NoA, paragraph 168(i).

GEMA's approach was thereby inconsistent with the principles of the CAPM framework.[24]

d) SGN submitted that GEMA should have taken into account evidence that even the highest rated borrowers were unable to borrow at the same rates as the UK government.[25] SGN also submitted that the ILGs that GEMA relied upon suffer from convenience premia which depress their yield.[26]

e) SSEN-T told us that it was 'clearly' not the case that SSEN-T or other regulated transmission operators, as non-sovereign agents, were able to borrow at the same interest rates as governments and that even the non-sovereign investors with the highest credit-worthiness faced significantly higher borrowing rates than those faced by governments with high credit ratings.[27] SSEN-T told us that GEMA had failed to account for the significant convenience premium embedded in government bonds. SSEN-T also told us that the convenience premium pushed yields on government bonds below the true RFR relevant to TOs.[28] SSEN-T also told us that government bonds behaved like a negative-beta asset; that this further demonstrated the existence of a convenience premium for government bonds and that government bonds had returns lower than the risk-free asset assumed by the CAPM.[29,30] Finally, SSEN-T told us that the correlation between government bond returns and equity returns was 'consistently and significantly' negative using daily return data in the UK and that unadjusted ILGs could therefore not be considered a reasonable proxy for the zero beta RFR for use in the CAPM.[31]

f) SPT submitted that real gilts had particular characteristics of liquidity and safety by comparison with other securities, commonly referred to as their 'convenience yield'. SPT told us that in consequence of these unique characteristics, there was a gap between corporate and sovereign risk-free financing rates.[32,33]

g) WWU submitted that it was an assumption of the CAPM that investors can both borrow and lend at the risk-free rate. However, WWU's advisers, Oxera, submitted that even investors with the highest creditworthiness faced significantly higher borrowing rates than those faced by the

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[24] NGN NoA, paragraph 168(ii).
[25] SGN NoA, paragraph 226.
[26] SGN NoA, paragraph 229.
[27] SSEN-T NoA, paragraph 4.13.
[28] SSEN-T NoA, paragraph 4.7.
[29] Oxera (SSEN-T), 'Cost of Equity Report', section 5B.2.
[30] SSEN-T NoA, paragraph 4.10.
[31] SSEN-T Reply, paragraph 3.17(b).
[32] NERA (SPT), Expert report, section 2.2.
[33] SPT NoA, paragraph 4.1(1).

governments with high credit ratings.[34] Oxera also submitted that RFRs assumed by equity analysts were generally higher than the yield on government bonds by 101bps on average.[35] WWU told us that GEMA had failed to take into account that government bonds had particular qualities which increase demand and so drive down their yields below the true RFR. WWU submitted that this effect was known as the 'convenience premium'[36] and that, consequently, it was inappropriate to use government bond yields as a proxy for the RFR.[37] Finally, WWU told us that the correlation between government bond returns and equity returns was 'consistently and significantly' negative using daily return data in the UK and that unadjusted ILGs could therefore not be considered a reasonable proxy for the zero beta RFR for use in the CAPM.[38,39]

5.31 Some appellants also told us that where ILGs were used as the sole proxy for RFR, this was usually accompanied by an upward adjustment:

a) Cadent submitted that while UK regulators have used ILGs to inform the RFR in the past, historically this has been accompanied by various forms of upward adjustment. Cadent told us that in its spot-based index approach, GEMA had not incorporated such adjustment, and as a result had relied on too low an estimate of the RFR.[40]

b) NGN submitted that GEMA's contention that 'there is long regulatory precedent for using ILGs'[41] was 'highly' misleading because, prior to the UKRN Report, ILGs were used with adjustments and that there was no regulatory precedent for using unadjusted ILGs as GEMA had done.[42]

c) WWU submitted that the issue of the under-estimation of the RFR had not previously arisen because GEMA had, in past price controls, set a RFR materially higher than the spot yield on ILGs.[43] WWU further submitted that what was wrong in the GD2 price control decision, therefore, was that GEMA had failed to make any provision with equivalent effect, and had not adjusted the spot rates of ILGs to compensate for the extent to which, without that adjustment, they understated the true RFR.[44]

[34] Oxera (WWU), 'Cost of Equity Report', paragraph 5.29.
[35] Oxera (WWU), 'Cost of Equity Report', paragraph 5.39.
[36] WWU NoA, paragraph B2.6.
[37] WWU NoA, paragraph B2.7.
[38] Oxera (WWU), 'Cost of Equity Report', section 5B.2.
[39] WWU Reply, paragraph B2.2.
[40] Cadent NoA, paragraph 4.35.
[41] GEMA Response A, paragraph 79.
[42] NGN Reply, paragraph 37.
[43] WWU NoA, paragraph B2.10.
[44] WWU NoA, paragraph B2.11.

5.32 Some appellants told us that GEMA had acted inconsistently with CAPM by viewing the relevant marginal investor as effectively a net lender, thus justifying the use of the Index Linked Gilt (**ILG**) lending rate which was available to all:

a) NGN submitted that the relevant marginal investor within the CAPM framework was the investor in the market as a whole, not in energy networks specifically. NGN told us that GEMA's argument supporting its continued reliance exclusively on ILGs was therefore fundamentally inconsistent with the core model (CAPM) on which its approach was based.[45]

b) SGN submitted that when the risk-free lending and borrowing rates differ, the appropriate RFR lies between the 'lending RFR' and 'borrowing RFR'[46,47] and that GEMA had erred in concluding that the relevant investor was a marginal investor in the utility sector. SGN told us that GEMA should have instead considered the marginal investor in the wider market for whom the borrowing and lending RFR were relevant.[48]

c) SPT told us that CAPM was seeking to answer the theoretical question of the appropriate RFR for the market as a whole. SPT also told us that, as their economic advisers, NERA Economic Consulting (**NERA**), observed, it was in fact the case that two of the three electricity transmission licensees in Great Britain were publicly listed companies, as was SPT's ultimate holding company, Iberdrola, and it was not possible to say whether the marginal stock owner in any of these companies was a net lender or net borrower.[49,50]

5.33 Two appellants submitted that GEMA had presented evidence on an RFR range which contained inappropriate data points or omitted information.

a) SSEN-T told us that GEMA had presented an RFR range which was a combination of the CMA's range for the National Air Traffic Services (En Route) Plc/Civil Aviation Authority Regulatory Appeal (***NATS***)[51] and the CMA PR19 Redetermination. SSEN-T submitted that the NATS appeal was unexpectedly curtailed due to the Coronavirus (COVID-19) pandemic

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[45] NGN NoA, paragraph 168(iii).
[46] KPMG (NGN) report, 'Estimating the Cost of Equity for RIIO-GD2', Appendix 2: The 'zero beta' CAPM Framework.
[47] SGN NoA, paragraph 221.
[48] SGN NoA, paragraph 225.
[49] NERA (SPT), Expert report, section 2.3.
[50] SPT NoA, paragraph 4.1(4).
[51] CMA's final report of 23 July 2020 of the *National Air Traffic Services (En Route) Plc /Civil Aviation Authority Regulatory Appeal*.

and that the CMA's methodology for estimating the RFR had been updated since the NATS appeal in the CMA PR19 Redetermination.[52] SSEN-T further submitted that GEMA had presented five data points it had considered for its RFR estimate but that four of these were not considered quantitively in its FD, namely 10-year Gilts; 20-year Gilts, AAA-corporate bonds and iBoxx AAA indices. SSEN-T submitted that each of these data points was inappropriate for setting the RFR.[53]

b) SPT told us that GEMA had presented evidence which omitted that not all market participants can borrow at ILGs rates and that ILGs should be adjusted for the 'convenience premium'. SPT submitted that some proxies provided lower values for the RFR but that these were unreliable; the evidence presented by GEMA did not address AAA-corporate bonds and demonstrated GEMA's selective approach which discounted relevant evidence.[54]

5.34 Some appellants told us that the CMA PR19 Redetermination was the relevant precedent for whether the use of the spot rate ILGs was appropriate:[55]

a) NGN told us that GEMA's argument that the CMA PR19 Redetermination was in a 'different sector'[56] should carry no weight, since the RFR was a parameter that did not vary by sector and that the CMA PR19 Redetermination was the most relevant precedent for whether the use of spot rate ILGs was appropriate.

b) SGN submitted that the CMA had explained in the CMA PR19 Redetermination that the RFR was a market-wide parameter, not sector-dependent, and that GEMA's inconsistency with the CMA PR19 Redetermination was not a matter of regulatory judgement but a 'clear and material' error by GEMA, which understated the RFR.[57]

c) SSEN-T told us that RFR was not a sector-specific decision and that there was no principled basis to adopt a different decision on RFR in the water and energy sectors.[58]

[52] SSEN-T Closing Statement, paragraph 2.3.
[53] SSEN-T Closing Statement, paragraph 2.4.
[54] SPT Closing Statement, paragraph 7.
[55] Further consideration of deviations from the CMA's approach in the PR19 Redetermination can be found from paragraph 5.108.
[56] GEMA PR19 Response on Finance, paragraph 90.
[57] SGN Reply, paragraph 52.
[58] SGN Reply, paragraph 3.17(e).

d) SPT submitted that the RFR was a market-wide parameter. SPT also submitted that recent regulatory precedent did not support the use of unadjusted spot ILGs and that GEMA's reliance on the findings in the NATS appeal was misplaced.[59]

GEMA's submissions

5.35 GEMA submitted that its approach to estimating the RFR had drawn upon regulatory practice and academic authority, including the UKRN Report. GEMA submitted that the UKRN Report recommended that regulators use the zero-coupon yields on inflation-indexed gilts at their chosen horizon, and that GEMA's framework decision had confirmed its decision to estimate the RFR by using current yields on long-run index-linked government bonds.[60]

5.36 GEMA submitted that it had not taken the view that ILGs provided a perfect, error-free proxy for the RFR, and recognised that any forecast of RFRs had the potential to be wrong. GEMA submitted that its position was that ILGs provided the closest proxy for estimating the RFR which, as the appellants accepted, was a hypothetical number.[61]

5.37 GEMA submitted that it had considered the appellants' evidence that ILGs were distorted but did not find the appellants' arguments and evidence of a convenience premium requiring adjustment convincing. GEMA submitted that based on academic evidence and regulatory precedent, it had taken the view that the yields on ILGs are 'what they are' and provide a reasonable proxy for the unobservable RFR. GEMA submitted that, as far as possible, it had sought to use a measure that included the fewest risks and therefore required as little adjustment as possible to be considered a 'risk free rate', and that this was an entirely reasonable regulatory approach. GEMA also submitted that it was conscious that in applying indexation for the RFR, the simplicity of the underlying series used was an important consideration.[62]

5.38 GEMA submitted that, regarding the appellants' argument that it erred in viewing the marginal investor as a net lender, it was the appellants who sought to move away from standard CAPM in suggesting that a distinction should be drawn between lending and borrowing rates. GEMA told us that it did not accept that the practical application of the CAPM required all participants to be able to issue debt at the estimated RFR, and GEMA also considered that this distinction was inappropriate without also considering

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[59] SPT Reply, paragraph 21(4).
[60] GEMA Response A, paragraph 64.
[61] GEMA Response A, paragraph 73.
[62] GEMA Response A, paragraphs 74–76.

whether marginal investors in regulated utility companies are net lenders or net borrowers.[63]

5.39 GEMA submitted that in Wright and Mason's paper, commissioned by Ofwat in relation to PR19, they had concluded that the marginal investor for water companies was a net lender and that GEMA applied the same consideration to energy companies.[64] GEMA told us that investors in energy companies were institutional investors, investing on behalf of pension funds and other long-term investors. It also said that they were net lenders for whom the return of a zero-beta asset lay very close to the ILG yield and therefore ILG rates were highly relevant.[65] As such, GEMA concluded that ILGs provided an appropriate basis for estimating the RFR.[66]

5.40 Professor Stephen Wright, in his role as adviser to GEMA, told us that simplicity was the essence of the UKRN Report and that CAPM remained, despite numerous caveats, the best available model. Wright told us that CAPM had 'extremely simple' input parameters and interpretations. He explained that the recommendation relating to the RFR in the UKRN Report was that regulators should use the zero-coupon yield on inflation index gilts at their chosen horizon to derive an estimate of the RFR (at that horizon). He further told us that this recommendation was due to its 'implementability and defensibility' because the authors of the report wanted to make sure it could be used by regulators.[67]

5.41 GEMA also noted that as a single and unadjusted measure, ILGs would help to ensure that the indexation of the RFR was simple and more transparent.[68]

Intervener submissions

5.42 Citizens Advice told us that 'what the CAPM clearly says' was that AAA corporate bonds will yield more than the RFR because assets which are unaffected by changes in economic activity, such as government bonds, will return the RFR, but those assets which move with economic activity, such as corporate bonds or equities, will promise an appropriately higher rate of return. Citizens Advice told us that it was 'no surprise' that governments can borrow at a lower rate than non-government issuers, and that while this could be called the convenience premium, it mainly reflected the difference in risk between government and non-government borrowers. Citizens Advice told us

[63] GEMA Response A, paragraph 79.
[64] GEMA Response A, paragraphs 80–81.
[65] *Friend 2 (GEMA),* paragraph 41.
[66] GEMA Response A, paragraph 81.
[67] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 28, lines 2–23.
[68] *Friend 2 (GEMA),* paragraph 89.

that the fact that government borrowers pay less than non-government borrowers neither disproves the CAPM nor implies that AAA-rated bonds are a better proxy for the risk-free rate than index-linked gilts. Neither does it imply that index-linked gilts are so-called 'negative beta assets'.[69]

5.43 Citizens Advice told us that index-linked gilts are not negative beta assets, rather they are zero or very low beta assets and that, in contrast, corporate bonds are higher beta assets (higher than the index-linked gilt rate) which will always tend to overstate the RFR. Citizens Advice told us that setting the RFR on the basis of corporate bond yields would, effectively, lead to a double counting of the same risk and an overstatement of the overall cost of capital.[70]

Alleged shortcomings of using ILGs as the sole proxy for the RFR – our provisional assessment

5.44 In making our provisional assessment, we indicated that there is no definable RFR – it is a hypothetical concept that must be estimated. Similarly, we noted that there is no perfect proxy instrument, so judgement must be used when estimating an RFR that is suitable for purpose. We noted that GEMA itself recognised that its chosen proxy, ILG yields, was imperfect, but had argued that they were the single best proxy available.

5.45 On the balance of evidence presented, we considered there to be evidence of a convenience yield in government debt. Conversely, we were not convinced by Oxera's evidence that government bonds have a beta lower than zero. Our preferred characterisation was that there is evidence that ILGs have a value in excess of a zero-beta asset as a result of non-beta characteristics, rather than a view that they have (over their issued life) a beta less than zero. However, it was our view that evidence of a convenience yield lent support to the view that ILGs could be marginally improved upon as a proxy for the RFR, rather than proof that an exclusive reliance on ILGs was an error.

5.46 We acknowledged Oxera's evidence that the RFR used by finance professionals is often higher than ILG yields. However, without a comprehensive analysis of all the CAPM metrics used in these cases (eg do market analysts use higher RFRs but lower TMRs), we did not consider that the use of higher RFR estimates by some market participants was conclusive proof that GEMA's approach was wrong for this regulatory price control. Even with such comprehensive analysis, the different use case (eg not as part of a regulatory price control) would likely mean that the most informative cross-

[69] Citizens Advice Hearing Transcript, 7 July 2021, page 17, lines 6–19.
[70] Citizens Advice Hearing Transcript, 7 July 2021, page 18, lines 11–16.

check would be to the overall level of the cost of equity, rather than to one metric in isolation.

5.47 We acknowledged the argument that the CAPM requires an assumption that the RFR is available to all market participants as a borrowing and lending rate. However, we also accepted the view that such an assumption is impractical and can never be fully implemented. We were not convinced that GEMA was right to conclude that the marginal investor is necessarily a net lender, and instead took the view that the marginal investor that is appropriate for the CAPM as applied by regulators, is the market investor in the whole market. However, we noted that there is expert academic support for both views and that as a result we could not conclude that this was an error.

5.48 We discussed the issue of historical uplifts to ILG-based estimates and the potential mitigations from indexing at paragraph 5.174.

5.49 We concluded that it was clear from the evidence presented that there is a long history of ILGs being considered as the best single proxy for the RFR. ILGs incur no inflation risk and, as yet, have a history of zero defaults. No other GBP instrument, even those with higher associated credit ratings than currently applicable to the UK government, has these 'riskless' characteristics. It was also clear that GEMA had not taken this decision in a vacuum, and had relied on the analysis and recommendations from the UKRN Report, which explicitly recommended that 'Regulators should use the [zero coupon] yield on inflation-indexed gilts at their chosen horizon to derive an estimate of the risk-free rate at that horizon.'[71] While we did not consider the recommendations of this one report to be the definitive guidance on the 'correct' approach to the CAPM, we acknowledged that GEMA had followed expert advice and adopted an approach often used in both regulatory and other contexts. This suggested that GEMA's approach was well considered and within its margin of appreciation.

5.50 We also noted GEMA's evidence that there are alternative proxies for the RFR that it could have used, and that would have led to a lower RFR. GEMA referenced SONIA swaps as the Bank of England's (**BoE**) preferred measure of the RFR (for discussion of the use of SONIA swaps as a cross check see paragraph 5.156) and shorter tenor ILG yields as alternative measures of the RFR. We agreed with GEMA's assessment on this point. For example, given that a 10-year horizon has been used in the calculation of beta, of TMR and as the starting horizon for the calculation of the cost of debt, it would seem to have been justifiable to have used a 10-year ILG yield as the proxy for the

[71] UKRN Report, page 31.

RFR. As an example of the potential magnitude of impact that such a decision could have, the June 2021 average of the 20-year ILG yield was -2.30%, while the June 2021 average of the 10-year ILG yield was -2.69%,[72] a 39bps difference (and so lower than the uplift to ILG yields implied by the CMA PR19 Redetermination RFR midpoint).[73]

5.51 Taken on balance, we provisionally concluded that GEMA's approach to estimating the RFR had been well considered and was supported by both academic evidence and GEMA's assessment of the market price of alternative RFR proxies. Conversely, we did not believe that the appellants had provided sufficient evidence to conclude that GEMA's approach was wrong. As a result, we did not consider GEMA's sole reliance on 20-year ILG yields as the basis of its estimate of the RFR to be an error.

Alleged shortcomings of using ILGs as the sole proxy for the RFR - response to the provisional determination

Appellants' submissions

5.52 Some appellants told us that the existence of a convenience premium meant that GEMA's estimate of the RFR based on ILGs was an error. For example:

a) NGN and SGN submitted that evidence of a convenience premium demonstrated that the appropriate RFR sits above the ILG yield and that an estimate based on ILGs solely would be below the true RFR and was therefore an error.[74,75]

b) SPT and SSEN-T submitted that the CMA had acknowledged the existence of a convenience premium but had failed to classify GEMA's failure to take it into account as an error.[76] SSEN-T also submitted that this conclusion was unsupportable because a convenience premium adjustment goes above a 'marginal improvement' and was a necessary correction to ILG to arrive at an appropriate RFR. SSEN-T told us that failure to recognise this was a direct violation of the CAPM framework which defines the RFR as expected return on a zero-beta asset.[77]

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[72] BoE data available here.
[73] CMA PR19 Redetermination, paragraphs 9.1214 and 9.266.
[74] NGN Response to PD, paragraph 151.
[75] SGN Response to PD, paragraph 141.
[76] SPT Response to PD, paragraphs 13–16.
[77] Similarly, SPT submitted that the CMA acknowledged the existence of a convenience yield in government debt and that, therefore, the CMA should find that an RFR derived from ILGs must be adjusted for the convenience premium and that not making such an adjustment was an error. SSEN-T Response to PD, paragraphs 2.46–2.47.

5.53 SGN and NGN submitted that GEMA's RFR benchmark would sit below the true RFR because it represented a lending rate:

a) SGN submitted that explicit adjustments were not required when implementing the CAPM with divergent lending and borrowing rates because, by picking any estimate other than the 100th percentile from a range bounded at the top by the yield on AAA-bonds, the practitioner was implicitly adjusting its estimate downwards.[78]

b) NGN submitted that it did not follow that because the correct approach was difficult to implement, the evidence in favour of the correct approach could be disregarded. NGN submitted that 'ample' evidence from academia and the CMA's analysis in its PR19 Redetermination which demonstrated that a blend of AAA/ILGs was better able to meet the requirements of CAPM than either instrument alone.[79]

5.54 Cadent, SGN and NGN told us that the alternative proxies GEMA provided for the RFR were equally or more flawed than ILGs. For example:

a) Cadent and SGN submitted that the alternative proxies provided were equally or more flawed because they both represented lending rates and Cadent submitted little or no weight should be applied to them.[80,81]

b) NGN told us that GEMA's assessment that alternative proxies would have resulted in a lower RFR could not justify a conclusion that its approach was not in error, as both proxies were equally more flawed as estimators for RFR. It submitted that neither gilts in general nor SONIA swap rates addressed the error in GEMA's RFR, namely that the RFR should reflect the RFR at which investors could both lend and borrow.[82]

5.55 SSEN-T submitted that Oxera had presented evidence that ILGs have negative betas on average and that neither GEMA nor the CMA engaged with this evidence. SSEN-T told us that, in stating 'ILGs have a value in excess of a zero-beta asset as a result of non-beta characteristics' the CMA had implicitly agreed with Oxera that ILGs have returns below a zero-beta asset. It further submitted that it did not matter why ILGs had a different value than a zero-beta asset, but the fact that they did made them an incorrect proxy variable for the RFR. SSEN-T told us that non-beta characteristics must be

[78] SGN Response to PD, paragraph 143.
[79] NGN Response to PD, paragraph 151(iii).
[80] Cadent Response to PD, paragraph 11.10.
[81] SGN Response to PD, paragraph 145.
[82] NGN Response to PD, paragraph 151(vi).

taken into account and corrected as Oxera did through the convenience premium.[83]

5.56 SSEN-T submitted that the CMA had made an error in comparing the tenor of ILGs with the shorter time horizons used to calculate beta when considering alternative proxies for RFR. It told us that using shorter ILG tenors incorrectly lowered the RFR and that expert financial literature explained why the tenor for RFR should match the investors' investment horizon. SSEN-T submitted that the CMA had made an incorrect comparison between time periods used to calculate future ILG yields and historical daily stock price beta.[84]

5.57 Some appellants submitted that evidence had not been appropriately weighted:

a) NGET/NGG submitted that the provisional determination recognised that there were shortcomings of using ILGs as the sole proxy for RFR and noted the appellants' view that AAA-rated corporate bond data would have improved the quality of the RFR estimate. NGET/NGG also submitted that the provisional determination ruled GEMA did not need to take account of this data. They submitted that the provisional determination noted that SONIA swaps indicated that the RFR could have been lower. They told us that in allowing GEMA to rely solely on ILGs and to use SONIA swaps as evidence that the RFR could be lower, the CMA was effectively giving equal weight to evidence based on SONIA swaps and AAA-rated corporate bonds. NGET/NGG submitted that this ignored the superior value of AAA bonds as a source for estimating RFR.[85]

b) NGET/NGG also submitted that it was irrelevant whether ILGs were the best single proxy for the RFR and that the correct test was 'whether, on the balance of evidence, GEMA's approach was wrong'. They submitted that neither GEMA nor the CMA had a legitimate reason to limit itself to one proxy, and that it would be wrong to do so without giving alternative proxies appropriate weighting.[86]

5.58 NGN and SSEN-T submitted that evidence regarding the market investor was not appropriately weighted. For example:

a) NGN submitted that the overall body of academic evidence demonstrated that the marginal investor should be the market investor in the whole market. It submitted that GEMA had relied inappropriately on a sole,

[83] SSEN-T Response to PD, paragraph 2.54(b).
[84] SSEN-T Response to PD, paragraph 2.54(c).
[85] NGET/NGG Response to PD, paragraph 3.29.
[86] NGET/NGG Response to PD, paragraph 3.15.

isolated academic voice and that GEMA's approach should be considered an error by the CMA.[87,88]

b) SSEN-T submitted that the CMA had recognised GEMA's error that the marginal investor was not a net lender, and instead was a marginal investor in the whole market and that the CMA could not rely on the mere existence of conflicting academic views as a basis for declining to find an error without evaluating the relative merits of such views. SSEN-T submitted that this ignored the quality and robustness of expert academic evidence supporting SSEN-T's position and that by failing to make an adjustment for the convenience premium the CMA could be taken to have implicitly decided that one side of the academic debate was more credible than the other without providing any reasoning on the merits of respective positions.[89]

5.59 Some appellants submitted that GEMA's approach failed to take into account recent precedent and/or regulatory approach:

a) SPT submitted that the CMA had said that 'GEMA adopted an approach used in both regulatory and other contexts' but that this was based on an oversight. SPT submitted that precedent did not support the use of spot ILGs and that in past reviews RFR had been set by regulators based on long-run averages, materially above the prevailing spot ILG rates.[90] It told us that the only relevant precedent which used 'spot rates' was the CMA's PR19 Redetermination but noted that that set RFR based on ILGs and AAA corporate bond rates.[91]

b) Both NGN and SGN told us that in its interpretation of precedent, GEMA had failed to take into account the change in regulatory approach to setting the RFR following the publication of the UKRN Report in 2018. They submitted that it was important to note that the use of corporate AAA-rated debt was a means of addressing a flaw in ILGs as a sole benchmark for RFR, the impact of which was masked to date due to the use of equilibrium RFR data and/or a dragging anchor approach. They submitted that evidence submitted by appellants should be given equal consideration as the UKRN Report. They also told us that in its PR19

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87 NGN Response to PD, paragraph 151(ii).
88 Cadent made this same point in its response. It also submitted that the that the view in the PD that GEMA had followed expert advice and adopted an approach often used in both regulatory and other contexts ignored that GEMA had failed to take into account the change in regulatory approach to setting the RFR following the publication of the UKRN Report, as acknowledged in the CMA PR19 Redetermination. See Cadent Response to PD, paragraph 11.9.
89 SSEN-T Response to PD, paragraph 2.48.
90 Similarly, NGET/NGG told us that where ILGs were used to set the RFR they were generally combined with a trailing average approach which produced higher numbers. See NGET/NGG Response to PD, pages 28–29.
91 SPT Response to PD, paragraph 16(2).

Redetermination the CMA had noted that it was not convinced that the UKRN Report conclusively established that the ILG yield was the only metric that could be useful when estimating the theoretical RFR in CAPM.[92,93]

c) NGN submitted that the CMA had not addressed a mismatch between precedent and GEMA's use of ILGs in its conclusions.[94] It also submitted that the provisional determination's reasons for concluding that GEMA was not in error sought to rely on materiality and implementation considerations, but that the materiality threshold was clearly met and implementation considerations were (i) not relevant when considering whether GEMA made an error and (ii) clearly surmountable as demonstrated by the CMA's PR19 Redetermination.[95]

d) SGN submitted that the fact that there was an expert view that the approach adopted by GEMA may have been reasonable was not sufficient to dismiss an error under the legal framework and that the correct test was whether the appellants had demonstrated that GEMA was wrong on one of the statutory grounds, which captured a failure to take account of relevant evidence.[96]

e) NGET/NGG submitted that it was wrong to conclude that GEMA's approach was supported by history without taking account of the fact that the approach was not supported by recent regulatory judgements, namely the CMA's PR19 Redetermination and a long history of regulators setting RFR above spot ILG yields.[97]

f) NGET/NGG told us that contrary to GEMA's submission 10-year ILGs were not suitable for use structurally because they had a tendency to invert, making them less stable then 20-year ILGs (as acknowledged by Ofwat in PR19). They told us that 20-year ILGs were more consistent with the cost of debt methodology because the iBoxx Utilities 10yr+ index had a weighted average maturity of c.20 years as at 17 August 2021.[98]

GEMA submissions

5.60 GEMA noted that the CMA's views on convenience yield and assumptions regarding the marginal investor relevant for CAPM differed to those of GEMA.

[92] SGN Response to PD, paragraph 144.
[93] NGN Response to PD, paragraph 151(v).
[94] NGN Response to PD, paragraph 151(v).
[95] NGN Response to PD, paragraph 154.
[96] SGN Response to PD, paragraph 144.
[97] NGET/NGG Response to PD, paragraph 3.15.
[98] NGET/NGG Response to PD, pages 28–29.

It told us that it supported the CMA's approach of assessing the issue on the balance of evidence and the recognition that there were differing expert academic views and therefore no clearly definable single 'correct' answer. It welcomed the CMA's view that the use of a 10-year measure for RFR would be justifiable. It therefore agreed with the CMA's provisional conclusion that its use of 20-year ILG yields as the basis of its estimate of the RFR was not an error.[99]

Intervener submissions

5.61 Citizens Advice submitted that the CMA's assertion that 'such an assumption [that the RFR is available to all market participants as a borrowing and lending rate] is impractical and can never be fully implemented' (see paragraph 5.47) was a misunderstanding of what the CAPM means. Citizen Advice stated that the CAPM's RFR assumption is a modelling assumption, and that it was not meaningful to ask whether it can be 'implemented' or 'is practical'. Citizens Advice stated that it was not supposed to be 'implemented'.[100]

5.62 Citizens Advice also disagreed with the CMA that 'ILGs could be marginally improved upon as a proxy for the RFR' (see paragraph 5.45) and stated that 'the fact that there is a "convenience yield" in government debt, over and above corporate debt, does not support this view'. Citizens Advice submitted that the convenience premium simply reflects the difference in risk (and liquidity) between ILGs and AAA-corporate bonds and is not grounds for finding that the yield on ILGs understates the RFR.[101]

Alleged shortcomings of using ILGs as the sole proxy for the RFR - our final assessment

5.63 In the provisional determination we concluded that GEMA's sole reliance on 20-year ILGs as the basis of its estimate of the RFR was not an error. In response, Citizens Advice disagreed with elements of our assessment, but agreed with our conclusion, while the appellants all contested our provisional determination assessment that GEMA's reliance on ILG yields was not wrong. In the following paragraphs, we will first address Citizens Advice's critique of our assessment, before turning to address the evidence submitted by the appellants.

[99] GEMA Response to PD, paragraph 20.
[100] Citizens Advice Response to PD, paragraph 17.
[101] Citizens Advice Response to PD, paragraph 18.

Response to Citizens Advice's critique of our provisional determination assessment

5.64 Citizens Advice has agreed with our provisional determination but not the associated assessment. In response to the provisional determination, Citizens Advice has argued that the RFR within the CAPM framework is a 'modelling assumption' that is not supposed to be 'implemented'. As noted in the provisional determination (paragraph 5.61), we agree that 'the RFR is a hypothetical number as no investment has absolutely zero risk'. However, this does not release GEMA from the need to ensure that its approach to estimating the RFR properly considers the range of different sources of evidence to help ensure that the overall cost of equity used in the price control is sufficient to cover investors' financing costs.

5.65 As such, we do consider it appropriate for GEMA to consider, in detail, the proxies and data that help to inform an RFR estimate that is appropriate when estimating the cost of equity using the CAPM. We are not convinced that viewing the RFR as merely a 'modelling assumption' that is 'not supposed to be implemented' is sufficient to prove that the RFR can only be proxied by UK ILG yields.

5.66 On the basis of the evidence presented by Wright and Mason (see paragraph 5.39), we agree with Citizens Advice's view of ILGs as zero beta (or very low beta) rather than negative beta assets when properly considered over the full life of the gilt.[102] However, we disagree with Citizens Advice in paragraph 5.62) that the convenience yield 'simply reflects the difference in risk (and liquidity) between ILGs and AAA-corporate bonds'. Rather, we have remained open minded when considering evidence that suggests that the convenience yield may represent non-risk factors. We do not consider that we have been presented with sufficient evidence to rule out the non-risk elements of a convenience yield in this way. However, while there are technical areas in relation to the calculation of the RFR where we do not necessarily share the same view (or have the same level of conviction in a view) as Citizens Advice, none of these differences would suggest that ILGs are not a suitable proxy for the RFR.

[102] As noted at paragraph 5.45, our view here contrasts with the Oxera's argument that ILGs display a negative beta.

Response to the appellants' arguments following our provisional determination

5.67 The submissions from the appellants following our provisional decision fall into three main categories:

a) reiteration of the in-principle evidence in support of their argument that GEMA is wrong (eg that ILGs are not a sufficient proxy for the RFR);

b) disagreement with the CMA's assessment that GEMA's approach is consistent with precedent; and

c) disagreement with the CMA's assessment of the balance of evidence considered by GEMA.

We address each set of arguments in turn in the paragraphs below.

- *In-principle arguments that ILGs are not a sufficient proxy for the RFR*

5.68 We addressed the in-principle arguments that ILGs are not a sufficient proxy for the RFR comprehensively in our provisional determination assessment. As noted at paragraph 5.44, we agree that ILGs are an imperfect proxy for the RFR (a view shared by GEMA).[103] Specifically, we noted that there is evidence to support the notion of a convenience yield in government-issued securities, and we disagreed with the view that the appropriate investor when considering the RFR is a net lender. However, at paragraph 5.49 we also noted that ILGs have long been considered as the single best proxy for the RFR, and that in the context of academic evidence that there is no single theoretically correct answer; there are benefits in focusing on one simple and sufficient proxy. In our view, acknowledging the theoretical imperfections of ILGs as a proxy for the RFR is not sufficient proof that sole reliance on ILGs is wrong in the context of estimating the cost of equity in a regulatory price control.

- *Disagreement with the CMA's assessment that GEMA's approach is consistent with precedent*

5.69 In relation to GEMA's consistency with precedent, and our provisional determination assessment that 'there is a long history of ILGs being considered as the best single proxy for the RFR' (see paragraph 5.49), the appellants have submitted that the provisional determination fails to note that the historical use of ILGs often involved the use of longer term averages,

[103] GEMA Response A, paragraph 73.

which led to a higher result. The appellants are correct to an extent; there is evidence from past cases that demonstrates that since the early 2000s the RFR set in regulatory cases was often higher than prevailing ILG rates.[104] However, this observation misses relevant additional elements of assessment:

a) We observe that the RFR used in the 1990s was typically set at or extremely close to the ILG rate, with rates set above this level appearing to correspond with falling rates from the late 1990s onwards;[105]

b) We observe that while some price controls, such as Ofwat's PR14,[106] made explicit reference to the 10-year historical average of ILG yields, others, such as CC NIE 2014, used a higher rate than spot yields in order to allow for 'the possibility that rates might rise' following previous falls.[107] As can be noted in the CEPA figure referenced above, we observe that this process of uplifting the rate implied by ILG yields became most noticeable following real yields turning negative in the early 2010s;

c) We observe that regulators often increased their estimate of the RFR to reflect future yield level expectations as implied by the forward curve.[108] However, in this case, whether or not that would be justified by market expectations,[109] it is unnecessary due to GEMA's decision to index the RFR.

5.70 We observe from the evidence referenced in paragraph 5.69 that the past examples of 'aiming up' of the RFR resulted in an RFR that was set further away from the market rates that prevailed over the following years of the price control. Therefore, in practice, this 'aiming up' of the RFR estimate had the effect of creating in a larger gap between projected and actual RFR than if the RFR had been set at market rates, ie in the way proposed by GEMA. This

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104 The CMA considered this issue in more detail in its redetermination of PR19. For more info see: CMA PR19 Redetermination, Figure 9-3.
105 For an example of this trend, see CEPA (2018), 'Review of cost of capital ranges for Ofgem's RIIO-2 for onshore networks', Figure 5.1.
106 Ofwat (2014), 'Setting price controls for 2015-20 – risk and reward guidance', section A1.5
107 Competition Commission (2014), *NIE RP5 final determination*, paragraph 13.128
108 It has become convention (when using non-indexed market data as the basis for the RFR estimate) to adjust the 'starting' figure to reflect rate increases that are anticipated through the price control period. The forward curve is typically used to calculate this increase, or it can equivalently be found using the 'expectation hypothesis' calculation. The expectation hypothesis suggests that future interest rates can be calculated from current yields (interest rates) at relevant maturities. In a simple example, to estimate the 1-year spot rate in 1 years' time, we would note the return available from a 1-year bond bought today and held to maturity, and calculate what interest rate this would have to be reinvested at in 1-years' time in order to match the total return from a 2-year bond bought today and held to maturity.
109 The issue was considered in the CMA's PR19 Redetermination, where the CMA concluded that forward rates did not offer a better assessment of future spot rates than current spot rates. For further details, see CMA PR19 Redetermination, paragraphs 9.228–9.234.

approach benefitted equity holders at the expense of customers.[110] We consider that the recommendations made in the UKRN Report were specifically aimed at addressing this inaccuracy by countering perceived irrationality of low or negative real risk-free rates.[111]

5.71 As a result of the observations in paragraph 5.69, we consider that relevant RFR precedent neither demonstrates the exclusive use of 'uplifted' rather than spot ILG yields, nor does it necessarily suggest that regulators uplifted ILG yields in order to achieve an RFR that was more appropriate for the CAPM model. Rather, we interpret the evidence as suggesting that regulators increased their estimates above spot ILG yields (either through extended-averaging, forward rate or 'manual' adjustments') to avoid fixing a rate for a control that would subsequently appear too low if prevailing ILG yields were to revert to higher levels. This does not rule out the possibility that such uplifts inadvertently 'improved' the estimate of the RFR as required for the CAPM, but it does not appear that this is the point being argued by the appellants as summarised at paragraph 5.59. Further, to the extent that the precedents could be relevant in signalling that regulators might be expected to give protection against increases in the RFR during the price control period, GEMA has addressed this through indexing the RFR.

5.72 As a result, we do not agree that recent precedent indicates that GEMA was wrong in its use of ILGs as a proxy for the RFR.

- *Disagreement with the CMA's assessment of the balance of evidence considered by GEMA.*

5.73 Our assessment of the evidence provided by both GEMA and the appellants is that it is common ground that ILG yields are a useful input into the estimation of the RFR, with disagreement focusing on whether the balance of evidence suggests that other inputs (in particular AAA bond data) must also be included in order to arrive at an appropriate estimate of the RFR. In coming to a view as to whether GEMA erred in placing sole reliance on ILGs, it is necessary to consider the alternative approaches the regulator could have adopted. Therefore, we address the appellants' arguments that GEMA erred in this respect in paragraphs 5.96 to 5.107 below, following our assessment of the strength of the AAA yield evidence put forward by the appellants.

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[110] We note the scale of this benefit may have been small – it reduces as the beta used in the CAPM approaches 1.
[111] UKRN Report, pages 35–36.

The disregard of AAA-rated corporate bonds when estimating the RFR

Appellants' submissions

5.74 Multiple appellants told us that the borrowing rate that can be achieved by the most highly-rated investors will be higher than the government borrowing rate, which implies that the market rate for the RFR is likely to lie between ILG yields and AAA-bond yields. The appellants told us that corporate finance literature on the 'zero beta' CAPM framework relaxes the unrealistic assumption of the standard CAPM framework that there has to be a single RFR at which market participants can borrow and lend and provides the theoretical basis for the RFR being based on a rate available on a 'zero beta' portfolio.

5.75 Some appellants told us that GEMA's failure to incorporate AAA-rated corporate bonds into their calculation of the RFR was an error:

a) Cadent submitted that, in practice, the borrowing rate that can be achieved by the most highly-rated investors, eg the AAA corporate borrowing rate, will be higher than the government borrowing rate, which implies that a combination of the sovereign rate and the corporate AAA rate provides the best estimate of the risk-free rate within a 'zero beta' CAPM framework.[112] Cadent submitted that relying solely on ILGs was inappropriate because the arguments by GEMA against the use of AAA corporate debt rate mispresented the theoretical and empirical evidence[113] and that GEMA sought to rebut the use of AAA bonds on the basis of certain perceived issues with AAA bonds which could be easily discounted/dealt with.[114]

b) NGET/NGG told us that GEMA's failure to take account of AAA-rated corporate bond yields had resulted in a material underestimation of the RFR and, as a result, the cost of equity.[115,116] NGET/NGG told us that GEMA's decision not to take account of AAA-rated corporate bonds was flawed for the following reasons:

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[112] Cadent NoA, paragraph 4.34(b).
[113] Cadent NoA, paragraph 4.44(b).
[114] Cadent NoA, paragraph 4.44(c).
[115] NGET NoA, paragraph 3.49.
[116] NGG NoA, paragraph 3.49.

(i) Relying on a single proxy was an overly simplistic and unjustified approach to estimating the RFR and a clear methodological error.[117,118]

(ii) GEMA had failed to acknowledge that AAA-rated corporate bonds closely approximate the requirements of an RFR benchmark.[119,120]

(iii) In the FD, GEMA had declined to consider them when estimating the RFR on the basis that (i) 'academic theory' and 'suggested practice' support the use of ILGs, and (ii) it 'risks introducing errors'.[121,122] This cursory dismissal of a proxy that the CMA considered to be relevant was inadequate and without merit.[123,124]

c) NGN told us that

(i) GEMA had stated that it does not use nominal corporate bonds, as the CMA does, because this 'risks introducing errors'.[125] However, the sole use of ILGs also introduces error, and GEMA's dismissal of an alternative instrument on that basis was selective. GEMA had been partial and selective in dismissing alternative approaches, in particular its dismissal of placing weight on AAA-rated corporate debt as the CMA had done in the CMA PR19 Provisional Findings.[126]

(ii) GEMA had not included AAA-rated corporate bonds which were a better benchmark for the risk-free borrowing rate, as recognised by the CMA. A methodology for estimating the RFR which placed weight on AAA-rated corporate bonds produced a materially higher estimate than that of GEMA, as set out in KPMG LLP (**KPMG**)'s cost of equity report.[127,128]

(iii) In claiming that 'the overwhelming weight of academic theory and of suggestion practice, regarding RFR estimation, supports the use of

[117] NGET NoA, paragraph 3.52.
[118] NGG NoA, paragraph 3.52.
[119] NGET NoA, paragraph 3.55.
[120] NGG NoA, paragraph 3.55.
[121] GEMA FD Finance Annex, paragraphs 3.13 and 3.16.
[122] GEMA FD Finance Annex, paragraphs 3.13 and 3.16.
[123] NGET NoA, paragraph 3.60.
[124] NGG NoA, paragraph 3.60.
[125] GEMA FD Finance Annex, paragraph 3.16.
[126] NGN NoA, paragraph 168(viii).
[127] KPMG (NGN) report, 'Estimating the Cost of Equity for RIIO-GD2', paragraph 6.3.15.
[128] NGN NoA, paragraph 169(v).

ILGs',[129] GEMA presented a partial view of the academic literature and regulatory practice.[130]

d) SGN told us that the appellants believed that GEMA should have placed greater weight on the yield on AAA-rated non-gilts which, as the CMA had noted, 'closely but imperfectly' matched the key requirements of the RFR within the CAPM model.[131,132] SGN also told us that GEMA had rejected AAA bonds on the basis that they introduced distortions, but that all available RFR benchmarks were subject to some degree of distortions. SGN submitted that it was therefore appropriate to include a range of suitable benchmarks when estimating the RFR.[133]

e) SSEN-T told us that any decision to rely solely on ILG evidence would underestimate the true value of the RFR.[134]

f) SPT submitted that the exclusive use of real gilt yields (as opposed to gilt yields adjusted for a convenience premium, AAA-rated corporate bonds or a combination of the two) was 'manifestly unreasonable' and wrong as an estimate of the RFR for companies.[135] SPT also submitted that recent academic opinion was to the effect that the market RFR for the purposes of the CAPM should be based on gilt yields adjusted for a convenience premium or adjusted AAA-rated corporate bond yields, or a combination of the two and that, accordingly, the RFR lay above the rate of return on government bonds.[136,137]

5.76 Some appellants made submissions regarding the GEMA's argument regarding the simplicity of using ILGs:

a) Cadent told us that simplicity was not a goal in its own right and that ILGs alone were not a reasonable proxy when a blended index of ILGs and AAA corporate bonds provided a 'clearly' better alternative.[138]

b) NGET/NGG told us that simplicity was not an adequate justification for GEMA's decision to exclude the more 'robust, practical alternatives' put forward by the appellants as a proxy for the RFR.[139]

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[129] GEMA FD Finance Annex, paragraph 3.13.
[130] NGN NoA, paragraph 168(v).
[131] CMA PR19 Provisional Findings, paragraph 9.135.
[132] SGN NoA, paragraph 228.
[133] SGN NoA, paragraph 229.
[134] SSEN-T NoA, paragraph 4.25.
[135] SPT NoA, paragraph 41.
[136] NERA (SPT), Expert report, section 2.2.
[137] SPT NoA, paragraph 41(2).
[138] Cadent Reply, paragraph 56.
[139] NGET/NGG joint Reply, paragraph 3.7.

c) NGN told us that GEMA's claim that ILGs should be the sole basis for the RFR because they are simpler, where AAA corporate bonds require more adjustments was not robust.[140]

d) SGN told us that GEMA had not demonstrated why the need for simplicity should outweigh the need for estimating RFR using robust methodology supported by CAPM theory.[141]

5.77 Some appellants submitted that GEMA could have included AAA-rated corporate bonds in its estimate for the RFR, while two appellants likened this to GEMA's experience at RIIO-1:

a) Cadent also submitted that constructing a blended index was no more complicated or costly than relying on ILGs alone and that the attraction of using a blended index was 'precisely' to avoid the need to adjust either proxy.[142]

b) NGET/NGG also submitted that even without making complex adjustments to ILGs and AAA-rated corporate bonds, GEMA could have estimated the RFR more robustly than by using ILGs alone.[143]

c) NGN also submitted that the inclusion of AAAs in the RFR index was simple to implement; that ILGs also suffered from distortions which required adjustments and that GEMA had experience in averaging two indices as part of an index mechanism through its approach to cost of debt in RIIO-GD1.[144]

d) SGN also submitted that averaging of more than one published, independent, third-party benchmark was comparable to GEMA's approach to the cost of debt indexation in RIIO-1.[145]

e) SSEN-T told us that the fact that AAA-rated corporate bond yields may require adjustments was not a proper basis to dismiss evidence and rely exclusively on ILGs and that ILGs themselves required adjustment to account for the convenience premium.[146]

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[140] NGN Reply, paragraph 36.
[141] SGN Reply, paragraph 50.
[142] Cadent Reply, paragraph 60.
[143] NGET/NGG joint Reply, paragraph 3.8.
[144] NGN Reply, paragraph 36.
[145] SGN Reply, paragraph 50.
[146] SGN Reply, paragraph 3.17(c).

GEMA's submissions

5.78 GEMA submitted that it had rejected using the index of AAA-rated corporate bond yields that the appellants and their advisers advocated prior to FDs because:

a) the use of indexation was a relevant consideration for GEMA because using a simpler input series was preferable when indexing;[147] and

b) There were (at least) five elements which would require adjustment to this rate, namely:

(i) default risk;

(ii) illiquidity risk;

(iii) term premium;

(iv) complexity premium; and

(v) inflation risk premium.[148]

5.79 As a result, GEMA told us that it considered that AAA-rated corporate bonds introduced even more elements that would require adjustments than eg nominal gilts, before an estimation of the RFR could be arrived at.[149]

5.80 GEMA submitted that each adjustment carries with it uncertainty, complexity and discretion. It said that it had serious concerns about introducing unnecessary errors into the data, and at FD, was not aware of any final decision by any regulator in the UK or internationally using the appellants' suggested approach. GEMA told us that its preference for one adjusted measure of RFR was an 'entirely reasonable' exercise of its regulatory discretion, motivated by the need to ensure transparency and accountability in its decision-making.[150]

5.81 GEMA also submitted that Oxera suggested GEMA's concerns with using an index of AAA corporate bonds were addressed in a report from Oxera (dated 4 December 2020). GEMA noted that it was not provided with this report in time for its FD.[151]

[147] GEMA Response A, paragraph 86.
[148] GEMA Response A, paragraph 86.
[149] GEMA Response A, paragraph 86.
[150] GEMA Response A, paragraph 86.
[151] *Friend 2 (GEMA),* paragraph 63.

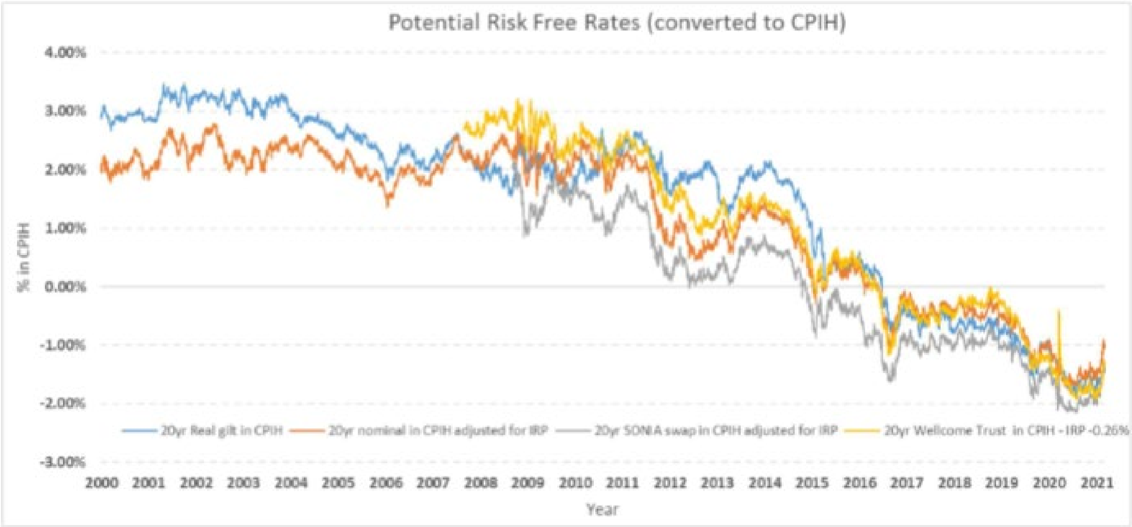
5.82 GEMA submitted that it had subsequently reviewed this report but was of the view it did not adequately address all of the concerns it raised. GEMA submitted that in the report Oxera suggested a different AAA corporate bond index (iBoxx £ Corporates AAA 15+), but that this index still included a 100-year maturity bond (37% of index weight), which would be highly illiquid and skew the index years to maturity to 56 years. GEMA submitted that this was much longer than the 20-year comparison for alternatives, making the index inappropriate as an alternative RFR in that context.[152]

5.83 GEMA further submitted that if the 100-year Wellcome Trust was excluded (on the grounds that it was not 'at all' representative of a 20-year rate) then the Oxera recommended index would include just two other Wellcome Trust bonds. GEMA told us that it had considered yield data for those two bonds; created a 20-year bond using linear interpolation between the 2036 maturing bond and the 2059 maturing bond; converted to CPIH-real yields and used the discretionary adjustments suggested by Oxera of 13bps for each of credit default risk and illiquidity risk.[153] The results of this analysis are presented at Figure 5-1 and discussed further at paragraph 5.127.

[152] *Friend 2 (GEMA),* paragraph 63.
[153] *Friend 2 (GEMA),* paragraph 64.

Figure 5-1: Potential Alternative RFRs (using Office for Budget Responsibility (OBR) forecasts and 30bps inflation risk premium adjustment) and Potential Alternative RFRs

Figure 1: Potential Alternative RFRs (using OBR forecasts and 30bps inflation risk premium adjustment)



Source: GEMA analysis of Bank of England and Bloomberg data, Exhibit [JF2.031]

Table 1: Potential Alternative RFRs

Long term averages	20yr nominal in CPIH	20yr nominal in CPIH adj for IRP	Real gilt in CPIH	20yr SONIA swap in CPIH	20yr SONIA swap adj for IRP	20yr Wellcome Trust in CPIH - IRP - 0.26%
Oct 2020 (1 month)	-1.20%	-1.50%	**-1.71%**	-1.65%	-1.95%	-1.74%
5 years	-0.43%	-0.73%	-0.86%	-0.97%	-1.27%	-0.77%
10 years	0.37%	0.07%	0.33%	-0.20%	-0.50%	0.18%
15 years	1.06%	0.76%	0.93%	-	-	-

Source: GEMA analysis of Bank of England and Bloomberg data, Exhibit [JF2.032]

Source: *Friend 2 (GEMA)*, Figures 1 and 2, page 25.

Interveners' submissions

5.84 Citizens Advice told us that it agreed with and supported GEMA's approach and that the CMA had been wrong to attach any weight to corporate bonds in its estimate of the RFR in the CMA PR19 Redetermination.[154] Citizens Advice told us that, in response to the CMA PR19 Redetermination, it had submitted that 'the cost of borrowing by low-risk investors is not another way of

[154] Citizens Advice Intervention notice, paragraph 86.

estimating the return on a zero-beta asset [as…]. On the contrary, it would always over-estimate the return on a zero-beta asset ie the RFR'.[155,156]

Third Party submissions

5.85 Ofwat submitted evidence at our request.

5.86 Ofwat told us that placing weight on AAA-rated corporate bonds was inconsistent with the practical application of the CAPM and that this challenged the concept that the allowed return should be set by reference to the CAPM. Ofwat also told us that this introduced significant distortions that outweighed the imperfections in ILG yields as a proxy for the RFR.[157]

The disregard of AAA-rated corporate bonds when estimating the RFR – our provisional assessment

5.87 In our provisional determination, we noted that the appellants and their advisers had submitted a range of evidence to support the view that ILGs used on their own are not a sufficiently accurate proxy for the RFR. In presenting their arguments, the appellants had relied heavily on the conclusions in the CMA's PR19 Redetermination and the CMA's decision to use AAA bond index data to aid in the calibration of the RFR estimate (specifically that including AAA bond data led to an RFR estimate above prevailing ILG yields). As noted at paragraph 5.47, we did not fully agree with GEMA's conclusions on the marginal investor or the potential for a 'market rate' of RFR. However, the fact that the appellants' suggested alternatives would, in the opinion of some, have led to a 'better' estimate of the RFR was not sufficient for a finding that GEMA was wrong.

5.88 GEMA had presented evidence that it had specifically considered whether the inclusion of AAA-bond data would improve the quality of its estimate and had concluded that the cons, in particular the adjustments that GEMA considered would be required to such a proxy, outweighed the pros of a potentially more accurate estimate. We agreed with GEMA that these were legitimate concerns, and that the potential need to adjust AAA bond data (particularly index data with diverse or esoteric characteristics such as very long tenors) was a tangible downside of including non-government bond-index data into the calculation of the RFR. We were less convinced that including any other metric would introduce excess complexity when indexing the RFR.

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[155] Citizens Advice (2020) *Response to Ofwat Price Determinations – CMA provisional findings.*
[156] Citizens Advice Intervention notice, paragraph 84.
[157] Ofwat response to the CMA request under Rule 14.4(e), page 5.

5.89 On balance, we provisionally concluded that GEMA had given due consideration to a potential RFR proxy and had decided to exclude it on the basis of an appropriate assessment of its merits. We provisionally considered that decision to be within GEMA's margin of appreciation and thus not an error.

Response to the provisional determination

Appellants' responses

5.90 Some appellants told us that alleged issues with AAA-rated corporate bonds were not insurmountable or that they were straightforward to address. For example:

a) Cadent submitted that alleged issues with AAA-rated corporate bonds were surmounted in the CMA PR19 Redetermination by the use of AAA bond data as the upper bound and that it was clear and unquestionable that attaching some weight to AAA could improve the biased estimate. It said there was no basis to dismiss them entirely.[158]

b) SPT submitted that its adviser NERA provided alternative ways to estimate the appropriate RFR, including an upward adjustment to ILGs and/or a downward adjustment to AAA rates. SPT submitted that NERA's approach led to a similar outcome as the CMA's approach in its PR19 Redetermination of averaging ILGs and AAA bonds.[159]

c) SSEN-T submitted that the existence of potential uncertainties was not relevant as to whether an error was made and that the need to make an adjustment was not a proper basis to dismiss this evidence. SSEN-T submitted that there were two potential solutions to correct for GEMA's error: applying a downwards adjustment to AAA bonds or applying an upwards adjustment to ILG spot yields.[160]

5.91 However, NGN submitted that explicit adjustments were not required to AAA-bonds when implementing CAPM with divergent lending and borrowing rates, because by picking any estimate other than the 100th percentile from a range bounded at the top by the yield on AAA bonds, the practitioner was implicitly adjusting its estimate downwards. NGN also submitted that since there were

158 Cadent Response to PD, paragraph 11.12.
159 SPT Response to PD, paragraph 20.
160 SSEN-T Response to PD, paragraph paragraphs 2.50–2.53.

various AAA indices, the choice of the particular index was a separate question which the CMA could deal with once an error was established.[161]

5.92 Some appellants submitted that it did not follow that evidence could be disregarded because of difficulty in following the correct approach:

a) SGN submitted that it did not follow that because the correct approach was difficult to implement evidence in its favour could be disregarded. It also submitted that there was significant academic evidence which supported the conclusion that a blend of AAA bonds and ILGs was a better estimate of the RFR than either instrument by themselves.[162]

b) SPT submitted that the requirement to make adjustments to AAA-rated bonds was no reason to exclude relevant evidence.[163] SPT submitted that if GEMA had taken AAA-bonds into account it would have had to set an RFR above the spot ILG rate; that its exclusion of evidence about AAA-rated bonds was selective and that it did not provide an adequate explanation for disregarding this evidence.[164]

5.93 SPT also told us that GEMA did not have regard to AAA-rated bonds, even as a cross-check and that this was an error. It told us that the need for adjustment did not preclude the use of data as a cross-check and that this was consistent with the CMA's analysis of SONIA swaps and nominal gilts as cross-checks.[165]

5.94 SSEN-T told us that the CMA had incorrectly considered AAA indices and SONIA swaps to be equally reasonable and equivalent as alternative proxies for a number of reasons. It said the CMA was incorrect for the following reasons:[166]

a) Adjusting AAA-bond yields to arrive at a RFR has strong theoretical and practical underpinnings;

b) There is a CMA precedent at PR19 supporting the use of AAA corporate bonds as a proxy for the RFR;

[161] NGN Response to PD, paragraph 151(iv).
[162] SGN Response to PD, paragraph 142.
[163] SPT Response to PD, paragraph 20.
[164] SPT Response to PD, paragraph 22–23.
[165] SPT Response to PD, paragraph 21.
[166] SSEN-T Response to PD, paragraph 2.54(d).

c) Oxera's downward-adjusted AAA rate arrived at a RFR that is approximately the same as the RFR calculated using the ILGs adjusted by the convenience premium;

d) SONIA swap rates suffer from a number of distortions which GEMA did not attempt to account for; and

e) Long-term SONIA swaps suffer from swap-specific factors that sometimes lead to rates lower than ILGs. The CMA had acknowledged that ILGs have returns lower than a zero-beta asset and SONIA swap rates; this further downward distortion therefore made them inherently an incorrect measure for the RFR.

Intervener Response

5.95 Citizens Advice submitted that whether the 'marginal investor' is a net lender or not is not relevant to whether ILGs are the right proxy for the RFR, and that as a result the CMA should reject the relevance of AAA-bonds as a relevant proxy for the RFR in any circumstances, irrespective of measurement difficulties (of determining the yield on such bonds). Citizens Advice stated that the appellants' argument that ILGs understate the RFR was equally an argument for saying that any corporate bond can be a proxy for the RFR, regardless of its risk, as, on the basis of the appellants' arguments that the CAPM 'assumes' that any such borrower can borrow at the RFR, independent of its riskiness. Namely, on the basis of the appellants' argument, the rate that any borrower can borrow at would equally be a proxy for the RFR.[167]

The disregard of AAA-rated corporate bonds when estimating the RFR - our final assessment

Our view of the arguments for using AAA-rated corporate bonds

5.96 As noted above at paragraph 5.87, AAA-rated corporate bond indices were used by the CMA to aid the estimation of the RFR in the CMA PR19 Redetermination. While this was the first time that such an approach had been taken by a regulator, the appellants have argued that such an input remains equally valid for estimating the RFR in this price control. The appellants have argued that as a practical mechanism for adjusting ILG yields to reflect either a convenience yield or market rate of RFR, inclusion of AAA data would result in a more accurate estimate of the RFR for use in CAPM.

[167] Citizens Advice Response to PD, paragraphs 19–20.

5.97 We agree with the appellants that adjustments to AAA bonds and indices are not outwith the technical capability of a regulator, and so agree that evidence relating to AAA bonds should not be disregarded purely on the basis that adjustments are difficult. We also acknowledge that the potential approach highlighted by NGN at paragraph 5.53 may solve (or at least bypass) this problem by using AAA bonds as the ceiling of the potential RFR range (as was adopted in the PR19 Redetermination), with any chosen rate below that rate (and above ILGs) implicitly reflecting an adjustment for the imperfections of both measures as a proxy for the RFR.

Our view of the arguments against using AAA-rated corporate bonds

5.98 GEMA and Citizens Advice both argued against the use of AAA-rated corporate bonds. We consider Citizens Advice's submissions first, then GEMA's.

5.99 Citizens Advice argued that the requirement for the RFR to represent a viable borrowing and lending rate implies that any non-government rate could be included in the estimate of the RFR. We disagree. The appellants' arguments for the inclusion of AAA bond data clearly focuses on the yields available to the lowest risk non-government assets as a potentially useful input into the estimation of the (hypothetical) RFR. As a result, we do not agree with Citizens Advice's assertion that such an approach necessitates that any non-government rate must be considered 'independent of its riskiness'.

5.100 GEMA contended that practical problems meant that the inclusion of such data would not necessarily lead to an improved estimate of the RFR. We consider that these concerns are valid.

5.101 GEMA correctly noted that there was limited diversity within AAA indices and the potential for the inclusion of bonds with very different characteristics (such as very long maturities) to the other potential RFR proxies available to the regulator. GEMA highlighted that it was possible to correct for this problem by selecting only those bonds with the most relevant characteristics (eg remaining maturities around 20 years), albeit this reduces the already limited pool of AAA assets. We find this approach to be appropriate in the circumstances.

5.102 We accept the evidence from GEMA that such an exercise (removing very long-dated AAA bonds from the data) would materially reduce the gap to the yield on ILGs. GEMA noted that adjusting the single remaining bond in the AAA+ 15 index in line with Oxera's suggested figures for liquidity and interest risk premiums would give an estimate of -1.74%, lower than the ILG rate of -

1.71% (both using 1-month to October 2020 averages).[168] Under this approach there is little practical impact from including the most relevant AAA bond data into the estimation process.

5.103 GEMA also adduced evidence from Professor Wright (see paragraph 5.40) that the recommendations of the UKRN Report were framed by a desire for 'implementability and defensibility'. We agree with GEMA that, in the context of limited AAA bond data points, these concerns also point against the use of AAA-bond data.

Our view of the balance of the pros and cons

5.104 In this appeal we are not testing whether GEMA's approach matched the CMA's preferences, but rather we are testing whether GEMA's modification decision was wrong.[169] We note that whilst the CMA used AAA-bond data in the PR19 Redetermination, GEMA is not legally bound to adopt a similar approach in RIIO-2 (see the discussion in paragraph 5.5 above). GEMA has a margin of appreciation. Where alternative options each have competing pros and cons, and none is clearly superior, it will be more difficult to persuade us that GEMA has erred in selecting one option over another.[170]

5.105 Whilst the appellants have shown that there are valid reasons for using AAA-bonds, GEMA has also shown that there are challenges associated with introducing AAA-bonds, such as identifying the relevant bonds for inclusion in the benchmark, as well as the uncertainty and complexity associated with making any adjustments. Furthermore, GEMA has provided some evidence to suggest that the inclusion of the most relevant AAA bonds may result in an RFR estimate that is not materially different from that given by using ILG yields.

5.106 On balance, we do not consider that either the CMA's PR19 approach or GEMA's approach of just using ILG yields, can be said to be the clearly 'superior' one. In our view, these are two approaches which have a logical theoretical underpinning and are consistent with good regulatory principles. We note that GEMA's analysis shows that, under certain assumptions, the difference between the two may have a negligible effect on the cost of equity. We do not consider that the appellants have provided any evidence, such as cross-checks, that support the one approach as being clearly superior to the

[168] *Friend 2* (GEMA), Table 1.
[169] See Chapter 3, in particular paragraph 3.36.
[170] See Chapter 3, in particular paragraph 3.43.

other. As a result, we maintain our provisional conclusion that GEMA's exclusion of AAA bond data from its estimate of the RFR was not an error.

5.107 At paragraph 5.73 we note that it is common ground that ILGs are a useful proxy when estimating the RFR. We have now also concluded that GEMA was not wrong in excluding AAA bond data from their estimate of the RFR – and note that AAA bond data was the main alternative proxy suggested by the appellants. As a result, having considered the evidence we conclude that GEMA's decision to rely solely on ILG yields when estimating the RFR was not wrong.

Deviations from the approach in the CMA PR19 Provisional Findings

Appellants' submissions

5.108 Some appellants made submissions alleging that GEMA had made an error by misinterpreting the approach used in the CMA PR19 Provisional Findings. Some appellants also argued that GEMA had misrepresented the view expressed by the CMA in the CMA PR19 Provisional Findings or had sub-selected evidence in a way that provided an incomplete picture of the CMA's views. For example:

a) Cadent submitted that GEMA had acknowledged the CMA's analysis in the CMA PR19 Redetermination but had chosen to interpret it as support for its decision to rely solely on ILGs.[171] Cadent also submitted that GEMA should have estimated the RFR taking account of all of the available evidence, which taken as a whole does not support the sole use of ILGs.[172]

b) NGET/NGG told us that in concluding that its use of ILGs 'is not necessarily wrong, in the CMA's view' GEMA had failed to acknowledge that in the same paragraph the CMA had also said that '…the yield on ILGs is likely to sit below the "true" estimate of the theoretical RFR, if the RFR is expressed as the yield on a "zero beta" asset.'[173,174]

c) Similarly, NGN submitted that GEMA had referred to the CMA's statements that 'ILGs closely but imperfectly match the key requirements of the RFR', concluding that this implied that 'using ILGs is not necessarily wrong in the CMA's view'.[175] However, the CMA had also stated that

[171] Cadent NoA, paragraph 4.41.
[172] Cadent NoA, paragraph 4.41.
[173] NGET NoA, paragraph 3.40.
[174] NGG NoA, paragraph 3.40.
[175] GEMA FD Finance Annex, paragraph 3.10.

'yield on ILGs is likely to sit below the 'true' estimate of the theoretical RFR'[176] and that ILGs 'are unlikely to provide a perfect (or wholly sufficient) proxy for the RFR in isolation'.[177] NGN submitted that the CMA had found that using ILGs in isolation was wrong.[178]

d) NGN also submitted that GEMA's approach was at odds with the approach taken in the CMA PR19 Provisional Findings, where the CMA had calculated the RFR 'by placing weight on both long-tenor index linked gilts and AAA-rated non-government bonds'.[179,180]

e) SSEN-T submitted that GEMA's failure to follow the methodology in the CMA PR19 Provisional Findings further underlined that GEMA had mistakenly based its decision on RFR solely on evidence relating to ILGs. SSEN-T told us that the CMA had expressly recognised that the approach which GEMA had followed would underestimate the correct value of the RFR and that it was an error to fail to recognise the evidential value of AAA-rated non-gilt yields in its analysis.[181]

f) SPT submitted that in its PR19 Provisional Findings, the CMA had observed that corporate bonds with AAA rating provided an input that was both very close to the RFR, and closer to representing a rate that was available to all relevant market participants.[182,183]

GEMA's submissions

5.109 GEMA submitted that the allegation that the FD was misleading or took a selective approach was wrong. GEMA said that, in its FD, it had noted the argument raised by Oxera that the ILG might have a so-called 'convenience yield' which would be unobservable and the CMA's response that an index of AAA-rated corporate bonds was an alternative measure of the RFR. GEMA also noted that the CMA had not gone as far as to suggest that using ILGs was wrong in principle. GEMA stated that it did not consider the CMA's view in the PR19 Provisional Findings to be decisive, nor that its decision to use ILGs was wrong as a result of the CMA's approach.[184]

176 GEMA FD Finance Annex, paragraph 3.10.
177 CMA PR19 Provisional Findings, paragraph 9.88.
178 NGN NoA, paragraph 168(vii).
179 CMA PR19 Provisional Findings, paragraph 12.44.
180 NGN NoA, paragraph 168(vi).
181 SSEN-T NoA, paragraph 4.23.
182 CMA PR19 Provisional Findings, paragraph 9.93.
183 SPT NoA, paragraph 4.1(3).
184 GEMA Response A, paragraph 88–89.

5.110 GEMA submitted that its approach to consider the CMA's PR19 Provisional Findings as part of the overall evidence in its FD but to decide not to follow the use of AAA-rated corporate bonds and to rely on ILGs to set the RFR was reasonable and in any event a decision that was open to GEMA, as a regulator taking a different decision for a different sector, under a different statutory scheme.[185]

5.111 GEMA submitted that its view was that Ofwat and the CMA's PR19 decision on this point was not wholly comparable with the decision GEMA was taking in RIIO-2. It noted that, whereas Ofwat and the CMA were setting the RFR for a 5-year period, GEMA was proposing that allowances during RIIO-2 would be updated to reflect changes in ILGs through indexation.[186]

5.112 GEMA submitted that it was not the case that it had adopted an erroneous approach to precedent by relying upon earlier decisions using ILGs to estimate the RFR rather than following the CMA's more recent approach in the CMA PR19 Redetermination. It said that decisions under the GA86 and/or EA89 remained the most important analogous precedents in RIIO-2, in particular bearing in mind the different regulatory discretion and degree of deference for regulatory judgement under the relevant statutory schemes. It told us that these precedents provided 'clear' support for regulatory use of ILGs as the basis for estimating RFR and that its decision to place weight on these judgements (alongside other reasons for preferring ILGs), rather than following the CMA's approach was a reasonable and lawful exercise of regulatory judgement.[187]

Deviations from the approach in the CMA PR19 Provisional Findings – our provisional assessment

5.113 In our provisional determination, we referred to the Legal Framework (paragraphs 3.39 to 3.43) which set out that the task for the CMA in this appeal was to establish whether the licence modification decisions under appeal were wrong, not whether the CMA thought an alternative approach might be better. We further noted that it was specifically not to judge whether the CMA's approach in the CMA PR19 Redetermination was 'better' than GEMA's RIIO-2 approach.

5.114 While we agreed with the appellants' argument that GEMA had, in places, mischaracterised the CMA's view on the sole use of ILGs as a proxy for the RFR, we considered (as noted above at paragraph 5.44) that there were

[185] GEMA Response A, paragraph 90.
[186] GEMA Response A, paragraph 91.
[187] GEMA Response A, paragraph 92.

legitimate alternative views as to the 'best' way to estimate the RFR. In addition, we noted that the approach used in the PR19 Redetermination was novel in a regulatory context and should be subject to scrutiny. GEMA's concerns regarding the CMA PR19 Redetermination approach, in particular the use of AAA-rated corporate bond indexes to adjust the estimate, were justifiable on the basis of the available evidence. GEMA had had due regard to the approaches adopted by the CMA and had used its discretion to take an alternative path.

5.115 We agreed with GEMA's view that it took a decision as a regulator under a different statutory scheme, and that GEMA is not required to match the approach taken by the CMA in the CMA PR19 Redetermination. As such, we provisionally found no evidence of an error in GEMA's failure to match the CMA's approach in the CMA PR19 Redetermination.

Responses to the provisional determination

5.116 SSEN-T submitted that the CMA had appeared to seek to undermine its conclusion on RFR at PR19 by stating that 'the approach used in the CMA PR19 Redetermination was novel in a regulatory context and should be subject to scrutiny'. SSEN-T told us that the statement did not provide any basis for disregarding or departing from the CMA's conclusion or the other evidence on the convenience premium for the following reasons:

a) The CMA spent a year considering evidence on RFR and the decision to take into account AAA corporate bonds was the result of a highly considered decision making process;

b) Its economic advisers, Oxera, had explained why the convenience premium had only come to prominence recently; and

c) It was not in fact 'novel' in a regulatory context as Oxera had provided evidence of a recent example of an adjustment for convenience premium.[188]

5.117 SPT submitted that it accepted that PR19 was not a binding precedent on GEMA in the legal sense; however it was troubling that the CMA had said that this approach should be subject to scrutiny and appeared to accept that GEMA's concerns with using AAA bonds were justifiable. SPT also submitted that the CMA PR19 analysis was 'clearly' relevant. It submitted that the CMA had acknowledged that GEMA had in places mischaracterised CMA's views on the sole use of ILGs as a proxy for the RFR. SPT told us that it followed

[188] SSEN-T Response to PD, paragraph 2.54(a).

that GEMA's treatment of PR19 analysis could not be characterised as careful or reliable which undermined the reliability of GEMA's decision.[189]

Deviations from the approach in the CMA PR19 Provisional Findings – our final assessment

5.118 Comparability with the CMA's PR19 Redetermination has been comprehensively addressed. In particular see paragraphs 5.104 to 5.105 for an assessment of GEMA's exclusion of AAA bonds.

5.119 SSEN-T and SPT have suggested that we were wrong to state that the approach taken in PR19 was novel in a regulatory context and should be subject to scrutiny (see paragraph 5.114), and have stated that this assessment did not provide any basis for disregarding or departing from the CMA's PR19 conclusion. We disagree with the appellants' assessment of our position.

5.120 As noted at paragraph 5.5 while we accept that the CMA PR19 Redetermination is very recent and contains material highly relevant to these appeals, this does not mean that it sets down the unquestionable methodological best practice from which a sector regulator cannot depart, nor that subsequent findings of a sector regulator are automatically (or even presumptively) wrong if they differ from it. As explained in Chapter 3, these appeals are not a redetermination of the Decision. It is not appropriate for us to substitute our judgement for that of GEMA simply on the basis that we might have taken (or indeed did take in the CMA PR19 Redetermination) a different view of a particular matter.[190] Nor should we take the CMA PR19 Redetermination as our starting point and then consider whether any deviation from it on GEMA's part was erroneous. On the contrary, our starting point is the Decision and it is for the appellants to persuade us that the Decision was wrong.[191] Unless its decision-making can be shown to be wrong or that the alternatives (including, where relevant, the CMA's approach in the CMA PR19 Redetermination) clearly have greater merit than the solution adopted by GEMA, it is entirely consistent with the regulatory framework and applicable standard of review in this sector for us to refrain from interfering if GEMA comes to a different view on a matter where there is an element of regulatory judgement involved.

5.121 With specific reference to GEMA's approach to the calculation of the RFR, we have carefully considered whether GEMA's decision reflected a balanced

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[189] SPT Response to PD, paragraphs 24–25.
[190] See Chapter 3.
[191] See in particular paragraphs 3.33–3.54

assessment of the evidence available, including the CMA PR19 Redetermination and analysis conducted subsequently. As noted at paragraph 5.106, we do not consider that either GEMA's RIIO-2 or the CMA's PR19 approach can be said to be the clearly 'superior' one. In our view, these are two approaches which have a theoretical underpinning and are consistent with good regulatory principles, and the difference between the two has only a small effect on the cost of equity. At paragraph 5.107 we concluded that GEMA's decisions to focus on ILG yields and exclude AAA data were not wrong on the basis of the balance of evidence. As a result, we maintain our view that we find no evidence of an error in GEMA's failure to match the CMA's approach in the CMA PR19 Redetermination.

GEMA's alleged erroneous use of a nominal gilt cross-check

Appellants' submissions

5.122 Some appellants submitted that the estimates for RFR derived from the nominal gilt cross-check were not similar to those of ILGs, and that GEMA's conclusion that nominal gilts provided support for the use of ILGs as a proxy for RFR represented an error:

a) NGET/NGG told us that GEMA had wrongly concluded that evidence from 20-year nominal gilts supported its decision to rely on ILGs to determine RFR.[192,193]

b) NGET/NGG submitted that:

(i) GEMA had estimated the (real) RFR based on 20-year nominal gilts as -1.20%.[194] This was over 50bps higher than GEMA's RFR estimate based on ILGs (spot).[195] Nominal gilts could not be used to support an RFR based on ILGs where there was such a material difference between the nominal gilt spot rates and ILG spot rates.[196,197]

(ii) GEMA had failed to set out its reasoning for why nominal gilts support the use of ILGs as a proxy for RFR and, moreover, was wrong to conclude that nominal gilts provide such support.[198,199]

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192 NGET NoA, paragraph 3.66.
193 NGG NoA, paragraph 3.66.
194 GEMA FD Finance Annex, Table 8, paragraph 3.19.
195 GEMA FD Finance Annex, Table 7, paragraph 3.6.
196 NGET NoA, paragraph 3.67.
197 NGG NoA, paragraph 3.67.
198 NGET NoA, paragraph 3.69.
199 NGG NoA, paragraph 3.69.

(iii) GEMA failed to recognise that nominal gilts were likely to be subject to some of the same distortions as ILGs.[200]

c) NGN told us that the nominal gilt rates gave materially higher estimates of the RFR in Consumer Price Index included owner occupiers housing costs real terms,[201] and it was unclear on what basis GEMA had sought to present these values as being 'similar' to its own estimate.[202] NGN also submitted that GEMA's estimate of the RFR based on nominal gilts gave an estimate 51bps higher than GEMA's estimate using ILGs. NGN told us that, as explained in the KPMG Cost of Equity Report,[203] this difference could not be explained purely by the inflation risk premium, and therefore the yields on nominal government rates indicated that GEMA's ILG benchmark was not reflective of the full set of evidence on the RFR available.[204]

5.123 SGN submitted that the CMA's conclusion in the CMA PR19 Redetermination said that it did not believe it could accurately assess the presence of inflation or liquidity distortions to nominal gilts,[205] and that this suggested that the assumptions underpinning GEMA's cross-check were difficult to verify. SGN further submitted that, even if nominal gilts were appropriately adjusted for inflation and liquidity distortions, they did not represent the risk-free borrowing rate of the marginal investor in the market portfolio.[206]

GEMA's submissions

5.124 GEMA submitted that the complaint raised by NGET/NGG appeared to be that GEMA had not provided sufficient information and/or analysis as to how it had arrived at the position that, once yields on 20-year nominal gilts were deflated to CPIH real, ie once the necessary adjustments were made to take account of inflation, a very similar RFR was produced to that based on 20-year ILG yields, and that this provided a helpful cross-check confirming the RFR based on ILGs.[207]

5.125 GEMA submitted that the appellant's arguments did not establish that GEMA's conclusion was 'wrong'. It told us that it was not enough for an appellant to identify some error or absence of reasoning since an appeal could only succeed if the decision itself could not stand. It continued that its

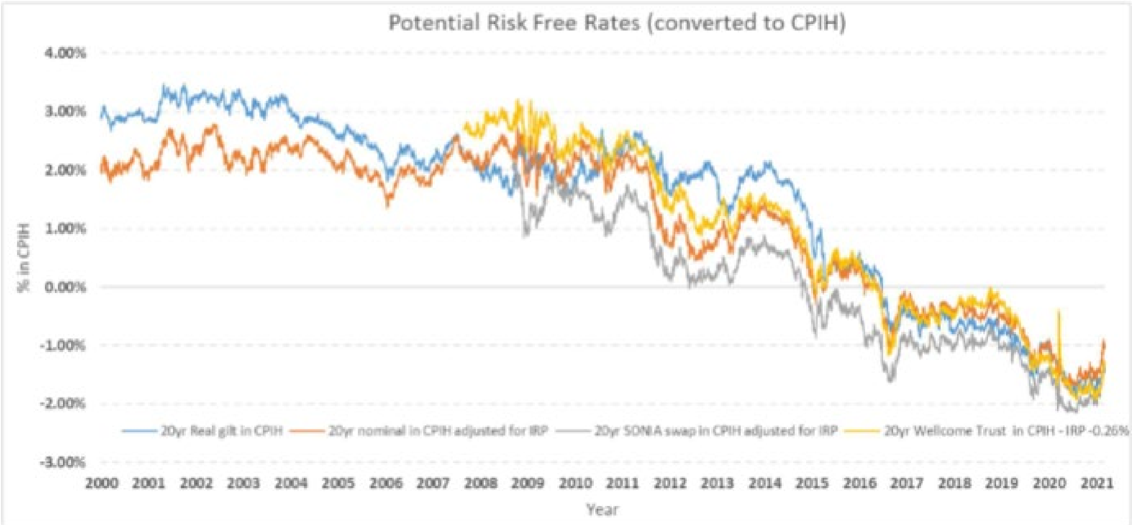
[200] NGET NoA, paragraph 3.70.
[201] GEMA FD Finance Annex, Table 8, paragraph 3.19.
[202] NGN NoA, paragraph 169(i).
[203] KPMG (NGN) report, 'Estimating the Cost of Equity for RIIO-GD2, paragraph 6.4.7.
[204] NGN NoA, paragraph 169(iv).
[205] CMA PR19 Provisional Findings, paragraph 9.184.
[206] SGN Reply, paragraph 53.
[207] GEMA Response A, paragraph 93.

evidence demonstrated that when nominal gilts were adjusted for inflation risk premium, they produce a very similar RFR to ILGs.[208]

5.126 GEMA submitted that in its FDs it had presented SONIA swap rates and nominal gilts unadjusted for inflation risk premium (**IRP**), but that if it had used the network companies' previously suggested estimate for IRP of 30bps for nominal gilts (and SONIA swaps) it would have been presented with the following, at Figure 5-2:

Figure 5-2: Potential Alternative RFRs (using OBR forecasts and 30bps inflation risk premium adjustment) and Potential Alternative RFRs

Figure 1: Potential Alternative RFRs (using OBR forecasts and 30bps inflation risk premium adjustment)



Source: GEMA analysis of Bank of England and Bloomberg data, Exhibit [JF2.031]

Table 1: Potential Alternative RFRs

Long term averages	20yr nominal in CPIH	20yr nominal in CPIH adj for IRP	Real gilt in CPIH	20yr SONIA swap in CPIH	20yr SONIA swap adj for IRP	20yr Wellcome Trust in CPIH - IRP - 0.26%
Oct 2020 (1 month)	-1.20%	-1.50%	**-1.71%**	-1.65%	-1.95%	-1.74%
5 years	-0.43%	-0.73%	-0.86%	-0.97%	-1.27%	-0.77%
10 years	0.37%	0.07%	0.33%	-0.20%	-0.50%	0.18%
15 years	1.06%	0.76%	0.93%	-	-	-

Source: GEMA analysis of Bank of England and Bloomberg data, Exhibit [JF2.032]

Source: *Friend 2 (GEMA)*, Figures 1 and 2, page 25.

208 GEMA Response A, paragraph 94.

5.127 GEMA submitted that, based on Figure 5-2 above, ILGs did not necessarily provide the lowest RFR estimation, particularly when considered over time. GEMA also submitted that for some periods, AAA corporate bonds have lower yields than ILGs (once adjusted for appropriate risks). Therefore, GEMA concluded that when possible alternatives are appropriately adjusted for risks that should not be present in an estimation of a real RFR, using ILGs as a single relatively neutral estimate of RFR was reasonable and rational.

5.128 GEMA submitted that Oxera (on behalf of network companies) recommended converting nominal bonds to a real yield by using gilt RPI breakeven inflation and then using an RPI-CPI wedge to convert to CPIH-real yields in its report of 4 December 2020. GEMA submitted that when it tested this method, when nominal gilts were converted to CPIH-real nominal gilts they were equal to ILGs.[209]

5.129 GEMA submitted that, far from demonstrating a flaw in GEMA's approach, the nominal gilts cross-check (which GEMA had applied according to the method suggested by Oxera for adjusting for IRP) provided 'support' for GEMA's RFR based on ILGs.[210]

GEMA's alleged erroneous use of a nominal gilt cross-check – our provisional assessment

5.130 In making the assessment in our provisional determination, we noted that GEMA's FD did imply that the 20-year nominal gilt yield was -1.20% in CPIH-terms, and that this was 51bps higher than the 20-year ILG yield, presented as -1.71% in CPIH-real term.[211] We acknowledged the appellants' view that this 51bps gap was larger than we would expect for GEMA to conclude that deflated nominal bond yields give a 'similar value' to inflated ILG yields. We noted that the SONIA-swap comparison of -1.65% was much closer to the -1.71% figure for ILGs.

5.131 GEMA had subsequently conducted further analysis to include an assumed inflation risk premium, and presented evidence that following such an adjustment, a deflated nominal gilt yield would provide support for GEMA's ILG-based estimate.

5.132 While we agreed that GEMA could have more clearly explained its rationale in the FD, we did not consider that the parties had provided sufficiently persuasive evidence that GEMA's RFR estimate was wrong as a result. In

[209] *Friend 2 (GEMA)*, paragraphs 83–84.
[210] GEMA Response A, paragraph 94.
[211] GEMA FD Finance Annex, Table 8.

broad terms, we expected the difference between ILG yields and nominal bond yields to be accounted for by differences in inflation expectations and differences in the inflation risk premium (with the potential for some small liquidity impact on certain gilts). While the breakeven inflation expectation can be implied from yield curve data, the inflation risk premium must be estimated and appears to have varied over time. This relationship was demonstrated in GEMA's subsequent analysis. In our view, this reasonably standard relationship between index-linked and nominal bonds limited the use of nominal bonds as a cross-check of an ILG-based estimate.

5.133 It was our provisional view that, if GEMA had presented a more complete analysis of a suitably adjusted nominal bond, it was likely that GEMA would still have concluded that such a measure was supportive of its RFR estimate. As a result, we provisionally concluded that there was no error in GEMA's estimate as a result of an erroneous use of a nominal bond cross check.

Response to the provisional determination

5.134 SPT submitted that the CMA had accepted that GEMA's FD showed a 51bps gap between nominal bonds and ILGs but noted that GEMA had presented further analysis which supported the use of ILGs. SPT told us that it was unclear on what basis the CMA had drawn this conclusion.[212]

5.135 SPT submitted that GEMA's further analysis showed a 21bps gap between spot ILGs and nominal bonds and hence this cross-check still did not support the use of spot ILGs. SPT submitted that the CMA's provisional determination stated 'if GEMA had presented a more complete analysis of a suitable adjusted nominal bond it is likely that GEMA would still have concluded that such a measure was supportive of its RFR estimate' and the meaning was unclear. SPT told us that either:

a) The CMA was setting out what the position would have been, had GEMA presented at FD stage the analysis it later provided to the CMA; or

b) the CMA was stating that if GEMA had carried out even more analysis it would have reached the conclusion that ILGs were appropriate proxy. SPT told us that, if so, that was speculative and unjustified.[213]

5.136 Two appellants told us that the nominal gilt cross-check was not useful:

[212] SPT Response to PD, paragraph 26.
[213] SPT Response to PD, paragraph 28.

a) SPT told us that a nominal gilts cross-check on ILGs was meaningless because nominal gilts were subject to the same problem as ILGs, namely the convenience premium.[214]

b) SGN told us that the nominal gilt and SONIA cross-checks did not support GEMA's approach to the RFR as they both suffered from the same issues as ILGs: they are lending rates.[215]

5.137 NGN and SGN told us that following the change in monetary policy, the BoE found that the inflation premium had fallen considerably to 15bps. It submitted that GEMA's analysis of nominal gilts adjusted for IRP did not consider this evidence and relied upon an older estimate suggested by energy network in 2012. [216, 217]

5.138 NGET/NGG told us that the CMA had identified the need to account for inflation expectations and differences in the IRP when comparing ILGs to nominal bond yields, but had not adequately investigated their impact and instead had simply assumed that adjusted cross-checks would have supported GEMA's RFR.[218]

GEMA's alleged erroneous use of a nominal gilt cross-check - our final assessment

5.139 Our conclusion on GEMA's use of a nominal gilt cross check remains consistent with our assessment in the provisional determination. A nominal gilt faces the same default risk as ILGs. As a result, price differences between nominal and index linked gilts are impacted by factors such as aggregate inflation assumptions, aggregate liquidity risk premiums and aggregate inflation risk premiums. As a result of a lack of visibility as to the composition and balance of these factors, it is difficult to categorically define the impact of each factor. An inability to accurately adjust nominal gilts to provide a like-for-like comparison to ILGs, along with their fundamentally identical credit quality, limits their practical use as a cross check on an RFR defined with reference to ILGs. However, this lack of efficacy as a cross check is not sufficient to establish that GEMA's use of an ILG-cross check was wrong.

5.140 Specifically addressing NGN and SGN's evidence in relation to the BoE's assessment of the risk premium, we refer to the complicating issues identified above and note that measures of the inflation risk premium have varied significantly over time. The BoE working paper that NGN and SGN

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214 SPT Response to PD, paragraphs 30–31.
215 SGN Response to PD, paragraph 146.
216 NGN Response to PD, paragraph 153(ii).
217 SGN Response to PD, paragraph 147.
218 NGET/NGG Response to PD, page 29.

reference[219] was published in 2015 - and does note that the inflation risk premium between 2004 and 2015 was, on average, 15bps. However, it also points out that the maximum level was reached in October 2009 at 75bps while it went down to -40bps in Q4-11. We also note that the 'exit rate' of IRP at the end of the 2014 period covered in this report was significantly higher than the 15bps average. In our view, the variability in this measure demonstrates how difficult it is to accurately adjust nominal gilts in order to use them as an effective cross-check of an ILG-based estimate.

5.141 We acknowledge that the relative price of nominal gilts and ILGs may be impacted by factors such as structural differences in the relative levels of supply and demand for these instruments. For example, there may high demand for ILGs from insurance companies, while nominal gilts may face increased demand from quantitative easing schemes. Such potential 'distortions' to government debt were considered in the UKRN Report and were dismissed as 'simply irrelevant'.[220]

5.142 In addition, we note that the difficulty in accurately assessing the relative risk premia present in ILGs and nominal gilts also constrains the accurate assessment of any other potential distorting factors. This complication was noted in the CMA's PR19 Redetermination, where the CMA said that 'as we cannot exactly know the inflation assumptions used or liquidity premium required by market participants when pricing the two instruments, we do not believe that we can accurately assess the presence of any distortions to either price'.[221]

5.143 The CMA's recent NATS and PR19 Redeterminations both rejected the use of nominal gilts in the calculation of the RFR. In its NATS, the CMA concluded that 'appropriately adjusted nominal gilt yields would not give a materially different estimate of the RFR from that derived from ILG yields, with the latter having the clear strength of being directly observed'.[222] In the PR19 Redetermination, the CMA noted that 'we do not believe that the inclusion of deflated nominal bonds is likely to materially improve our estimate of the RFR.'[223] That logic is equally applicable to RIIO-2.

[219] BoE (2015), 'Staff Working Paper No. 551, The informational content of market-based measures of inflation expectations derived from government bonds and inflation swaps in the United Kingdom', page 13 and Chart 3C.
[220] UKRN Report, page 34.
[221] CMA NATS Redetermination, paragraph 9.184.
[222] CMA NATS Redetermination, paragraph 13.259.
[223] CMA NATS Redetermination, paragraph 9.185.

5.144 We do not consider the appellants to have provided new evidence that would contradict these views, and so do not therefore consider nominal bonds to offer more insight into the RFR than ILGs.

5.145 As a result, we continue to question the effectiveness of nominal gilts as a cross-check to the estimate of the RFR, but do not consider that GEMA's use of this cross-check invalidates its estimate of the RFR or constitutes an error. As noted in our provisional determination (see paragraph 5.133), it is our view that even if GEMA had presented a more complete analysis of a suitably adjusted nominal bond, it was likely that GEMA would still have concluded that such a measure was supportive of its RFR estimate. As a result, we conclude that there was no error in GEMA's estimate as a result of an erroneous use of a nominal bond cross check.

GEMA's alleged erroneous use of the SONIA swap rate cross-check

Appellants' submissions

5.146 All appellants told us that GEMA's use of the 20-year SONIA swap rate cross-check was not an appropriate cross-check for the RFR estimate, and that as a result its use constituted an error.

5.147 Some appellants told us that the SONIA swap rate cross-check was not an appropriate cross-check due to illiquidity:

a) NGET/NGG told us that the SONIA swap cross-check had 'limited relevance' because swap rates over five years in contract length were known to be unreliable due to the lack of liquidity in that segment of the derivatives market.[224,225] NGET/NGG also told us that GEMA had incorrectly interpreted the BoE's preference for SONIA as an interbank overnight rate as supporting the use of a 20-year SONIA swap as a proxy for the RFR. It told us that the BoE had expressed no such preference; instead it had indicated that it considered the reliability of SONIA swap rates to deteriorate after five years.[226,227, 228]

b) NGN submitted that SONIA swap rates suffer from a number of serious distortions, as set out in the Cost of Equity report.[229] NGN told us that, first, the BoE only publishes rates that have been derived using SONIA

224 NGET NoA, paragraph 3.73.
225 NGG NoA, paragraph 3.73.
226 *Gregory and Deakin 1 (SGN)*, paragraph 3.5.2.
227 NGET NoA, paragraph 3.77.
228 NGG NoA, paragraph 3.77.
229 KPMG (NGN), 'Estimating the Cost of Equity for RIIO-GD2', paragraph 6.4.7.

contracts up to a maximum maturity of five years, because of diminished liquidity for maturities in excess of five years. NGN also told us that the 20-year SONIA swap rate is therefore likely to embed a liquidity premium.[230]

c) SGN submitted that SONIA swaps have been recognised by the BoE as being illiquid assets beyond a 5-year horizon, which diminishes the quality of the evidence as a long-term benchmark.[231,232]

d) SSEN-T told us that there are severe data quality issues with longer-term SONIA swap rates, especially beyond the 5-year horizon due to the relatively limited liquidity in SONIA swap contracts of that maturity.[233,234]

e) WWU told us that by way of a cross-check on its choice of the RFR, GEMA uses SONIA swap-rate but that this is also an error, as it fails adequately to take into account the fact there are 'severe data quality issues with longer-term SONIA swap',[235] and that the BoE itself considers the SONIA swap rate to be unreliable beyond the 5-year time horizon.[236,237] WWU also submitted that a better cross-check would be to consider the RFR that equity analysts covering the listed UK utilities use for the purposes of the CAPM. WWU told us that these are nearly always higher than the yields on 10-year ILG.[238]

5.148 Two appellants told us that the SONIA swap rate cross-check was not an appropriate cross-check due to their collateralised nature:

a) NGN told us that SONIA swap rates are typically collateralised. These in-period cashflows violate the strict assumptions underpinning the concept of the risk-free asset.[239]

b) SGN told us that SONIA-based swaps are typically collateralised and that without collateralisation, it is likely that observed rates would be significantly higher.[240]

5.149 Some appellants told us that the SONIA swap rate cross-check was not an appropriate cross-check as the SONIA swap rate was fundamentally different

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230 NGN NoA, paragraph 169(ii).
231 *Gregory and Deakin 1 (SGN)*, paragraph 6.4.7.
232 SGN NoA, paragraph 230.
233 GEMA FD Finance Annex, Table 8; and Oxera (SSEN-T), 'Cost of Equity Report', section 5.
234 SSEN-T NoA, paragraph 4.20(a).
235 Oxera (WWU),'Cost of Equity Report', paragraph 5.55.
236 Oxera (WWU),'Cost of Equity Report', paragraphs 5.52–5.53.
237 WWU NoA, paragraph B2.8.
238 WWU NoA, paragraph B2.9.
239 NGN NoA, paragraph 169(ii).
240 SGN NoA, paragraph 230.

to government borrowing yields, both in characteristics and in the RFR suggested.

a) Cadent told us that the SONIA swap rate did not represent a proxy for the borrowing rates available to all relevant market participants.[241,242] Cadent also submitted that the SONIA cross-check conducted by GEMA suggested a higher RFR than derived using GEMA's approach,[243] but that GEMA placed no weight on these which rendered them meaningless.[244]

b) NGN told us that SONIA swap rates gave materially higher estimates of the RFR in CPIH real terms,[245] and it was unclear on what basis GEMA sought to present these values as being 'similar' to its own estimate.[246]

c) NGET/NGG submitted that the SONIA cross-check was of 'limited relevance' as SONIA swaps were derivative instruments which had 'fundamentally' different characteristics to fixed-income instruments and it was highly questionable if they could be employed as a proxy for the RFR within CAPM.[247,248] It also submitted that considering derivative instruments in the context of the CAPM was not common practice and that GEMA's approach was contrary to regulatory best practice which required that regulators acted in a manner which was transparent and consistent.[249,250]

d) SGN submitted that GEMA's cross-checks showed a difference of over 50bps between nominal gilt yields and the SONIA swap rates. SGN told us that this was not insignificant and that GEMA was wrong to conclude that the values were 'broadly similar'.[251]

e) SPT submitted that GEMA's cross-checks based on SONIA did not support use of ILGs.[252,253]

f) SSEN-T submitted that GEMA relied on a 20-year SONIA swap rate of 0.34%, which is 46bps lower than the zero-coupon yield of the 20-year nominal gilt published by the BoE.[254] SSEN-T told us that, accordingly,

241 KPMG (Cadent), Report 'Estimating the Cost of Equity for RIIO-GD2', paragraphs 6.3.37 and 6.4.7–6.4.8.
242 Cadent, NoA, paragraph 4.44(e).
243 KPMG (Cadent), Report 'Estimating the Cost of Equity for RIIO-GD2', paragraphs 6.2.6.
244 Cadent, NoA, paragraph 4.44(e).
245 GEMA FD Finance Annex, Table 8.
246 NGN NoA, paragraph 169(ii).
247 NGET NoA, paragraph 3.74.
248 NGG NoA, paragraph 3.74.
249 NGET NoA, paragraph 3.75.
250 NGG NoA, paragraph 3.75.
251 SGN NoA, paragraph 230.
252 NERA (SPT), Expert report, paragraphs 16–17.
253 SPT Reply, paragraph 21(3).
254 Oxera (SSEN-T), 'Cost of Equity Report', section 5F.

evidence of SONIA swap rates that fall below government bond yields strongly suggested an incorrect downward bias in the data and the inherent unreliability of this 'cross-check'.[255] It went on to tell us that Oxera explained that GEMA had not taken account of the wide range of factors specific to swap instruments that were likely to have been driving the negative SONIA swap rates observed by GEMA which rendered this data particularly inappropriate for use as a 'cross-check'.[256,257]

5.150 NGN also told us that SONIA 20-year swap rates were accessible only to financial institutions.[258]

GEMA's submissions

5.151 GEMA submitted that it had implemented the cross check in response to the increased debate about potential alternatives to using ILGs. Therefore, GEMA submitted that it was seeking to respond to the network companies' views that alternatives for estimating the RFR should be considered.[259] Specifically, GEMA stated that it disagreed with Oxera's suggestion that SONIA swap rates were distorted downward by a variety of swap-specific factors and capital market imperfections. GEMA submitted that Oxera's statements directly contradicted the evidence provided in previous Oxera reports which pointed to positive swap spreads as evidence of a 'convenience yield' depressing government bond yields. GEMA also submitted that Oxera's view in this appeal contradicted advice Oxera had provided in 2007 when swap rates had been higher than ILGs, where it had recommended GEMA use them.[260]

5.152 GEMA submitted that objections with regard to the illiquidity of SONIA swap rate tenors longer than five years did not withstand scrutiny because:

a) With regard to comments made in the BoE's 'FAQ' document, GEMA suggested that 'relatively' was the key word in the quote 'The Bank's market contacts report that liquidity in OIS contracts beyond the 5-year horizon is relatively limited'. GEMA suggested that the BoE would have been looking at liquidity relative to, for example, gilts or other parts of the swap yield curve.

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[255] SSEN-T NoA, paragraph 4.20(a).
[256] Oxera (SSEN-T), 'Cost of Equity Report', section 5F.3.
[257] SSEN-T NoA, paragraph 4.20(b).
[258] NGN NoA, paragraph 169(iii).
[259] GEMA Response A, paragraph 97.
[260] *Friend 2 (GEMA),* paragraph 72, referencing Oxera (2007), 'Recent market evidence on the common WACC/CAPM parameters – Note prepared for gas DNs', page 5.

b) The appellants had claimed that the very high liquidity of gilts depressed gilt yields, so in contrast, if SONIA swaps of long tenor were considered to have relatively limited liquidity compared to long dated gilts then by the appellants' logic, this may lead to the rate on SONIA swaps being higher than might be the case if there were greater liquidity.

c) Liquidity in long dated SONIA swaps is far higher than in the basket of AAA corporate bonds the appellants and the appellants' advisers have suggested as an alternative proxy for the RFR. In addition, this liquidity is building as the LIBOR-SONIA transition gathers pace.[261,262]

5.153 GEMA also noted that the BoE had recently amended its FAQ document to reflect current market conditions, and currently stated that:

> In the past our market contacts reported that liquidity in OIS contracts beyond the 5-year horizon was relatively limited. However, in light of the transition away from LIBOR benchmarks towards risk-free rates, market contacts now report that liquidity in the OIS market has improved substantially. For that reason, we intend to publish OIS curves out to longer maturities as soon as operationally possible.[263]

5.154 In response to the point made by appellants the about collateralisation of swaps making them different to pure debt products, GEMA stated that while this was true it did not necessarily make them less representative of 'pure' interest rates. GEMA stated that collateralisation removed counterparty risk that would otherwise be included in swap rates, so collateralisation arguably made them closer to a pure 'risk free rate' than would otherwise be the case.[264]

5.155 GEMA submitted that if SONIA swap rates were adjusted downwards for inflation risk premium, they provided an alternative RFR that was lower than that based on ILGs. It told us that it had not adjusted the RFR on the basis of this cross-check which rendered the appellants' objections largely obsolete. It submitted that even if the SONIA cross-check constituted an error (which it did not accept) then it would not be a material error.[265]

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[261] *Friend 2 (GEMA),* paragraphs 67–69.
[262] GEMA also reference the BoE's June 2021 report 'Solvency II: Deep, liquid and transparent assessments, and GBP transition to SONIA'. At paragraph 2.40, the BoE notes that 'There is now a true close-to-risk-free benchmark rate in the form of SONIA, and there are SONIA OIS rates observable in markets that have depth, liquidity, and transparency that the BoE expects to equal that of Libor swaps. These rates do not need a CRA to be applied, removing an element of complexity and approximation'.
[263] See FAQ on the BoE's Yield Curves webpage here.
[264] *Friend 2 (GEMA),* paragraph 77.
[265] GEMA Response A, paragraph 99.

GEMA's alleged erroneous use of the SONIA swap rate cross-check – our provisional assessment

5.156 In making our assessment in the provisional determination, we acknowledged the arguments made by the appellants with regard to illiquidity and potential distortions in the swap format (as opposed to the SONIA rate itself). We also noted GEMA's evidence which suggested that the BoE is increasingly comfortable with the liquidity of SONIA swaps, particularly as market participants transition from LIBOR to SONIA as a benchmark rate.

5.157 In assessing SONIA swap rates as a cross-check, we said that it is important to acknowledge that it is likely to be less effective than the primary estimation tool. We concluded that this was the case here. SONIA was 'the Working Group on Sterling Risk Free Reference Rates preferred benchmark for the transition to sterling risk-free rates from Libor'.[266] As such, SONIA was best placed as a proxy for the overnight RFR. To adjust this to be an applicable check to an estimate of the long-term RFR, in this case via SONIA swaps, would inevitably involve some distortions and compromises, even with the BoE's growing confidence in the liquidity of the SONIA swap curve.

5.158 We also set out our view that one important compromise in this case was the fact that SONIA swaps were a collateralised lending instrument. While we acknowledged GEMA's view that this collateralisation removed counterparty risk that would otherwise be included in swap rates, so collateralisation arguably made them closer to a pure 'risk free rate' than would otherwise be the case, we noted that this process introduces inevitable difficulties in direct comparison with an uncollateralised instrument such as ILGs. However, this complication was not unique to SONIA swaps. AAA bonds, for example, would also require judgemental adjustments in order to represent a 'true' RFR.

5.159 GEMA acknowledged that 'there may be reasons why the 20-year SONIA swap rate may not be a perfect proxy for an RFR',[267] but also noted that it 'considered that SONIA swap rate evidence balanced the evidence from networks suggesting the use of AAA corporate bond indices'.[268] We considered this assessment to be reasonable and balanced. In our view, and in this appeal, the benefits and complications associated with SONIA-swaps justified their use as a cross-check rather than the primary basis of the RFR estimate.

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[266] BoE SONIA webpage here.
[267] *Friend 2 (GEMA),* paragraph 74.
[268] *Friend 2 (GEMA),* paragraph 74.

5.160 On balance, we did not believe that the appellants had submitted sufficiently persuasive evidence that GEMA's use of the SONIA swap cross-check was wrong, or that the use of such a cross-check led GEMA to estimate an RFR that was wrong.

Response to the provisional determination

5.161 As noted at paragraph 5.94, SSEN-T told us that the CMA was incorrect to consider SONIA swaps a reasonable cross-check because SONIA swap rates suffer from a number of distortions which GEMA did not attempt to account for and they suffered from swap-specific factors that sometimes lead to rates lower than ILGs.[269]

5.162 As noted at paragraph 5.136, SGN told us that the SONIA cross-check did not support GEMA's approach to the RFR as it suffered from the same issues as ILGs: they are both lending rates.[270]

5.163 NGET/NGG told us that the CMA had identified that SONIA swaps were collateralised lending instruments but had not adequately investigated the impact of this and instead had simply assumed that adjusted cross-checks would have supported GEMA's RFR.[271]

5.164 NGN told us that SONIA swap rates represented lending rates only and therefore did not meet the requirements of the CAPM. It submitted that SONIA cross-checks did not therefore address the error in GEMA's RFR.[272]

GEMA's alleged erroneous use of the SONIA swap rate cross-check – our final assessment

5.165 We acknowledge that some appellants continue to disagree with the use of SONIA swaps as a cross check to GEMA's ILG-based RFR but note that post-PD submissions did not update the arguments already presented.

5.166 As clearly stated in our provisional assessment, we consider SONIA to be an imperfect proxy for a long-term RFR. However, as noted at paragraph 5.44, there are no perfect proxies for the RFR and regulators must use judgement when assembling evidence. As noted at paragraph 5.107 we have concluded that GEMA's sole reliance on ILGs reflected an appropriate assessment of the balance of evidence and was not wrong.

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[269] SSEN-T Response to PD, paragraph 2.54(d).
[270] SGN Response to PD, paragraph 146.
[271] NGET/NGG Response to PD, page 29.
[272] NGN Response to PD, paragraph 151(vi).

5.167 We therefore maintain our position expressed at the provisional determination; we remain unconvinced that GEMA has deployed a skewed body of cross-checks, or that the use of the SONIA-swap rate as a cross-check within this process was wrong or has led to an error in its estimate of RFR.

Objections to GEMA's approach to indexation

Appellants' submissions

5.168 Some appellants told us that indexation did not correct for any problems with ILGs as a proxy for the RFR:

a) Cadent submitted that indexing the RFR did not solve the problem of sole use of ILGs or lack of 'aiming up'.[273]

b) NGET/NGG submitted that they supported the principle of the RFR being indexed to reflect future changes to the RFR. However, they also submitted that GEMA had wrongly suggested that the shortcomings of ILGs as a proxy for the RFR are temporary and that indexing the RFR via the AIP would correct for them.[274,275]

c) NGN told us that yields on ILGs had consistently, over a period of 20 years, been below those of AAA-rated corporate debt. The reason for this difference was that government bonds conferred additional benefits such as a convenience premium. Indexing the RFR did not remove this fundamental reason for why ILGs would underestimate the appropriate RFR.[276]

d) SGN submitted that GEMA had argued that the indexation mechanism would capture future changes in the rates and reduce the risk of underestimating the RFR.[277] However, SGN also told us that the proposed indexation mechanism would only capture changes in the ILG rates. It went on to tell us that, for the same reasons that current ILG yields underestimated the RFR, GEMA's mechanism would systematically underestimate the true RFR over the charge control.[278]

[273] Cadent NoA paragraph 4.44.
[274] NGET NoA, paragraph 3.80.
[275] NGG NoA, paragraph 3.80.
[276] NGN NoA, paragraph 168(iv).
[277] GEMA FD Finance Annex, paragraph 3.20.
[278] SGN NoA, paragraph 231.

e) SPT told us that GEMA was incorrect to state that indexation would ensure the RFR was accurate; indexation did not compensate for the downward bias of an assessment of the RFR based exclusively on the return on government bonds.[279]

5.169 Some appellants submitted that GEMA should have used an averaging window of longer than 1-month:

a) Cadent told us that GEMA's conclusion to use only a short 1-month average of the relevant proxy was inappropriate, as it introduced undue volatility into the RFR estimate[280] and that KPMG had noted that it was appropriate to apply a 6-month averaging window,[281] consistent with the CMA PR19 Provisional Findings.[282,283]

b) NGET/NGG told us that a 6 to 12-month average to October would be appropriate as this would lead to a less volatile measure of RFR that would reflect a longer run of market data.[284,285]

GEMA's submissions

5.170 GEMA stated that, in general, stakeholders had been supportive of proposals to update the allowed return on equity for changes in the RFR. Issues raised (during the RIIO-2 consultation process) by network companies had focused on how (calibration and implementation), not whether, equity indexation was applied.[286]

5.171 GEMA referred to NGET/NGG's argument regarding indexation (see paragraph 5.168b), and submitted that it was incorrect and simply a repackaging of the objections already addressed above in relation to the use of ILGs. It noted that its decision to apply indexation was not purported to resolve all possible imperfections with using ILGs as a proxy for RFR. It noted that indexation provided a reason for GEMA's view that the risks inherent in its estimation of the RFR could be mitigated, because at least unpredictable events in future could be accounted for through indexation.[287]

5.172 GEMA stated that, on the balance of evidence, it considered ILGs would provide a reasonable proxy for the RFR, and that it was simpler and more

[279] NERA (SPT), Expert report, section 2.3.
[280] Cadent NoA, paragraph 4.48.
[281] KPMG (Cadent), 'Estimating the Cost of Equity for RIIO-GD2', paragraph 6.4.10.
[282] CMA PR19 Provisional Findings, paragraphs 9.124–9.128.
[283] Cadent NoA, paragraph 4.49.
[284] NGET NoA, paragraph 3.47.
[285] NGG NoA, paragraph 3.47.
[286] *Friend 2 (GEMA),* paragraph 87.
[287] GEMA Response A, paragraph 100.

transparent to use one unadjusted measure of RFR for indexation rather than a combination of measures and/or measures that are either not robust or are adjusted in an uncertain and/or non-transparent way. GEMA noted that it had received feedback from suppliers that they valued transparency of approach, otherwise it would be more difficult for them to predict charges. GEMA submitted that its decision balanced the interests of broader stakeholders.[288]

5.173 In relation to averaging periods for the purpose of indexing, GEMA noted that as the RFR would be being indexed by GEMA to update for estimates of expected future return, it seemed preferable to take a snapshot that was as close as possible to current market conditions rather than a longer historical period that may be quite unrepresentative of expectations on future rates. GEMA noted that at DD they had said that 'using a 1-month averaging period has theoretical and practical benefits and would also allow rising rates to be reflected faster than a 6-month or 12-month averaging period'.[289]

Objections to GEMA's approach to indexation – our provisional assessment

5.174 In making our assessment in the provisional determination, we noted that the bulk of the appellants' submissions on this topic referenced the argument that indexing of the RFR does not 'solve' the problems associated with the sole reliance on ILGs as the proxy for the RFR. While it was our view that ILGs could be marginally improved upon as a proxy for the RFR, we had already concluded that GEMA was not wrong to base its RFR on ILGs alone (see paragraph 5.51). As a result, we disagreed with the appellants' view that GEMA was attempting to 'solve a problem' through indexation, and so concluded that GEMA's decision to index the RFR did not represent an error.

5.175 We were not convinced by GEMA's assessment that indexing encouraged the use of one simple proxy metric. In our view, this line of argument overstated the complexity of indexing two or more complementary proxies. However, while we disagreed that this was strong support for the sole use of ILGs as the proxy for the RFR, we did not consider our assessment to be, in itself, evidence that GEMA's approach was wrong. In line with this assessment, we considered that disagreeing with GEMA's view on this minor matter was not sufficient to change our conclusion that GEMA's sole reliance on ILGs was not wrong.

5.176 With regard to the averaging period deployed, the appellants were correct that the CMA had previously argued that a 1-month window was likely to be too

[288] *Friend 2 (GEMA),* paragraph 89.
[289] *Friend 2 (GEMA),* paragraph 94, referencing GEMA (2020), GEMA FD Finance Annex, paragraph 3.7.

short an estimation period.[290] However, this view was expressed in relation to an RFR that was set at the start of the price control and had to be as appropriate as possible over the coming five years. In such a scenario, we considered there to be benefits of a longer averaging window to ensure that short-term volatility did not lead to an inappropriate RFR being 'locked-in' for the whole of the price control. This was not the case in RIIO-2, where the RFR was being indexed and updated on an annual basis. GEMA's assessment that a shorter average would better capture current expectations was reasonable, and any risk should be mitigated by the regular updates to the RFR throughout the control. As a result, we concluded that GEMA's choice of averaging period was not wrong.

5.177 For the reasons set out above, we provisionally concluded that GEMA's approach to indexing was not wrong.

Objections to GEMA's approach to indexation – our final assessment

5.178 The appellants post-PD submissions on indexing did not supplement the arguments already presented. Therefore, for the reasons stated in paragraphs 5.174 to 5.176, we conclude that GEMA's approach to indexing was not wrong.

GEMAs alleged erroneous choice of inflation metrics

Appellants' submissions

5.179 Cadent submitted that for adjustment of ILGs and nominal AAA yields into CPI terms the use of long-run inflation assumptions (rather than the 4-year forecasts used by GEMA) was more appropriate because the inflation expectation embedded in a 20-year gilt would reflect the full period over which the bond produced cashflows.[291]

5.180 SGN submitted, in relation to GEMA's statement that it could have chosen to account for the 2030 transition of the RPI index (to CPIH) by reducing the forward-looking RPI/CPIH wedge by half when converting RPI-real ILG yields, that KPMG had recommended that the wedge should not be simply pro-rated for the 2030 transition.[292] KPMG's report for SGN submitted with its reply noted that KPMG did not consider that it was clear how and to what extent the change in inflation post 2030 was currently reflected in the real yield on ILG,

[290] For an example, see CMA PR19 Redetermination, paragraph 9.208.
[291] Cadent NoA, paragraph 4.50.
[292] SGN Reply, paragraph 55.

and therefore KPMG did not consider that GEMA could have simply halved the RPI/CPIH wedge when setting the CPIH-real RFR.[293]

GEMA's submissions

5.181 GEMA submitted that it had considered whether its use of the year 5 OBR forecast for RPI and CPI for converting RPI ILGs to a CPIH-real RFR contributed to a higher estimate of CPIH-real rates than could be the case if an alternative method were used and/or whether this methodology contributed to its determination being consistent with a degree of aiming up. GEMA concluded that due to the expected change of RPI into CPIH from 2030 onwards, this could in fact lead to a lower estimate of CPIH-real RFR than suggested by its current methodology. GEMA submitted that, on balance, because long-term forward-looking market evidence on CPIH relative to RPI is not available from widely accessible sources, its current methodology was reasonable.[294]

GEMA's erroneous choice of inflation metrics – our provisional assessment

5.182 In making our assessment in the provisional determination, we noted that there was no clearly defined 'right' measure of inflation to use when inflating and deflating metrics in a regulatory price control. There were pros and cons to using both shorter-term realised or forecast inflation rates and longer-term forecasts. GEMA had clearly considered this issue and had chosen to rely on a forecast over the length of the price control from the OBR, a respected source of inflation forecasts in the UK. We considered GEMA's approach was appropriate in the circumstances and we found no error based on the evidence presented by the appellants.

GEMA's alleged erroneous choice of inflation metrics – our final assessment

5.183 The appellants' post-PD submissions on inflation metrics did not supplement the arguments already presented. Therefore, for the reasons stated in paragraph 5.182, we conclude that GEMA's approach to inflation metrics was not wrong.

RFR – Our conclusion

5.184 As a result of the assessments made above, we determine that GEMA's methodology for estimating the RFR, specifically its reliance on UK ILGs, was

[293] KPMG (SGN), 'Targeted analysis of GEMA's response on CoE', section 5.2.
[294] *Friend 2 (GEMA),* paragraphs 90–91.

not wrong. In coming to this determination, we consider that the appellants have failed to demonstrate that other proxies must be included in GEMA's estimate, that GEMA's approach to cross checks was wrong, that GEMA's approach to indexing was wrong or that GEMA's choice of inflation metric was wrong.

TMR

Introduction

5.185 This section covers the appellants' alleged errors relating to GEMA's methodologies and eventual estimate of the TMR within the estimation of the overall allowed cost of equity.

Background to the alleged error

5.186 The TMR is the total return that investors require for investing in a diversified portfolio of assets. It is the sum of the RFR and the Market Risk Premium (**MRP**), which is the part of this return that compensates investors for the additional risk associated with investing in risky assets, rather than in risk-free assets. The RFR and resultant MRP are inputs to the CAPM formula in the calculation of cost of equity. Hence, its calculation impacts the WACC. For reasons of data availability, TMR is estimated on the basis of equity returns rather than broader market returns, hence the MRP is proxied by the Equity Risk Premium (**ERP**).

5.187 There is no universally accepted method for deriving the TMR, because it is concerned with investors' ex-ante expectations of returns, which are largely unobservable. The academic literature on the subject is large and can be categorised into three types:

a) studies that assume that historical realised returns are equal to investors' expectations (so-called 'historical ex-post' approaches);

b) studies that fit models of stock returns to historical data to separate out ex-ante expectations from ex-post good or bad fortune (so-called 'historical ex-ante approaches'); and

c) studies that use current market prices and surveys of market participants to derive current forward-looking expectations (so-called 'forward-looking approaches').

The RIIO-2 Decision

5.188 GEMA set TMR of 6.5% (CPI-real), which was the mid-point of its range of 6.25% to 6.75%.[295] This figure was based on the following evidence and reasoning:

a) GEMA considered long-run average historical returns alongside forward-looking, measures of expected returns, choosing to place greatest weight on the former on the basis that it represents the most objective measure of investor expectations;[296]

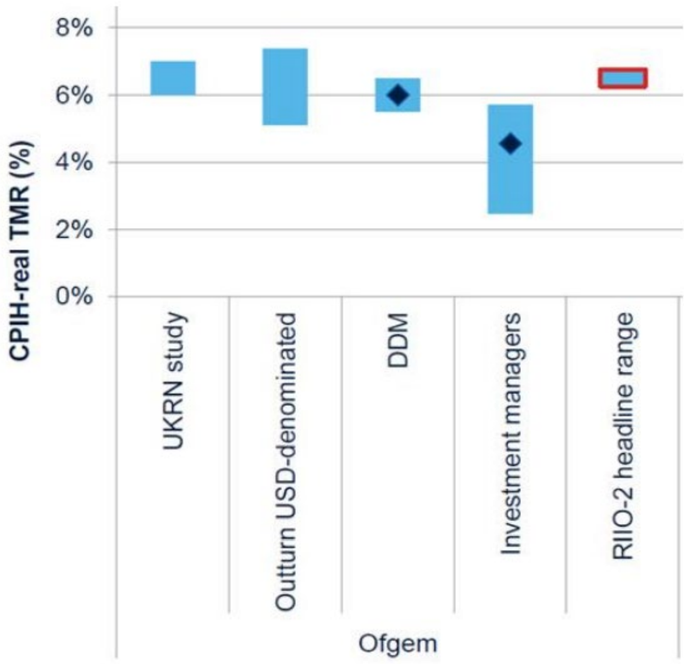
b) GEMA considered it appropriate to deflate historical nominal returns using a historical CPI index, noting that this approach was supported by its cross-check with the real US Dollar returns achieved by investors;[297] and

c) GEMA found that the appropriate methodology for calculating long run returns to investors was to use the geometric return, which it then adjusted appropriately to reflect higher arithmetic average returns.[298]

5.189 GEMA set out the overall evidence it took into account as shown in Figure 5-3, below. This evidence comprises the TMR ranges: i) set out in the UKRN Report,[299] ii) estimated by GEMA based on a cross-check in which it estimates total returns on the UK market in US dollar terms, deflated by US inflation, iii) estimated by GEMA using a Dividend Discount Model (**DDM**), and iv) implied/stated by a range of professional investment managers in their published forecasts.

[295] GEMA FD Finance Annex, paragraph 3.86.
[296] GEMA Response A, paragraph 105 (referencing RIIO-2 Sector Specific Methodology Annex: Finance, paragraph 3.80).
[297] Ofgem (2021) RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance, paragraph 3.24.
[298] Ofgem (2021) RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance, paragraph 3.24.
[299] UKRN Report.

Figure 5-3: GEMA summary of evidence considered in choosing a TMR range



Source: GEMA Response A, page 30.

The alleged errors

5.190 All the appellants submitted that GEMA erred in setting the TMR, selecting a point estimate that was too low. The appellants also highlighted that GEMA's approach differs from that adopted by the CMA in the CMA PR19 Redetermination, and that this demonstrates that GEMA erred. As set out in the following paragraphs, there was significant commonality in the arguments put forward by the appellants as to the reasons for GEMA's alleged error(s). These include errors relating to:

a) GEMA's choice of dataset in terms of the time period and the companies covered, from which it estimates historical returns;

b) GEMA's use of historical CPI inflation as the series used to deflate historical market returns;

c) GEMA's approach to averaging historical returns – in particular its decision to uplift the geometric average by between 1 and 1.5 percentage points to identify an arithmetic average; and

d) GEMA's use of, and the weight placed on, forward-looking cross-checks in coming to an overall view on the appropriate level of the TMR.

5.191 In response, GEMA noted that:

> [b]y their complaints on this ground, the Appellants raise narrow, esoteric points, all of which concern matters of regulatory judgement, in a context where it is common ground that TMR is, as a measure of investors' ex-ante expectations of equity returns, unobservable... In such circumstances, it is… clear that the CMA should be very slow to interfere with GEMA's regulatory judgement.[300]

5.192 In the paragraphs below we summarise the evidence that has been presented to us, set out our provisional assessment and then consider the parties' responses to our provisional determination before providing our final conclusion of whether GEMA's estimation of the TMR was wrong.

Choice of dataset

Appellants' submissions

5.193 NGET/NGG[301,302] submitted that GEMA's nominal return source data was biased downwards due to the start date of 1900 and due to the inclusion of only the returns of the 100 largest companies during the period from 1900 to 1954. These appellants highlighted that using a start date of 1898, 1899, 1901, or 1902 would have produced a higher TMR estimate, and that GEMA should have addressed the distortion of having a start date of 1900 by using different outturn periods to determine TMR.

Interveners' submissions

5.194 Citizens Advice submitted that GEMA's estimate of the TMR was too high and therefore likely to overstate the true TMR. Citizens Advice explained that the TMR should not just be based on the average returns on UK equities, but ideally on the average returns on a wider and more diversified portfolio of investments, namely, including bonds, property, infrastructure, private equity, and other such assets that are all readily available to the typical investors in UK energy and water network companies. Such a portfolio was necessarily more diversified than UK listed equities alone, therefore a much better fit for the CAPM's requirement that the 'market portfolio' should represent the most diversified (and readily available) portfolio of investments to relevant investors.

300 GEMA Response A, paragraph 110.
301 NGET NoA, paragraphs 3.197–3.206.
302 NGG NoA, paragraphs 3.197–3.206.

5.195 As evidence of the long-run average returns on such a wider portfolio of assets, Citizens Advice recommended in particular the research of economist Professor Thomas Piketty, who found that the real 'pure return on capital' – a measure based on very long-run directly observable historical averages of return on all capital (including land and real estate, infrastructure, private equity, and other non-listed assets) – was in the range of 3 to 4%.[303]

5.196 In response to the provisional determination, Citizens Advice submitted that the CMA should recognise that the traditional approach of proxying the market return by the return on equities represents a significant compromise, particularly in light of the global investor ownership of the UK energy networks and the associated diversification of assets held by these owners.

5.197 Citizens Advice further submitted that:

a) as equities are a component of total market assets, then estimating the energy beta against equities alone will, in Citizens Advice's analysis, just lead to a significant upper bound on the true beta, ie that the true energy beta (against total market assets) will be significantly lower than Ofgem's beta (as well as the TMR being also much lower than the equity market return - the EMR - alone); and

b) many economists have analysed the underlying return on capital data derived from historic national accounting data across various countries, with such data sets being far more comprehensive, extensive, and robust than the data advocated by the appellants (and also as used by GEMA), as they are based on underlying national accounting data, rather than just equity returns for a shorter period and for one country.[304]

GEMA's submissions

5.198 GEMA told us that it had used the best available evidence for the UK market, which was generally agreed to be the Dimson, Marsh and Staunton (**DMS**) dataset from 1900 onwards. Data prior to 1900 was less comprehensive, such that US evidence must be relied upon rather than UK evidence. Similarly, there was no good reason to discard any information from 1900 onwards, as it was generally considered reliable.[305]

[303] Citizens Advice Intervention Notice, paragraphs 94–95.
[304] Citizens Advice Response to PD, paragraphs 21–27.
[305] GEMA Response A, paragraph 133.

Choice of dataset – our assessment[306]

5.199 We considered both the appellants' and Citizens Advice's concerns regarding GEMA's reliance on the DMS data set. We observe that these concerns would tend to point in different directions, with the appellants highlighting reasons that the TMR may be somewhat higher than the estimates derived from the DMS data set, while Citizens Advice's submission suggests that the TMR is, in fact, lower.

5.200 We consider that there is no perfect source of information on TMR. While we acknowledge that the DMS data set would, ideally, include a broader range of firms in the early 20th Century and that the 1900 start date provides a lower TMR estimate than slightly earlier or later ones, we are not persuaded that GEMA erred in not making adjustments for these factors given the risks of 'cherry-picking' associated with choosing an alternative specific start date (other than the 1900 date used in the DMS dataset) and the complexity of identifying actual returns for smaller firms over the relevant period given that such returns are not included in the established datasets. Moreover, while such factors might suggest a slightly higher TMR, we agree with Citizens Advice's argument that, theoretically, the TMR should reflect the return on all assets in the economy, and that there is some evidence suggesting that total returns across all asset classes are lower than those on equities alone, and potentially materially lower.

5.201 We consider that there are likely to be a number of practical challenges in seeking to estimate TMR from returns across a broader portfolio of assets in the economy and regulators would need to give careful consideration to these before adopting such an approach. However, such an approach may find that the evidence supports a lower TMR than is estimated under the current standard approach of using equity returns.

5.202 Overall, therefore, we find that GEMA has used a well-researched and established data set on UK equity market returns and has exercised appropriate regulatory judgement in not seeking to adjust that data set for the potential impacts of start date, the limited coverage in the early 20th Century, or for the implications of Citizens Advice's observations on broader market returns. For these reasons, we do not consider GEMA has made an error in its choice of returns data set from which to estimate TMR.

306 We did not receive any further substantive submissions on this point in response to our provisional determination.

Choice of inflation series

Appellants' submissions

5.203 The appellants made various submissions arguing that GEMA erred in relying (solely) on historical CPI inflation data to deflate historical nominal returns, and that GEMA should have relied on RPI inflation data either as its primary approach, or alongside CPI data.

5.204 All appellants[307] submitted that there was significant uncertainty over the accuracy of the CPI inflation series used:

a) SGN submitted that GEMA had erred in placing sole reliance on the Consumption Expenditure Deflator (**CED**)/CPI approach when deflating nominal returns in GBP, noting that GEMA had failed to consider the large degree of uncertainty around the accuracy of the CED/CPI series, despite the material impact of the choice of approach. SGN highlighted that an official CPI series was only available from 1988. As a result, for the 40 years before 1988, there were only back-casts (estimates) from the Office for National Statistics (**ONS**). The CPI back-cast was of unknown accuracy, with both the ONS and the modellers who created the series cautioning against placing undue weight on the series. Finally, SGN highlighted that the CMA acknowledged in the CMA PR19 Provisional Findings that, despite the sophisticated econometric modelling used, it is 'impossible to know' how reliable the back-cast figures are.[308]

b) WWU further highlighted that the CPI back-cast had had to be corrected for some identified errors, and that there was an active debate among members of the Advisory Panel on Consumer Prices –Technical regarding the methodology for replacing the full back-cast of CPI by a newly-modelled series.[309]

c) Oxera (economic advisers to SSEN-T and WWU) explained that a comparison of the CPI back cast and the RPI data series showed that the two converge on a wedge of zero, which it considered could not be correct, given the known formula difference between RPI and CPI. Oxera stated that this was a 'warning sign' that the modelling may not be robust in some respect.[310]

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307 Cadent NoA, paragraph 4.62, NGET NoA, paragraphs 3.157–3.167, NGG NoA, paragraphs 3.157–3.167, NGN NoA, paragraph 197, SGN NoA, paragraph 161, SSEN-T NoA, paragraph 4.33, SPT NoA, paragraph 42, WWU NoA, paragraphs B3.3–B3.5.
308 SGN NoA, paragraphs 160–164.
309 WWU NoA, paragraphs B3.2–B3.5.
310 Cost of Equity Joint Hearing, 21 June 2021, page 37, line 16–page 38, line 8.

d) NGET/NGG,[311,312] and SPT[313] also submitted that for the period prior to 1947, the CPI in the BoE Millennium data set was proxied by the CED, and that the evidence on this inflation measure supported the finding that it was likely to overstate CPI inflation and therefore understate returns deflated by CPI.

5.205 The appellants also submitted that RPI was a more reliable or robust inflation data series for the purposing of identifying real historical returns:

a) Cadent,[314] SGN,[315] SSEN-T[316] and WWU[317] submitted that the best measure of inflation was the one that reflected investor expectations at the time of the investment, and this was best embodied in the RPI measure of inflation, as RPI was the measure relied upon by investors in their original investment decisions. SGN highlighted that RPI was a National Statistic until 2013 and was used to construct Government financial instruments (eg index-linked gilts; National Savings Products).

b) Similarly, Cadent,[318] NGET/NGG[319,320] NGN,[321] SPT[322] and SSEN-T[323] argued that a key strength of RPI was that the RPI data series was based on contemporaneously produced data that had been widely published, used and scrutinised by Government, academics and statisticians. Whereas CPI had only been recorded fully from 1997, RPI had been contemporaneously recorded since 1947. As such, RPI was a better recognised and more proven measure than CPI back-cast, which had recently been modelled and had not had the same level of scrutiny.

5.206 Cadent submitted that, in disregarding RPI and placing sole reliance on a CPI-based inflation series, GEMA also decided not to follow the CMA's approach in the most recent and relevant regulatory position, the CMA PR19 Provisional Findings, despite the extensive consideration given in those redeterminations to the matter of the appropriate index to use for deflating ex-post historical returns.[324]

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311 NGET NoA, paragraphs 3.162–3.163.
312 NGG NoA, paragraphs 3.162–3.163.
313 SPT NoA, paragraph 42.
314 Cadent NoA, paragraph 4.64.
315 SGN NoA, paragraphs 165–166.
316 SSEN-T NoA, paragraph 4.33.
317 WWU NoA, paragraphs B3.2–B3.5.
318 Cadent NoA, paragraph 4.63.
319 NGET NoA, paragraph 3.171.
320 NGG NoA, paragraph 3.171.
321 NGN NoA, paragraph 197.
322 SPT NoA, paragraph 42.
323 SSEN-T NoA, paragraph 4.33.
324 Cadent NoA, paragraph 4.65.

5.207 Cadent,[325] NGET/NGG[326,327] and SGN[328] argued that, in using forward-looking considerations to reject/accept alternative inflation series, GEMA appeared to be conflating the question of the most appropriate measure of inflation going forwards and the most appropriate measure of inflation for deflating observed historical returns in the past 120 years. While the ONS had questioned the use of RPI as a forward-looking measure, it had not done so for backward-looking purposes. RPI remained the preferred inflation metric for backward looking purposes.

5.208 Similarly, SPT told us that GEMA has failed to provide evidence that historical RPI inflation measures were unreliable as a measure of inflation in the past (as opposed to the future). It was possible to convert historical RPI-deflated returns into a forward-looking CPI-deflated equivalent by using an estimate of the ‘historical RPI-CPI wedge’. Alternatively, to the extent that it had grounds for doubting the RPI measure, GEMA could have used both RPI-deflated returns and CPI/hybrid deflated returns as evidence of the minimum TMR. Had it taken either such step it would have arrived at a materially higher estimate of TMR.[329]

5.209 Cadent,[330] NGN[331] and SGN[332] argued that GEMA’s conclusion that the US dollar returns on UK equities provided a cross-check on its choice of CED/CPI inflation was selective, noting that evidence from a wider range of countries with comparable corporate governance showed that both US dollar and GBP returns were materially higher than GEMA’s TMR. Evidence in the KPMG Cost of Equity Report demonstrated that the average real TMR from the international evidence was 7.4% to 7.7%, real-CPIH.[333]

5.210 NGET/NGG submitted that GEMA’s TMR cross-check was irrelevant and wrongly applied.[334] NGET/NGG said that, while equity returns can in principle be checked using international evidence, GEMA’s approach of considering UK equity returns, measured in US dollars and deflated by the US inflation rate, reflected the equity return that would be achieved by a US investor investing in the UK equity market. Those investors were subject to US income and consumption and subject to US inflation and, as a result, this proxy was wholly irrelevant to investors outside of the US.

[325] Cadent NoA, paragraph 4.63.
[326] NGET NoA, paragraph 3.173.
[327] NGG NoA, paragraph 3.173.
[328] SGN NoA, paragraph 168.
[329] SPT NoA, paragraph 42.
[330] Cadent NoA, paragraph 4.77.
[331] NGN NoA, paragraph 197.
[332] SGN NoA, paragraph 170.
[333] Exhibit MCF-1 to Cadent NoA. KPMG Cost of Equity Report, paragraphs 5.5.13–5.5.22.
[334] NGET NoA and NGG NoA, paragraphs 3.207–3.211.

5.211 SPT submitted that GEMA's cross-check to its CPI index of using UK returns converted to US dollars and deflated using US inflation was premised upon unjustified assumptions and did not invalidate evidence based on RPI.[335]

5.212 Some appellants[336] submitted that the CMA's approach in the CMA PR19 Redetermination of placing equal weight on RPI and CPI inflation series when deflating historical returns, supported their submissions on this ground.

5.213 For example, Cadent highlighted that the CMA's PR19 Final Determination agreed with Cadent's position that GEMA's decision to use the 'back-cast' BoE Millennium Dataset (CPI) as the sole inflation series, rather than also taking into account a data series incorporating RPI, when deflating the historical nominal TMR was inappropriate.[337] Furthermore, KPMG (on behalf of Cadent) submitted that while the increase in the formula effect in 2010 is one of the reasons given by GEMA to reject the RPI series in entirety, the CMA had demonstrated that if one were concerned with this as an issue, an approach of adjusting the series was possible rather than rejecting the series in its entirety.[338]

5.214 NGET/NGG told us that a comparison of the CMA's conclusions based on an assessment of historical ex-post data with GEMA's conclusions demonstrated the bias in GEMA's interpretation of the data. GEMA's point estimate for TMR (6.5%) sat below the range that the CMA had identified for TMR based on its own analysis of historical ex-post evidence.[339]

GEMA's submissions

5.215 GEMA noted that it was common ground that there is no 'perfect' measure of inflation for this purpose. However, GEMA had sought to use 'the best available measures of inflation'.[340] GEMA highlighted three key points in response to the appellants' submissions:

a) First, GEMA submitted that it had used the evidence which was, in its expert view, the best evidence available to it. GEMA had relied upon the UKRN Report's recommendation to use CPI, having considered the comparative advantages and disadvantages of CPI and RPI indices of inflation. Further, GEMA noted that the appellants had provided no evidence that adequately addressed the problems with the CED/RPI data

[335] SPT NoA, paragraph 42.
[336] For example, see SPT PR19 submission, paragraph 17.
[337] Cadent PR19 submission, paragraph 34.
[338] KPMG (Cadent), 'Review, commentary and read across from CMA PR19 Final Determinations to RIIO2 Cost of Equity appeals', paragraph 4.3.17.
[339] NGET/NGG joint PR19 submission, paragraph 2.26.
[340] GEMA Response A, paragraph 115.

series. While the appellants have raised detailed complaints about the reliability of the CED/CPI data series, those complaints largely ignore the issues that exist with the RPI data series, and do not explain why it is said that GEMA acted unreasonably and unlawfully in choosing one set of imperfect data over another. There was no perfect data series but GEMA's judgement was that the CED/CPI series was more reliable than the CED/RPI series.[341]

b) Second, GEMA submitted that its decision was supported by the CMA's approach in its PR19 Provisional Findings and noted that it continued to believe that CMA's range from the provisional findings for the NATS Appeal of 5-6% (RPI-real) better reflected the available evidence on TMR and was in line with the conclusions of the UKRN Report;[342] and

c) Third, GEMA submitted that the appellants' claim that it had failed to make a balanced assessment of the available evidence, and in particular that it was wrong to heavily or solely rely on the CED/CPI dataset, mischaracterised the approach GEMA had taken throughout RIIO-2. GEMA expressly stated that it wished to 'avoid over-reliance on any one measure' and, to this end, it considered a number of deflation methods (as set out in Figure 5-3).[343]

5.216 With respect to its use of the US dollar returns cross-check, GEMA stated that NGET's/NGG's objection appeared to contradict their earlier submission that capital is 'internationally mobile', suggesting that there could be comparisons on risk-adjusted equity returns across markets. GEMA's view was that this cross-check was useful, given issues with UK measured inflation; by measuring UK returns on a US dollar basis, reliance on UK measured inflation is avoided. NGET/NGG submission and the argument that capital should be internationally mobile supports GEMA's decision to derive confidence from this cross-check.[344]

Choice of inflation series – Our provisional assessment

5.217 In our provisional determination, we noted that the UK inflation data series that are available to GEMA and other regulators are highly imperfect. As a result, regulators must exercise careful judgement in determining how to identify real historical returns.

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[341] GEMA Response A, paragraph 118.
[342] GEMA Response A, paragraph 121.
[343] GEMA Response A, paragraph 124.
[344] GEMA Response A, paragraph 135.

5.218 For the first half of the 20th Century, it is broadly recognised that the most reliable information on changes in prices is the CED. This data series is derived from National Accounts and analysis carried out by the CMA as part of its PR19 Redetermination suggested that the evidence does not support the finding that it is particularly RPI-like or CPI-like.[345]

5.219 The main choice that GEMA had to make, therefore, was between the use of CPI and RPI data from 1948 onwards (to be combined with the CED data for the pre-1948 period).

5.220 We agreed with the appellants that the CPI backcast is of uncertain reliability. It is, effectively, a research estimate, with both the ONS and the modellers who prepared it highlighting the uncertainties surrounding it. It is not a national statistic. We also recognised the benefits of RPI inflation data having been collected/produced over the relevant period as the official measure of inflation for the UK with the accompanying attention/scrutiny that is given to such an important national statistic.

5.221 However, we also recognised the myriad issues with RPI, including the fact that its use of the Carli formula means that it will have persistently overstated inflation over the (whole) period since 1948, weaknesses in the underlying survey evidence (eg due to limited coverage of the population and the approach to measuring housing cost changes), and the combination of the Carli formula with changes in data collection/aggregation methodologies over the period which mean that it has been inconsistent over time, such that the difference between RPI and CPI historically will be different from that in the future. The extent/impact of this inconsistency over time is unknown but it creates a fundamental challenge when seeking to use an RPI-deflated historical TMR estimate on a forward-looking basis.[346]

5.222 In this context, we considered that the question was whether GEMA erred in placing full weight on CPI-deflated returns, rather than also considering RPI-deflated returns. We considered the following points to be salient:

a) When deflating historical returns, it is preferable to use an inflation series that is as consistent as possible over the period in order to identify a ‘real’ TMR estimate that can be described as either ‘CPI real’ or ‘RPI real’. Combining CPI and RPI estimates would produce a ‘real’ TMR estimate that would not be consistent with either CPI or RPI inflation on a forward-looking basis.

[345] CMA PR19 Redetermination, paragraph 9.310.
[346] See UK Consumer Price Statistics: A Review – UK Statistics Authority for a detailed review of the strengths and weaknesses of the various UK inflation measures.

b) Since 1988, it is widely agreed that CPI is the most reliable/robust inflation series available for the UK. It employs statistical best practice in terms of aggregation formulae and is consistent with inflation measures used in many other developed economies.

c) The CPI back cast is a sophisticated research estimate of likely CPI inflation over the relevant period. Its accuracy is not known (or knowable) and the estimates are currently being revised by the ONS. However, we had not seen persuasive evidence that it is likely to be biased.[347]

d) The CPI back cast relates to approximately one third of the relevant historical period (of 120 years), with robust CPI data available for (just under) a third of the period, while RPI inflation data is available for two-thirds of the relevant historical period.

e) RPI is a well-recorded but flawed, upwards-biased and inconsistent measure of inflation and is no longer a national statistic. While it was a national statistic over the second half of the 20th Century, its flaws were present throughout the relevant period and up to the current time. Furthermore, we were not persuaded by appellants' submissions that the fact that RPI was the measure of inflation used by individuals, firms and governments during the second half of the 20th Century was relevant in terms of estimating what investors' current expectations of TMR are likely to be; and

f) The task for the CMA in this appeal is to establish whether GEMA's decision was wrong. It is not to judge whether the CMA's approach in the CMA PR19 Redetermination was 'better' than GEMA's RIIO-2 approach.

5.223 In this context, for the reasons set out above, we provisionally concluded that it was an acceptable regulatory decision for GEMA to prefer CPI inflation when deflating historical returns and to place sole weight on that approach in the context of the other cross-checks that GEMA had carried out on its TMR analysis and the overall cost of equity. While the CMA had chosen an alternative approach in the CMA PR19 Redetermination, which also placed weight on (adjusted) RPI-deflated returns, the appellants had not provided convincing evidence to persuade us that GEMA was wrong in the approach

[347] We considered Oxera's submissions on behalf of SSEN-T and WWU regarding the decline in the wedge over time in the backcast. We recognised that the wedge declines towards zero as one goes further back in time but considered that there could be a variety of reasons for this, including inconsistencies in RPI. For example, we observed that the RPI inflation series formally started in 1956 and that prior to that an interim measure was collected. Further, over time the composition of the RPI series had changed considerably. For further details see: Johnson Report, 2015, pages 47 onwards.

that it chose. Therefore, our provisional conclusion was that GEMA had not erred in this respect.

Responses to our provisional determination

5.224 The appellants told us that they all agreed that GEMA's decision to place sole weight on the CPI series when deflating historical equity market returns is an error. They further explained that, in light of the 'uncertain reliability' of the historical estimates of CPI, and given that there is an available, relevant alternative series of historical inflation data – the published RPI – it was an error to disregard this relevant evidence. They observed that the CMA had recognised this issue in the water industry and therefore had decided that it must take the RPI evidence into account in its own PR19 decision given the inherent uncertainty and unreliability of CPI data alone.[348]

5.225 Cadent submitted that it was evident from the lack of RPI-based TMR estimates feeding into GEMA's decision and the lack of analysis of any potential bias from the full exclusion of RPI data that GEMA had not given due consideration to RPI data. It told us that using CPI as the sole measure of inflation when estimating TMR introduces a significant downward bias due to the complete disregard of RPI-based TMR based estimates and fails to give due weight to the flaws in CED/CPI. GEMA had had many tools at its disposal to approximate an unbiased estimate, even if the true correct estimate and the best method is not known. Instead, Cadent considered that GEMA had chosen a method that unquestionably introduced a bias and therefore underestimated the TMR, highlighting that while it was not possible to conclude that a particular combination of CPI and RPI was definitely right or wrong, relying solely on CPI was definitely wrong.[349]

5.226 SGN and NGN submitted that GEMA had failed to have regard to suitable alternative approaches for deflating the historical TMR figures, noting that it had failed to take account of the RPI-deflated TMR in its FD and the UKRN Report did not properly consider the relative merits of RPI and CPI. These appellants noted that this was evident because there were no RPI-deflated TMR estimates in the FD and the UKRN authors had concluded that their TMR range was a 'modest downward adjustment' from previous reports due to a slight change in their position on averaging. The appellants argued that RPI-deflated estimates were clearly relevant for the estimation of TMR on a historical ex-post basis as accepted by the CMA in the CMA PR19

[348] Appellants' Joint Response to PD on Ground A, page 5
[349] Cadent Response to PD, paragraphs 11.17–11.19.

Redetermination (where the CMA had taken RPI evidence into account given the inherent uncertainty and unreliability of CPI data alone).

5.227 SGN stated that GEMA did not have discretion to ignore an available, relevant alternative series of historical inflation data – the published RPI. As a result, the provisional determination on this basis was unsupportable. NGN submitted that such scant consideration by GEMA of the relative merits and demerits of RPI and CPI approaches was not a sufficient basis to conclude that GEMA had properly had regard to, or given appropriate weight to, the relevant evidence of RPI-deflated estimates.

5.228 Finally, SGN and NGN submitted that (i) the CMA had been presented with evidence of bias in the CPI series and (ii) one of the fundamental issues with the CPI backcast was that the model is not published. Moreover, the bias was self-evident when CPI and RPI deflated numbers are both estimated, which the CMA itself accepted were both reasonable approaches. The appellants submitted that both approaches must be considered when assessing downward bias in the round.[350] [351]

5.229 SPT told us that the provisional determination did not appear to address SPT's evidence that the ONS had stated that the historical RPI-CED index was the appropriate historical series for making 'long-run comparisons […] of consumer price inflation and the purchasing power of the pound'. This is what GEMA should have sought to do – measure historical UK inflation to measure historical UK TMR. It had not done so, and had therefore made an error. The ONS stated that RPI-CED was the correct long-run historical UK inflation index.[352]

5.230 In addition, SPT submitted that, in relation to CED, the CMA referred to its analysis in the CMA PR19 Redetermination, which suggested that the CED is not particularly RPI-like or CPI-like. This was not entirely accurate. The CED series has been designed to as closely as possible mimic RPI, a point which was also confirmed by the ONS. The CMA did not appear to take this into account. In addition, the CMA's own analysis in the CMA PR19 Redetermination showed that as a minimum, CED lies between RPI and CPI. As a result, it is unambiguous that CED overstates true CPI, at least to some degree.[353]

[350] SGN Response to PD, paragraphs 130–132.
[351] NGN Response to PD, paragraph 145.
[352] SPT Response to PD, paragraph 41.
[353] SPT Response to PD, paragraph 44.

5.231 The appellants also highlighted what they viewed as inconsistencies in the CMA's approach and reasoning on this matter. For example:

a) SSEN-T submitted that the CMA 'fails to engage with the key question arising on SSEN Transmission's appeal: was it appropriate for GEMA to rely on the CPI alone when other relevant and available evidence from the RPI dataset exists which should have been taken into account?'[354]

b) NGET/NGG submitted that in spite of the fact that the provisional determination made clear that the CMA 'may find an error if the Decision is based on unreliable data or fails to take account of the relevant evidence', and acknowledged that the CPI backcast data is of uncertain reliability, the provisional determination declined to find an error on the basis that RPI also faces reliability questions due to issues with data collection/ aggregation methodologies of unknown impact. This was an inconsistent approach: when faced with data which is acknowledged to be unreliable, the regulator should not simply assume one dataset is preferable to another without any evidence that this is the case. [355]

c) Furthermore, NGET/NGG submitted that, when assessing GEMA's use of cross-checks the provisional determination observed that 'More important to the setting of an appropriate cost of equity allowance is that GEMA did not unduly rely on one or a small number of specific methodologies to the exclusion of other reasonable approaches and/or place undue weight upon methodologies that were clearly unsound'. Applying the same test to the choice of TMR inflation series, GEMA clearly placed undue weight on one approach (using CPI) to the exclusion of other reasonable approaches, including the approach used by the CMA in the CMA PR19 Redetermination. [356]

d) Finally, NGET/NGG told us that the approach in the provisional determination to the choice of inflation series was also inconsistent with the approach taken in other grounds, where reliance by GEMA on data which was shown to have reliability issues was sufficient to establish an error. The provisional finding in the provisional determination that it may be preferable to use a consistent inflation series over the period should not outweigh the benefits of a balanced approach that recognises the shortcomings of both datasets, and therefore places weight on both. Moreover, the provisional finding that it is more consistent to use a CPI inflation series when deflating historical returns for consistency with CPI

[354] SSEN-T Response to PD, paragraph 2.75.
[355] NGET/NGG Response to PD, Annex C, page 30.
[356] NGET/NGG Response to PD, Annex C, page 30.

on a forward-looking basis was flawed because there is no evidence that the backcast-CPI data pre-1988 is prepared on a consistent basis with CPI since that date.[357]

GEMA's submissions

5.232 GEMA submitted that CED/RPI deflated returns are, in fact, lower than CED/CPI deflated returns and that the appeals are motivated by the desire to use forecast RPI, not the desire to use outturn RPI. GEMA noted that it is only when backwards-looking CED/RPI and forwards-looking RPI data are combined that a higher TMR is achieved. GEMA submitted that RPI is due to change again in 2030, to reflect the outcome of HM Treasury's recent consultation and that the appeals were motivated by the use of different inflation measures over time and the impact of combining the available inflation measures. There is no perfect consistency of inflation measurement over time and, consistent with GEMA's decision, the change in 2030 (where RPI will use CPIH methods and data) will re-enforce this; it will be necessary to deflate outturn returns by a different measure than is used for future inflation (which is already the case given the extensive use of CED).

5.233 GEMA invited the CMA to consider both outturns and forecasts in its final determination, on the basis that the TMR is an ex-ante concept and must reflect expectations and forecasts, where CPI is preferred.[358]

Choice of inflation series – our final assessment

5.234 We have considered the appellants' submissions regarding our assessment of GEMA's decision as to the choice of inflation data set to deflate historical returns. However, we do not find these submissions persuasive and maintain our finding that GEMA has not erred in this respect for the reasons set out in our provisional assessment, above. In coming to this conclusion, we emphasise the following points in response to submissions received on our provisional determination:

a) While the reliability of the CPI backcast is unknown, we have not seen persuasive evidence that this estimate is, in fact, unreliable, or that it is likely to be biased (downwards), as several appellants have submitted. In this respect, we note that the fact that CPI differs from RPI inflation is not in itself evidence that CPI is biased. The CMA's decision in the CMA PR19 Redetermination to place some weight on RPI-deflated returns was

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[357] NGET/NGG Response to PD, Annex C, page 30.
[358] GEMA Response to PD, paragraphs 23–24.

based on the uncertainty over the accuracy of the CPI measure, and not on a view that including RPI-deflated returns would in some way balance out bias in CPI-deflated returns.[359] Similarly, the CMA has previously considered in detail the wider question of whether CED was more 'CPI-like' or 'RPI-like' and therefore, whether it could reasonably be combined with either series when deflating historical returns. The CMA concluded that 'CED cannot be said to be more like RPI or more like CPI'.[360] This continues to be our view. Hence, we do not consider that combining CPI with CED, as compared with combining RPI and CED, can be said to introduce any particular bias.

b) In contrast, it is clear that RPI is both an upwards-biased estimate of inflation over time and has been inconsistent.

c) The ONS' views on the suitability of CED/RPI for understanding historical inflation, submitted by SPT, date from 2004 and as a result are of very limited relevance. The detailed investigation into the strengths and weaknesses of RPI as a measure of inflation, which resulted in the loss of its national statistic status, took place after the 2010 jump in the formula effect.

5.235 As a result, in the context of having to choose between two imperfect inflation data series, we are not persuaded by the appellants that GEMA's assessment that CPI is to be preferred over RPI is wrong. Where there are alternative options, which each have competing pros and cons, and none is clearly superior, it will be more difficult to persuade us that GEMA has erred.[361] We recognise that it was an option open to GEMA to adopt a similar approach to that of the CMA in PR19, ie to seek to adjust for the inconsistency of RPI over time and then place weight on both CPI and RPI inflation. However, the accuracy/adequacy of any such adjustment is unknown. In its PR19 Redetermination, the CMA made an adjustment of 30bps to take into account the increase in the formula effect observed around 2010 as a result of a change in how data on clothing prices was collected and processed. However, in that case the CMA also recognised that there were other methodological changes in the RPI series over the second half of the twentieth century, which may have resulted in further – or indeed, opposing – changes in the formula effect, that were not taken into account in this adjustment. The PR19 Redetermination stated:

[359] CMA PR19 Redetermination, paragraphs 9.295–9.296.
[360] CMA PR19 Redetermination, paragraphs 9.306–9.310.
[361] See paragraph 3.43 of the Legal Framework

> We recognise that there is uncertainty over the extent of this inconsistency and the change in the formula effect, and we consider that the approach we have taken in our assessment (of discounting the RPI range by around 30 basis points), is relatively conservative.[362]

In this context, and in light of the material issues with the RPI price index, we do not consider that a decision not to place weight on such a data series (alongside CPI) can be considered an error.

5.236 Therefore, we do not agree with the appellants' arguments that relying on a data source of unknown reliability constitutes an error where no superior data source exists. Similarly, we do not agree that where there are reasons to prefer one (imperfect) data source over another, as we consider that there are in this case, it is an error not to place weight on both such sources. We consider GEMA's decision on this matter to be justified on the evidence.

5.237 Finally, we considered the argument that GEMA had given insufficient consideration to the merits/demerits of RPI-deflated returns and as a result has erred by not properly having regard to, or giving appropriate weight to, relevant evidence. However, we note that the UKRN Report, on which GEMA drew in setting its cost of equity, contained a detailed discussion of the challenges of choosing an inflation series to deflate historical returns[363] and that GEMA itself considered this issue when setting TMR.[364]

Approach to averaging returns

Appellants' submissions

5.238 WWU submitted that GEMA had made errors in calculating the nominal market returns by using incorrect and statistically biased averaging techniques.[365]

5.239 SSEN-T argued that by using the geometric average with a subjective uplift to estimate the TMR, GEMA was proposing to set a return lower than the actual arithmetic average observed in empirical data and thereby embedding an inappropriate downward bias to the value of the expected return. SSEN-T further explained that its advisers (Oxera) were only aware of one suggestion in the relevant literature (from Wright & Mason) that geometric averages may be more appropriate in price controls given a degree of predictability and/or

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[362] CMA PR19 Redetermination, para 9.301.
[363] UKRN Report, 2018, Appendix D (pages 109–124).
[364] For example, SSMD, paragraphs 3.81–3.82.
[365] WWU NoA, paragraph B3.6.

negative serial correlation of returns. However, as Oxera had explained, there was no conclusive evidence either that returns were predictable or of a negative serial correlation of returns. Therefore, there was no empirical evidence that would justify the use in a price control setting of the geometric averaging approach or that the strong assumptions on which Wright & Mason's tentative suggestion was based held in practice. GEMA therefore had made an error in using the geometric average of historical equity returns plus a subjective uplift which had produced an erroneously lower estimate rather than the standard directly observed arithmetic average.[366]

5.240 Cadent,[367] NGET/NGG[368,369] NGN,[370] SGN[371] and SPT[372] submitted that GEMA's approach to averaging historical returns had not taken into account a range of estimators commonly used by the CMA and others. In particular, GEMA had not included the estimators developed by Blume and Jacquier, Kane and Marcus (JKM) for the purpose of estimating future values of investments, or the estimator developed by Cooper for the purpose of calculating present values of future cash-flows, nor had GEMA taken into account overlapping and non-overlapping arithmetic returns over 10 or 20 years.

5.241 SGN[373] and NGN[374] submitted that applying a 1.5 percentage point uplift to the geometric returns, which was supported by regulatory precedent, the Wright et al Report, and analysis in the KPMG Cost of Equity Report, would result in a TMR estimate of 6.75% (even when solely relying on the CED/CPI approach to deflation). However, GEMA had only allowed for an uplift of 1.25 percentage points, which was materially below the 1.5 percentage point uplift. SGN[375] and NGN[376] submitted that GEMA's decision to use an uplift of 1.25 percentage points appeared to hinge on incorrect Price Waterhouse Cooper's (**PwC**'s) analysis presented in its Sector Specific Methodology Decision (**SSMD**). The later correction of this analysis provided an update range of 0.9 to 1.8 percent.[377]

5.242 In its Reply to GEMA's Response, Cadent submitted that properly constructed averages arrive at higher values than GEMA's approach, and that this was

366 SSEN-T NoA, paragraphs 4.44–4.46.
367 Cadent NoA, paragraph 4.74.
368 NGET NoA, paragraphs 3.183–3.185.
369 NGG NoA, paragraphs 3.183–3.185.
370 NGN NoA, paragraph 198.
371 SGN NoA, paragraph 182.
372 SPT NoA, paragraph 43(2).
373 SGN NoA, paragraph 183.
374 NGN NoA, paragraphs 198–199.
375 SGN NoA, paragraphs 184–185.
376 NGN NoA, paragraph 198.
377 SGN NoA, paragraphs 183–185.

direct evidence that the uplift that GEMA had applied was not sufficient. Cadent further stated that an uplift of 1.5 to 1.7 percentage points was supported by the empirical evidence.[378]

5.243 In addition, NGET/NGG,[379] [380] and SPT[381] submitted that GEMA was wrong to focus solely on holding periods of 10 years or more and that this assumption (of a 10-year investment horizon) was inconsistent with empirical evidence on average holding periods for the types of investors in GB energy networks (and FTSE companies more widely), which supported a holding period of 1 to 5 years. In addition, NGET/NGG,[382] [383] and SPT[384] submitted that GEMA was wrong to focus solely on holding periods of 10 years or more and that this assumption (of a 10-year investment horizon) was inconsistent with empirical evidence on average holding periods for the types of investors in GB energy networks (and FTSE companies more widely), which supported a holding period of 1 to 5 years.

5.244 Cadent submitted that the CMA PR19 Redetermination supported Cadent's position that GEMA was wrong both to rely on a single averaging approach and in the way it applied the volatility uplift to that (geometric returns) averaging approach. Cadent noted that the CMA in the PR19 Redetermination used a range of techniques (20- and 10-year overlapping and non-overlapping averages) rather than a single method like GEMA and found that the 1.2% volatility uplift used by GEMA (based on PwC analysis) was expected to be an under-estimate of the required uplift to the geometric average. Consequently, the CMA's decision placed no weight on a geometric average plus a volatility adjustment approach, when considering the historical ex-post data, and instead relied solely on arithmetic averages of the data.[385]

5.245 SPT submitted that while it remained sceptical about the robustness of the evidence supporting alleged serial correlation in historical returns, it agreed with the CMA's approach in the CMA PR19 Redetermination that averaging actual historical returns over a relevant time horizon would be the appropriate approach to addressing any concerns regarding serial correlation.[386]

5.246 NGET/NGG told us that, while the report by their economic advisers, Frontier Economics Ltd (**Frontier**), argued for consideration of a broader range of

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[378] Cadent Reply, paragraph 73.
[379] NGET NoA, paragraphs 3.191–3.196.
[380] NGG NoA, paragraphs 3.191–3.196.
[381] SPT NoA, paragraph 43(2).
[382] NGET NoA, paragraphs 3.191–3.196.
[383] NGG NoA, paragraphs 3.191–3.196.
[384] SPT NoA, paragraph 43(2).
[385] Cadent PR19 submission, paragraph 36. SGN made similar points in its submission – see SGN PR19 submission, paragraphs 21–22.
[386] SPT PR19 submission, paragraph 19.

averaging techniques than considered by the CMA in its PR19 Redetermination, the CMA's approach was clearly supportive of the appellant's position that GEMA's averaging methodology for determining TMR was flawed.[387]

5.247 In the cost of equity joint hearing, the appellants submitted that there was no robust evidence of negative serial correlation in returns and that a relatively large degree of serial correlation would be required to move from the 1.7% uplift implied by the arithmetic means to the figures used by GEMA.[388] The appellants' advisers explained that they had analysed UK returns over the 1900 to 2019 period and that there was no 'significant evidence' of serial correlation.

GEMA's submissions

5.248 GEMA submitted that the appellants' points were either wrong or simply amounted to disagreements with GEMA's exercise of its regulatory discretion. GEMA noted that:

a) First, GEMA chose a geometric averaging method for two reasons. Most investors focused on the geometric return over the investment horizon and, if the holding period for an investment was more than a year, the arithmetic average was an upwards-biased measure of the true expected return. Second, GEMA's reasons for adopting a geometric averaging method and uplift were supported by both the academic literature (eg Blume (1979)) and was established precedent by practitioners and regulators, including: Barclays Equity Gilt Study; Smithers & Co; and 'Triumph of the Optimists' (Dimson Marsh Staunton);[389]

b) Second, the appellants had not provided evidence suggesting that GEMA had in fact embedded an uplift that was too low. GEMA's uplift of approximately 1.3 to1.5% was higher than the uplift applied by practitioners (JP Morgan, for example, had used 0.82%) and was consistent with the UKRN Report to use a smaller uplift when focusing on long horizons;[390]

c) Third, where alternative averaging methods had been proposed (other than arithmetic averaging), GEMA noted that these could yield very similar (or lower) TMR values than GEMA's mid-point of 6.5%. For

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[387] NGET/NGG joint PR19 submission, paragraph 2.32.
[388] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 41, line 6–page 43, line 17.
[389] GEMA Response A, paragraph 128.
[390] GEMA Response A, paragraph 130.

example, the analysis in the CMA's PR19 Provisional Findings showed CED/CPI values of 6.1%, 6.6% and 6.7%;[391] and

d) Fourth, GEMA considered that longer holding periods were consistent with its long-term view of other parameters in the price control and, in particular, the fact that the RFR was set with reference to yields on ILGs over 20 years. GEMA noted that both consistency across CAPM parameters and considering returns over a relatively long time-horizon are approaches supported by the CMA in its PR19 Provisional Findings.[392]

5.249 In the cost of equity joint hearing, GEMA highlighted that the uplift it had applied to the geometric average to give a mid-point TMR estimate of 6.5% was 1.5% on the basis of the latest DMS data, ie that to 2020. This was because average historical returns had declined by 0.1 to 0.2 percentage points as compared with the 1900 to 2019 average as the result of the inclusion of 2020 data.[393] Separately, GEMA submitted that although the 2020 data was not available to GEMA when it took its RIIO-2 decision, the CMA is entitled to, and should, take this most recent data into account in determining this appeal.[394]

5.250 GEMA's response to comments made by the appellants' advisers on the evidence for serial correlation (see paragraph 5.247), observed that this was an area where statistical significance was extremely hard to find. However, it submitted that if one were to reject the hypothesis of serial correlation, that would imply that commonly-used valuation criteria (such as price-earnings ratios) were spurious information in terms of predicting whether returns were likely to be high or low in the future and that one should also assume a constant equity risk premium over time. In a context where the RFR was at historically low levels, the latter assumption would give a significantly lower TMR.[395]

Approach to averaging returns – our provisional assessment

5.251 In our provisional determination, we considered that the basic approach adopted by GEMA of using the geometric average returns and uplifting these to reflect volatility in returns produced an estimate that was conceptually

[391] GEMA Response A, paragraph 131.
[392] GEMA Response A, paragraph 132.
[393] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 43, line 25–page 44, line 21 and page 46, lines 16–22.
[394] GEMA PR19 Response on Finance, paragraph 15.
[395] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 44, line 22–page 46, line 1.

equivalent to an annualised arithmetic average, and that such an average was an appropriate one for use in the cost of equity for a price control.

5.252 We recognised that an alternative approach, as put forward by the appellants, would be to consider a range of potential estimators, including those proposed by Blume, JKM and Cooper, which would tend to give a broader range of estimates. However, we did not consider it to be an error to put to one side the issue of parameter uncertainty and the various estimators developed to adjust for that uncertainty from different perspectives and to focus on a simple annualised arithmetic average.

5.253 Further, we considered that GEMA's approach of considering returns over an extended period of time, ie a time horizon of 10 to 20 years, was consistent with both the timeframes used elsewhere in its WACC – giving a meaningful cost of capital at a given time horizon – and with the long-time horizons of the energy networks industry.

5.254 Next, we considered the appellants' submissions regarding the appropriateness of the uplift applied by GEMA and the related issue of whether/to what extent it was appropriate for GEMA to reduce the size of the uplift to reflect serial correlation in returns.

5.255 We noted GEMA's adviser's evidence that, on the basis of the latest DMS data (ie including 2020 returns), the uplift implied by GEMA's 6.5% TMR mid-point estimate was approximately 1.5% (suggesting a range of uplifts of 1.25% to 1.75%). This uplift had effectively been increased by a decline in average returns due to the inclusion of an additional year of data. We considered it appropriate to use the longest run of (robust) data available, and hence considered the uplift applied in the context of the DMS dataset with the additional year of data included. We considered that this was the approach GEMA would have taken had that data been available to it when it made its decision.

5.256 We recognised that there was a debate regarding the extent to which serial correlation is present in (UK) equity market returns and how a regulator might seek to quantify such correlation, as shown by the submissions of Professors Gregory and Wright. The analysis carried out by the CMA during the PR19 Redetermination[396] (estimating annualised average returns over 10- to 20-year periods on both an overlapping and a non-overlapping basis) had suggested an adjustment for (negative) serial correlation of up to 40 basis points, which would give an uplift over the geometric mean of between 1.3%

[396] CMA PR19 Redetermination, Table 9-3.

and 1.7%, with the latter figure being the difference between the geometric and the simple annual arithmetic mean, ie no adjustment for serial correlation.

5.257 While these estimates of serial correlation might not be statistically significant as set out by advisers to the appellants, we were persuaded by Wright's arguments both that statistical significance was difficult to find in this area (due to the limited number of data points) and that there were other good reasons to believe that serial correlation was reasonably likely to be present in returns in some form.

5.258 Therefore, we found that the uplift GEMA had applied to its geometric return was consistent with the limited evidence on serial correlation in UK returns. The appellants had not provided any further argumentation or evidence to suggest that GEMA's uplift was incorrect. Therefore, we did not find that GEMA had made an error in its approach to averaging historical returns.

Responses to our provisional determination

Appellants' submissions

5.259 The appellants made two substantive submissions in response to our provisional determination: i) that there was no evidence to support a finding of negative serial correlation and hence no adjustment should be made to averages for such correlation; and ii) that it was inappropriate to include returns for 2020 in the historical dataset due to the impact on returns in that year of the Coronavirus (COVID-19) pandemic. For example:

a) In their joint submission, the appellants stated that they all agreed that GEMA's decision to place sole weight on an incorrectly uplifted geometric average was an error. They highlighted that evidence submitted to the CMA by the appellants demonstrates that there is no statistically significant serial correlation in returns, and that, in response, GEMA also submitted evidence from its advisers which conceded the same. The CMA's recognition of this conclusion directly contradicted GEMA's rationale in the FD for failing to adopt the arithmetic average of annual returns. It was an error for GEMA to rely on unreliable data regarding negative serial correlation in justifying its decision to use the geometric average plus a subjectively determined uplift.[397]

b) Cadent stated that it was not clear in light of the evidence provided on what basis the CMA could conclude that 'there are other good reasons to

[397] Appellants' Joint Response to PD on Ground A, page 6.

believe that serial correlation is likely to be present in returns in some form'. Instead, empirical analysis by Professor Gregory, which has been submitted to the CMA demonstrates the opposite (including that both the PwC analysis relied on by GEMA and the CMA's analysis of serial correlation in the CMA PR19 Redetermination should not be relied on).[398]

c) Similarly, SSEN-T told us that an assessment of the relevant academic literature (as summarised in Oxera's expert report) supported the rejection of the existence of return predictability, consistent with the lack of statistical significance in Oxera's modelling and that in the absence of serial correlation, the only correct approach was to use the arithmetic average.[399]

d) SGN submitted that GEMA's only analysis of serial correlation in the FD was based on PwC analysis (which was erroneous, as the CMA noted in its PR19 Redetermination) and (ii) the CMA's PR19 analysis of serial correlation is likely capturing statistical noise rather than serial correlation. No robust analysis showing serial correlation had been provided by GEMA to the CMA during the course of the appeal. Instead, empirical analysis by Professor Gregory, which had been submitted to the CMA demonstrated the opposite. GEMA's decision to rely on the PwC analysis was an error of fact. GEMA's decision on averaging was therefore wrong. In any event, if other averaging techniques which had merit were rejected in favour of a single technique that produced an estimate below all of these other techniques, that clearly indicated the presence of bias in the estimate. Regardless of whether the CMA accepted that GEMA committed an error in its choice of averaging techniques, the full weight of robust evidence must be factored into the assessment of downward bias in the round.[400]

e) NGET/NGG submitted that the provisional determination relied on analysis which included the exceptional year of 2020 when the equity market suffered from a significant but ultimately transitory decline due to the Coronavirus (COVID-19) pandemic. Importantly, this data did not fully include the ongoing recovery that has followed the decline: the FTSE all-share index was as of August 2021 back to its pre-COVID-19 highest point. As a result, the DMS data on 2020 returns was already significantly out of date and, if used in its current form, would underestimate the long-term equity return. The absence of any scrutiny of the robustness or

[398] Cadent Response to PD, paragraphs 11.25–11.26.
[399] SSEN-T Response to PD, paragraphs 2.63 and 2.68.
[400] SGN Response to PD, paragraphs 127–129.

distortive effect of the DMS2021 dataset in the provisional determination, and the mere acceptance of GEMA's submission that its uplift should be viewed as equivalent to 1.5% based on that data, was inconsistent with best regulatory practice.[401]

f) Similarly, SGN told us that the CMA's view that GEMA's uplift was now 1.5 percentage points due to latest DMS publication failed to recognise that TMR was an inherently stable parameter and 2020 was highly unusual given the Coronavirus (COVID-19) pandemic.[402]

5.260 SPT noted the CMA's view that GEMA's TMR of 6.5% was equivalent to a 5% geometric mean plus a 150bps uplift to the arithmetic mean, which was in line with the range in the CMA PR19 Redetermination of 130–170bps, taking into account the limited evidence on serial correlation in UK returns. SPT submitted that this decomposition of GEMA's TMR assumed a lower geometric mean and a higher uplift than GEMA could have assumed at the time of the FD, as a result of the inclusion of 2020 UK market returns in its calculations. However, even after including 2020 returns data, SPT could not reconcile the geometric return figure of 5%. As set out in the CAPM Report by NERA (SPT economic advisers), the data up to end 2019 supported a geometric mean of 5.24% real when deflated using CPI-CED and the inclusion of 2020 returns reduced the geometric average by less than 15bps ie to 5.1%. This was higher than the 5%.[403]

5.261 NGET/NGG submitted that the question of whether GEMA's approach to averaging returns was wrong in view of the data which was available to it should be considered separately to whether GEMA's decision can be sustained ex-post on any other basis. NGET/NGG argue that the CMA should have recognised that GEMA's original uplift was outside the reasonable range before considering whether that figure could be sustained in light of updated returns data.[404]

5.262 NGN submitted that GEMA's approach failed to give appropriate weight to other relevant evidence. Specifically, GEMA rejected other averaging techniques that had merit, in favour of a single technique that produced an estimate below all of these others. This clearly introduced a bias in the estimate.[405]

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401 NGET/NGG Response to PD, Annex C, page 31. Cadent made this same point in its response, see Cadent Response to PD, paragraph 11.29.
402 SGN Response to PD, paragraph 128.
403 SPT Response to PD, paragraphs 49–51.
404 NGET/NGG Response to PD, Annex C, page 30.
405 NGN Response to PD, paragraph 143.

GEMA's submissions

5.263 GEMA submitted that, if the best estimate of expected returns is the (longest-run) average of past returns, it is consistent to assume negative serial correlation (mean reversion), and that variance ratios are consistent with serial correlation, notwithstanding that it remains difficult to reject the hypothesis that returns are serially uncorrelated.[406]

5.264 GEMA also clarified, in response to a CMA request, that the revised geometric mean return over the period from 1900 to 2020 when using CED/CPI inflation was 5.06%.[407]

Approach to averaging returns – our final assessment

5.265 We note that the majority of the submissions received on the issue of averaging returns did not raise substantive new points and we continue to find that GEMA did not err in its approach for the reasons set out in our provisional determination. However, we have considered the additional submissions carefully, setting out our assessment of these in the following paragraph.

5.266 First, we considered the appellants' submissions that GEMA should have considered a range of averaging techniques, rather than considering only a geometric average uplifted for volatility. The CMA considered this point in some detail in its PR19 Redetermination, concluding that 'in the absence of clear modelling of the regulator's decision, the most appropriate estimate to use is the arithmetic mean. The consequence of that would be to give no weight to the other estimators, either JKM and Blume which are lower, or Cooper, which is higher'. Considering a broader range of estimates, which the regulator has no particular reason to believe are more accurate than the arithmetic average and which fall either side of the arithmetic average, does not provide material additional information. We continue to find that approach to be appropriate and applicable to the facts of RIIO-2.

5.267 Next, we note that the appellants' submissions with regard to the evidence base supporting negative serial correlation were already considered fully in our provisional assessment (see paragraphs 5.254 – 5.258). We agree with GEMA's submission that an assumption of mean reversion – and therefore an element of negative serial correlation in returns – is a key premise underpinning the use of average historical returns to identify the TMR. The use of average historical returns as a means of estimating the TMR is widely supported by the appellants. An alternative approach of considering forward-

[406] GEMA Response to PD, paragraph 25.
[407] GEMA response to RFI 035, 29th September 2021.

looking estimates broadly suggests a lower TMR at the current time. Similarly, we note Wright's points, made on behalf of GEMA, highlighting that within the academic literature those who reject predictability of returns, tend to look at the equity premium and find that there is no serial correlation in the equity premium. However, if the equity premium is, in fact, unpredictable then one should hold the equity premium constant. And, if the equity premium were constant at its historical value, that would suggest a very significantly lower implied market return.[408] Therefore, in addition to the reasoning set out above, we consider an assumption of negative serial correlation to be theoretically consistent with the broader approach adopted by GEMA (of seeking to identify an assumed constant TMR from historical returns data).

5.268 Next, we considered the appellants' submissions on the appropriateness of including 2020 returns data in estimating TMR. We do not agree that this data should be excluded on the basis that the decline is 'transitory'. First, the 121-year dataset contains many years which are significant outliers in terms of either under- or over-performance. To exclude a specific data point because the year was affected by particularly poor performance would, in our view, represent 'cherry-picking'. Second, while the FTSE all-share index is currently above the level reached on 31 December 2020, it remains significantly below its level as of the end of 2019 and it is unclear how the index will perform over the next few months and years.[409]

5.269 Therefore, we do not find the evidence, as it stands, supports the appellants' submission that the impact of the Coronavirus (COVID-19) pandemic on the market is necessarily transitory. Furthermore, we note that the pandemic is only one factor among many that can be expected to affect returns in the next few years. For these reasons, we consider it more robust to use the full DMS dataset, ie including the 2020 returns, than to exclude the last year of returns.

5.270 Finally, we considered SGN's submission that the historical geometric mean returns have been 5.1%, rather than 5.0%, and NGET/NGG's submission that the CMA should recognise that GEMA's original uplift was outside the reasonable range, even if the reduction in returns resulting from the inclusion of 2020 data means that the current TMR estimate suggests an uplift which is within the reasonable range. As set out in paragraph 5.256 above, we consider that the available evidence supports a range of possible uplifts on the geometric mean of approximately 1.3% to 1.7%. In particular, we do not find there to be robust evidence to support an uplift lower than 1.3%. In light of the most up-to-date returns data, GEMA's TMR estimate of 6.5% represents

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[408] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 44, line 22–page 46, line 1.
[409] As of 27 December 2019, the FTSE all-share index was at 4,248. It fell to 3,674 by 31 December 2020 and, as of 20 September 2021 stood at 3,987. Source: FT.com

an uplift of 1.44%, which is within the range of possible uplifts supported by the evidence.

5.271 As a result of our assessment above, and in line with the conclusion in the provisional determination, we find the uplift GEMA had applied to its geometric return to be consistent with the limited evidence on serial correlation in UK returns. The appellants have not provided convincing evidence to suggest that GEMA's uplift was incorrect. Therefore, we do not find that GEMA had made an error in its approach to averaging historical returns.

Use of cross-checks

Appellants' submissions

5.272 Cadent submitted that GEMA's approach to cross-checking its TMR was not appropriate, as Dividend Growth Model (**DGM**) estimates are recognised (including in the CMA PR19 Provisional Findings) as too volatile and too reliant on judgement for key parameters, and investment manager forecasts are recognised as subjective, as having the potential to be downward biased and as producing an overly wide range of estimates. Specifically, Cadent[410] and NGN[411] argued that:

a) the DGM estimates that GEMA had relied on were downward biased because of CEPA's (GEMA's economic advisers) apparent failure to apply a bias adjustment (to account for DGM results being closer to geometric averages) and use of depressed UK GDP growth rates at the time of modelling (due to EU exit), despite the fact that the index derived approximately 70% of its return from outside the UK; and

b) investor surveys and practitioner forecasts by their nature produce a wide variety of estimates, reflecting their subjective nature and the fact they may not be stated on a comparable basis, and as a consequence provide limited guidance.

5.273 Cadent submitted that GEMA should have undertaken an appropriate historical ex-ante approach to cross-checking TMR (using the DMS historical decomposition), as well as international evidence on returns.[412]

[410] Cadent NoA, paragraph 4.76.
[411] NGN NoA, paragraph 200.
[412] Cadent NoA, paragraph 4.78.

5.274 Similarly, NGN submitted that GEMA had been selective in its use of cross-checks, focusing only on forward-looking approaches rather than considering a range of approaches, including historical ex-ante.[413]

5.275 SPT submitted that GEMA had relied on a DGM developed by CEPA based on erroneous assumptions regarding dividend growth which lead to an understated TMR. GEMA had ignored the cross-check based on the BoE's DGM, which supported TMR estimates even higher than the historical realised returns evidence.[414]

5.276 Cadent submitted that the CMA PR19 Redetermination supported Cadent's position that GEMA was wrong to rely on forward looking evidence, to ignore historical ex-ante evidence, and to use US dollar returns (in contrast to wider international evidence) in its approach to cross-checking TMR. Cadent highlighted the following statements in the CMA PR19 Redetermination:[415]

a) In respect of forward-looking cross checks of TMR using a DDM approach: 'due to the sensitivity of these estimates to assumptions, we place limited weight on the results derived from this approach'.

b) In respect of forward-looking cross checks of TMR using survey evidence and practitioner forecasts: 'The further evidence presented reinforces our view that survey evidence should be treated with caution'.

c) In respect of the use of US dollar returns and wider international data: '[t]o the extent that we look at returns in other geographies, we consider that total world return appears preferable to returns data from specific other countries such as the USA or Australia, on the basis that the former is less likely to be biased by single single-country out-performance.[…] Similarly, while US dollar returns on the UK market could be considered as a cross-check on the CPI/RPI debate, it relies on purchasing power parity holding and we consider that to be a strong assumption.'

Appellants' responses to the provisional determination

5.277 We received relatively limited submissions in response to our provisional determination. Therefore, we have briefly summarised the appellants' views here before giving our overall assessment of GEMA's use of cross-checks, below, ie we have not separately repeated our provisional determination and

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413 NGN NoA, paragraph 200.
414 SPT NoA, paragraph 43(3).
415 Cadent PR19 submission, paragraph 37.

given a separate final assessment. All submissions are considered in paragraphs 5.284 to 5.291, below.

5.278 SSEN-T submitted that its economic advisers, Oxera, had presented a DDM where the results supported a TMR between 6.8% and 8.5%, with dividend growth assumptions based on UK and international GDP growth forecasts respectively. In our provisional determination, we considered that GEMA's approach to calibrating the DDM was more robust because it involved relying on UK rather than international GDP growth forecasts. However, the BoE itself assumes international GDP growth forecasts in their DDM. Even if the correct assumption is to use UK GDP growth forecasts, this results in a 6.8% cost of equity and demonstrates that the 6.5% estimated by GEMA is clearly outside the range of plausible estimates. This evidence provided further support for the above conclusions that the CMA should have found that GEMA's TMR decision was wrong.[416]

5.279 NGN submitted that the full range of DGMs and investment manager forecasts encompassed the estimate of TMR made by the experts of both GEMA and the appellant. For example, GEMA's own analysis of investment manager forecasts included estimates from Schroders and BlackRock that were 7.8% and 7.5% nominal, geometric averages. On an RPI-deflated basis that was 4.8% and 4.5%, respectively which was in line with the UK geometric average from long run TMR data. As such, NGN submitted that it was unclear why the CMA considered that these techniques supported TMR below the long-run average.[417]

GEMA's submissions

5.280 With respect to the international comparator evidence put forward by the appellants, GEMA told us that it did not consider that international evidence for selected countries was informative, as such an approach risked cherry-picking and did not have regulatory precedent.[418]

5.281 With respect to the forward-looking cross-checks, GEMA recognised the potential for DGM and investment manager forecasts to be subjective, and as a result had placed limited weight upon them. [419]

[416] SSEN-T Response to PD, paragraphs 2.83–2.85.
[417] NGN Response to PD, paragraph 147.
[418] GEMA Response A, paragraph 138.
[419] GEMA Response A, paragraph 138.

5.282 Finally, GEMA observed that the CMA's own historical ex-ante estimates in the CMA PR19 Provisional Findings estimated 'a CPI-real average of 5.05% (geometric)' which was in line with GEMA's decision in RIIO-2.[420]

5.283 GEMA also submitted a report from Mason and Wright which observed that there were several reasons to believe that GEMA's overall approach to estimating the TMR was biased upwards, in particular:[421]

a) Using historical averages of market returns as a proxy for expected returns ignores evidence of predictability that would (strongly) point to currently lower expected returns. Negative serial correlation implies that historically high returns predict future low returns, and is consistent with a large body of academic research that points to predictability using valuation ratios such as dividend yields or price-to-earnings multiples. These are currently pointing to lower expected returns in most global markets.

b) Using historical averages of returns implicitly assumes the equity risk premium rises 1-for-1 as the risk-free rate falls. If (as seems likely) it does not, then expected market returns are at least in part pulled down by risk-free returns. The pre-Mason, Miles and Wright approach[422] was typically to assume that the equity premium was constant, which would imply that expected market returns would fall 1-for-1 with the risk-free rate, and would thus imply a much more significant fall in the cost of equity in recent years.

c) A range of different cross-checks on actual market expectations of market stock returns point fairly systematically to a lower figure than GEMA is assuming.

Use of cross-checks – our final assessment

5.284 We considered GEMA's choice of cross-checks[423] on the overall TMR figure, notably its decision to take into account forward-looking evidence in the form of DGMs and investment managers' forecasts, as well as to not place weight on TMR estimates from other common-law countries or historical ex-ante

[420] GEMA Response A, paragraph 138.
[421] Mason and Wright (GEMA), 'Is Ofgem's allowed return on equity unreasonable? An independent assessment in light of company responses to the PR19 and RIIO-2 determinations', 7 May 2021, paragraphs 4.35–4.38.
[422] These authors proposed that regulators should assume that the TMR was stable over time and that the equity risk premium fluctuated with movements in the RFR, rather than assuming a stable equity risk premium and a TMR that moved 1-for-1 with the RFR. See A Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the UK, 2003.
[423] We have considered GEMA's use of US-dollar returns on UK equities in our assessment of GEMA's choice of CPI rather than RPI as the data series to deflate historical returns as we consider that that cross-check is most relevant to that element of GEMA's decision rather than its overall cross-check of the TMR figure.

cross-checks. We also considered GEMA's use of the US-dollar deflated returns on UK equities cross-check.

5.285 First we observe that GEMA's TMR point estimate and range have been derived from its analysis of historical returns, ie GEMA did not change its estimate on the basis of forward-looking cross-checks, although it did take comfort from those cross-checks that its historical ex-post estimate was appropriate. Therefore, we do not agree with the appellants that the evidence supports the contention that GEMA has placed too much weight on forward-looking cross-checks.

5.286 Second, we consider that while there is significant uncertainty regarding the calibration of DGMs and the weight that should be placed on both DGMs and investment managers' forecasts/survey data given their sensitivity to input assumptions and volatility over time (respectively), these cross-checks can provide some insight into broader market expectations of returns in the relatively near term. These suggest that the balance of market participants currently expect returns to be lower than they have been, on average, in the past and that such expectations are, in fact, what regulators are seeking to measure in their estimates of TMR. We note that this forward-looking evidence, which suggests a lower TMR, may reflect the points raised by Mason and Wright (see paragraph 5.283), insofar as market participants may be taking into account (potential) serial correlation and the fact that the ERP may not move 1-for-1 with the RFR. We do not find NGN's submission that some market participants expect returns in line with historical averages to be persuasive as we consider the balance of evidence to be relevant. As shown in Figure 5-3, forward-looking approaches provide a wide range of TMR estimates, some of which are consistent with historical averages. However, this evidence taken as a whole, suggests a lower TMR.

5.287 In this context, we consider that GEMA's advisers' approach to calibrating the DGMs, ie relying on UK rather than international GDP growth forecasts, is likely to be more robust than the approaches put forward by the appellants in the context of relatively low historical dividend growth rates in the UK, which at approximately 0.8%[424] have been materially lower than (even) current UK GDP forecasts.

5.288 We considered SSEN-T's argument that even using UK GDP growth forecasts Oxera's DDM gives a TMR estimate of 6.8%. First, we note that this estimate is only marginally above the upper end of GEMA's range (of 6.25% to 6.75%), and given the number of assumptions required to calibrate a DDM,

[424] Credit Suisse Global Investment Returns Yearbook 2019, Table 10.

does not, therefore, provide strong evidence that GEMA's range is incorrect. Moreover, as noted above, historical dividend growth rates have been significantly below GDP growth rates,[425] which suggests that even the use of these UK GDP forecasts may result in an over-estimate of the TMR, further supporting the finding that GEMA has not erred in selecting its range.

5.289 Next, we consider that both the international evidence and the historical ex-ante approach can provide useful cross-checks on UK expected TMR in the context of a price control.

a) However, in the case of international cross-checks, we do not agree with the appellants that a balanced assessment of the evidence required GEMA to take into account international evidence on TMR in the form of historical market returns from common-law countries. While we recognise that there is a body of academic literature which suggests that such countries tend to out-perform others,[426] we agree with GEMA that there is significant risk of 'cherry-picking' by relying on this data given the small number of countries involved. This concern is particularly salient given the well-acknowledged similarity between historical UK returns and average historical global returns, which may suggest that the latter provides a more appropriate benchmark.

b) In the case of historical ex-ante cross-checks, we considered but were not persuaded by KPMG's arguments that, if properly applied, these would suggest a TMR of 6.2% RPI-real, or approximately 7.1% CPI real, ie above GEMA's range, as KPMG's higher figure results largely from the submissions considered above regarding using RPI, rather than just CPI, and the extent to which it is robust to take into account potential serial correlation.[427] Given our findings on both these points, ie that GEMA has not erred in either case, the application of a historical ex-ante cross-check would not have indicated a TMR figure outside GEMA's historical ex-post range. Therefore, whether or not such a cross-check was applied is moot.

5.290 Finally, we consider that relatively little weight can be placed on GEMA's US-Dollar deflated returns on UK equities cross-check as this requires purchasing power parity to hold, which we consider to be a strong assumption. However,

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[425] In its March 2021 Economic and Fiscal Outlook, the OBR forecast growth for the UK economy of 1.7% in 2023, 1.6% in 2024 and 1.7% in 2025. Growth forecasts in 2021 and 2022 are significantly above the longer-term trend at 4.0% and 7.3% respectively. See Economic and fiscal outlook - March 2021 - Office for Budget Responsibility (obr.uk), page 15.
[426] See, for example, R. La Porta, F. Lopez-de-Silanes, A. Shleifer and R.W. Vishny, Law and Finance Journal of Political Economy, Vol. 106, No. 6 (December 1998), pages 1113–1155. R. La Porta, F. Lopez-de-Silanes, A. Shleifer and R.W. Vishny, 'Investor protection and Corporate Governance', Journal of Financial Economics 58 (2000) 3-27.
[427] KPMG PR19 Paper, 23 April 2021, pages 14–16.

as we have found that GEMA's decision to rely on the CPI inflation series was not erroneous for the reasons we have set out at paragraphs 5.217 to 5.223 and 5.234 to 5.237, our finding with respect to this cross-check does not affect our overall finding that GEMA has not erred.

5.291 For these reasons, we find that the appellants have not demonstrated that GEMA has erred in applying cross-checks to its TMR estimate.

TMR – our conclusion

5.292 As set out in the preceding section, we find that the appellants have not demonstrated that GEMA has erred in estimating the TMR, which it has used in coming to a view on the cost of equity. Therefore, we find that GEMA's point estimate of 6.5% (CPI-real) and its range of 6.25% to 6.75% were not wrong.

Beta

Introduction

5.293 This section covers the errors alleged by the appellants relating to GEMA's methodologies and eventual estimate of beta within the estimation of the overall allowed cost of equity.

Background to the alleged error

5.294 Beta, within the CAPM, reflects an asset's (or portfolio of assets') exposure to systematic (or common) risks relevant to the broader market. A commonly referenced systematic risk is the performance of the overall economy.

5.295 Systematic risks are distinct from idiosyncratic risks, which may impact only a small number of assets, or may simultaneously impact different assets positively and negatively. The model we use to estimate the cost of equity assumes that idiosyncratic risks are diversified away, and so we remain concerned only with exposure to systematic risks.

5.296 The beta which would be faced by investors in a company's assets is often called the asset beta. However, investors normally invest in securities (which are able to call on returns earned on those assets), rather than directly investing in the assets themselves. Where this is the case, as it is with the entities subject to the price control, the asset beta (β_{A}) can then be split into:

a) Equity beta (β_{E}), the exposure of shareholders to systematic risk; and *b)* Debt beta (β_D), the exposure of bondholders to systematic risk.

5.297 In calculating asset beta, debt and equity betas are weighted by the proportion of debt (g)[428] and equity (1- g) within the capital structure as shown below:

$$\beta_A = g.\beta_D + (1 - g).\beta_E$$

5.298 Per this equation, for a given value of asset beta (β_A) a positive debt beta reduces the (re-levered)[429] equity beta, as a portion of systematic risk is assumed to be borne by debt investors, and so does not require compensation in equity returns.

5.299 The equity beta, and therefore the cost of equity, in the CAPM framework will also generally rise as gearing rises, because increasing gearing means that shareholders are exposed to increasing levels of systematic risks per share. As a result of this relationship between gearing and equity beta, an approach of calculating an asset beta is often used in regulators' WACC decisions. This approach allows firms with different capital structures to be brought onto a comparable basis. This comparator asset beta is then adjusted using the formula above to estimate the equity beta of the regulated firm.

Calculating equity beta

5.300 Equity beta is typically the easiest of the betas to observe and calculate, and asset betas can be inferred from equity betas by adjusting for gearing. Equity beta is measured by comparing a company's share price movements to movements of the whole market. When a firm's shares are not listed, and therefore the equity beta cannot be measured directly, the betas of comparator companies with similar levels of systematic risk are used as a proxy for that firm's equity beta. Generally, we assume that companies in the same sector will face similar systematic risks.

5.301 A share price that generally moves up and down in an exaggerated way relative to the market will have an equity beta greater than one. A share price that generally moves in a muted way relative to the market will have an equity beta lower than one. A share price that generally moves in line with the market will have an equity beta close to one.

[428] 'g' represents 'gearing'. Gearing demonstrates the extent to which a firm's operations are funded by debt compared to equity and measures a company's financial leverage.
[429] The equity beta is 're-levered' to represent the notional company gearing.

Calculating debt beta

5.302 Debt beta is generally more difficult to measure than equity beta, as bonds are less well traded than equities. However, in principle, the value of debt should also be affected by systematic risk, which will affect the probability of default or could result in a change in the credit quality of the debt. This will also have an effect on the traded bond prices, and the effect is normally smaller than on share prices.

The RIIO-2 Decision

5.303 This section summarises the decisions made by GEMA in determining beta. We present more detail on GEMA's reasoning in the discussion of parties' arguments below.

Unlevered equity beta

5.304 In setting the equity beta, GEMA was not able to rely on any 'pure play' listed energy comparators due to there being no such entities publicly traded in Great Britain. GEMA therefore estimated forward-looking equity betas by looking at the historical correlations between the share prices of regulated utilities and the FTSE All-Share index.

5.305 GEMA relied on estimations of beta for four of the five listed UK infrastructure companies:

a) Severn Trent (**SVT**)

b) United Utilities (**UU**)

c) Pennon (**PNN**)

d) National Grid.[430]

5.306 GEMA placed limited weight on the observed equity beta for SSE, which was substantially higher than those of SVT, UU, Pennon and National Grid. GEMA considered SSE's higher observed betas were likely to be attributable to the relatively higher proportion of non-energy network business conducted by the publicly traded SSE entity (eg electricity generation and supply). GEMA said that such unregulated non-energy network business could be expected to carry a higher level of systematic risk than a regulated energy network

[430] Three of these companies are water companies, with only National Grid operating in energy transmission and distribution. The fifth listed infrastructure company (SSE) operates in energy transmission and distribution but also (until recently) in energy retail. National Grid operates in energy transmission and distribution in the UK and US but also has a number of other related business activities.

business – thereby biasing SSE's observed beta upwards and rendering it a poor proxy for a 'pure play' energy network.[431]

5.307 Alongside its DD, GEMA published a report from its adviser, CEPA, which sets out its approach to determining the most relevant European comparators for assessing beta in RIIO-2.[432] Within its report, CEPA set out the 12 comparators it considered and the reasons why it chose to use or disregard these comparators in its analysis. This included consideration of:

a) Regulated share of value: the percentage of value (defined with reference to profits, assets or revenue) accounted for by 'pure play' regulated energy network assets;

b) Regime similarity: the high-level comparability of the regulatory regime to the UK (though CEPA did not carry out a detailed relative risk analysis of each country's regimes);

c) Liquidity: the trading liquidity of each comparator, in order to filter out those that may not have robust pricing data; and

d) Data robustness: the reliability and robustness of the resulting beta estimates, including their volatility over time and sensitivity to modelling choices such as the reference index.[433]

5.308 CEPA's analysis of the six comparators which it considered to be sufficiently comparable 'indicates an asset beta for European energy networks in the range of 0.32 to 0.39',[434] which encompasses GEMA's asset beta estimate of 0.349. CEPA noted that using the most recent 5-year period (at the time of its analysis) 'would suggest an asset beta of 0.36 to 0.37, slightly above the midpoint of the range',[435] which is above GEMA's final asset beta determination.

5.309 CEPA noted that its range was lower than that derived from analysis in reports commissioned by the energy companies from economic consultants Frontier Economics and Oxera, but in each instance highlighted concerns with the sample companies chosen.

5.310 In reaching its final decision, GEMA placed limited weight on the observed equity betas of publicly traded European companies. It told us that in order to rely on these observations it would have to account for (or ignore) differences

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[431] GEMA Response A, paragraph 152.2.
[432] CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', pages 39–51.
[433] CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', section 3.2, page 40.
[434] CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', section 3.4, page 51.
[435] CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', section 3.4, page 51.

in systematic risk between the UK and European jurisdictions in question – such as differences in regulatory, political and macro-economic risk. GEMA said that it was concerned that the scope for error risked distorting the European observations to the point of removing all evidential value.[436]

5.311 GEMA considered decomposition analysis of the equity betas of SSE and National Grid in working to obtain a representative beta estimate of the UK-regulated business.[437] This analysis sought to decompose National Grid's GB beta by separating National Grid's activities between the UK and US, and for SSE, CEPA separated its business between regulated and unregulated activities. GEMA commissioned CEPA to undertake a study on various sources of evidence on asset beta, including the decomposition of National Grid and SSE's group betas.[438] CEPA undertook work to decompose the betas, concluding that 'the direct decomposition results will tend to produce volatile beta estimates, as any noise, volatility or measurement error in comparator beta measurements and weightings will directly impact the resulting estimates.'[439]

5.312 CEPA found that direct decompositions of National Grid and SSE's betas 'may appear to show' GB energy network beta estimates above those observed for GB water networks or European energy networks, and potentially above GEMA's proposed asset beta range for RIIO-2. CEPA found its estimates to be volatile and highlighted the caution required in interpreting decomposition analysis. CEPA concluded that it did not consider the estimates drawn from its analysis to be inconsistent with GEMA's proposed asset beta range, nor with the use of GB water networks or European energy networks as proxies for GB energy network betas.[440] GEMA ultimately chose not to place weight on decomposed betas.[441]

5.313 In estimating the unlevered betas of the comparator companies listed in paragraph 5.305 GEMA:

a) provided estimates of the unlevered beta for each firm over 2-year, 5-year and 10-year estimation windows.

b) used spot, 2-year, 5-year and 10-year averaging periods for the 2-year and 5-year estimation windows. For the 10-year estimation windows,

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[436] GEMA Response A, paragraph 152.1.
[437] GEMA FD Finance Annex, pages 158–166 and GEMA DD Finance Annex, paragraphs 3.48–3.64 and Appendix 3.
[438] GEMA DD Finance Annex, paragraph 3.48.
[439] CEPA (GEMA), 'RIIO-2: Beta estimation issues', section 4.5, page 65.
[440] CEPA (GEMA), 'RIIO-2: Beta estimation issues', section 4.5, pages 65–68.
[441] GEMA FD Finance Annex, pages 158–166 and GEMA DD Finance Annex, paragraphs 3.48–3.64 and Appendix 3.

GEMA averaged over spot, 2-year and 5-year periods (ie not 10-year averaging periods).

c) estimated beta for each estimation window/averaging period utilising both book and market value of debt.

5.314 GEMA's FD relied on estimates calculated using Ordinary Least Squares (**OLS**)[442] estimates; however, it did also consider estimates using Generalised AutoRegressive Conditional Heteroskedasticity (**GARCH**)[443] analysis earlier in its consultation period.

5.315 GEMA utilised rolling averages in determining its beta estimates, and based its analysis on data to October 2020, thereby including an element of the COVID-19 period in its analysis.

5.316 GEMA's estimates are set out at Figure 5-4 below.

[442] OLS describes an approach to analyse the relationship between independent variables and a dependent variable by minimising the sum of the squares in the difference between the observed and predicted values of the dependent variable configured as a straight line.
[443] GARCH analysis is used to estimate and adjust for the impact of volatility in financial markets when using rolling averages of data. More details about volatility can be found here.

Figure 5-4: GEMA's unlevered beta estimates to October 2020 using OLS estimation and debt beta of 0.

Estimation window	Averaging period	Market value of debt	SSE	NG	PNN	SVT	UU	Average	Average (exc SSE)	Average of PNN, SVT & UU
2-year	Spot	No	0.63	0.34	0.30	0.26	0.26	0.36	0.29	0.27
2-year	2-year	No	0.47	0.33	0.31	0.26	0.26	0.33	0.29	0.28
2-year	5-year	No	0.55	0.36	0.36	0.31	0.30	0.38	0.33	0.32
2-year	10-year	No	0.47	0.31	0.33	0.28	0.26	0.33	0.30	0.29
2-year	Spot	Yes	0.61	0.32	0.29	0.24	0.24	0.34	0.27	0.26
2-year	2-year	Yes	0.45	0.31	0.30	0.24	0.24	0.31	0.27	0.26
2-year	5-year	Yes	0.53	0.34	0.36	0.28	0.28	0.36	0.32	0.31
2-year	10-year	Yes	0.46	0.30	0.33	0.26	0.26	0.32	0.29	0.28
5-year	Spot	No	0.63	0.35	0.32	0.28	0.27	0.37	0.31	0.29
5-year	2-year	No	0.58	0.36	0.36	0.31	0.30	0.38	0.33	0.32
5-year	5-year	No	0.56	0.35	0.36	0.32	0.30	0.38	0.33	0.33
5-year	10-year	No	0.49	0.32	0.32	0.29	0.28	0.34	0.30	0.30
5-year	Spot	Yes	0.60	0.33	0.32	0.25	0.25	0.35	0.29	0.27
5-year	2-year	Yes	0.56	0.34	0.36	0.28	0.28	0.36	0.32	0.31
5-year	5-year	Yes	0.54	0.33	0.37	0.29	0.29	0.36	0.32	0.32
5-year	10-year	Yes	0.47	0.30	0.33	0.27	0.28	0.33	0.30	0.29
10-year	Spot	No	0.56	0.33	0.32	0.29	0.27	0.35	0.30	0.29
10-year	2-year	No	0.47	0.30	0.32	0.27	0.25	0.32	0.29	0.28
10-year	5-year	No	0.47	0.32	0.31	0.28	0.27	0.33	0.30	0.29
10-year	Spot	Yes	0.54	0.31	0.33	0.26	0.26	0.34	0.29	0.28
10-year	2-year	Yes	0.45	0.29	0.33	0.25	0.25	0.31	0.28	0.28
10-year	5-year	Yes	0.45	0.30	0.32	0.27	0.27	0.32	0.29	0.29

Source: GEMA FD Finance Annex, Table 10.

5.317 Figure 5-4 presents analysis of unlevered betas for the latest information as at October 2020, with values ranked from highest (dark red) to lowest (dark green) within each separate section as indicated by the horizontal line.

5.318 Per Figure 5-4, the evidence that GEMA considered relevant in its assessment (ie National Grid, PNN, SVT and UU) produces a range of 0.24 to 0.37.

5.319 GEMA noted that the simple average unlevered beta for the four best proxies (National Grid, PNN, SVT and UU) is 0.299.[444] GEMA explained that National Grid's observed asset beta captures transmission risks and, for some periods of history, gas distribution risks. Therefore, it considered that analysis of National Grid's beta captures observable systematic risks for gas distribution, electricity transmission and gas transmission and it therefore considered it

[444] GEMA FD Finance Annex, paragraph 3.71.

reasonable, on a backward-looking basis, to put greater weight on National Grid.[445]

5.320 GEMA also chose to put more weight on larger samples of data, such as the 10-year estimation window and the 10-year average of the smaller windows. On this basis, it considered that while putting greater weight on National Grid than the other entities, an unlevered beta of 0.31 appeared reasonable. It said that inferring higher values than this would require GEMA to put undue weight on certain estimation windows without a sound economic rationale, and that it is mindful of other considerations that might imply downward pressure on the values per Figure 5-4.[446]

5.321 GEMA noted that, on the same basis, it considered an unlevered beta range of 0.285 to 0.335 to be reasonable.[447]

Debt beta

5.322 In setting the debt beta, GEMA considered the UKRN Report in addition to business plan submissions and regulatory precedent. It noted that estimating debt beta involves considerable regulatory judgement and that given the arguments presented in the RIIO-2 consultation period and the CMA's provisional range of 0.0 to 0.15 from the CMA PR19 Provisional Findings, it considered it reasonable to assume a debt beta of 0.075. It noted that the range of possible values from different approaches was quite wide and so choosing the midpoint of the range seemed to be appropriate.[448]

Notional equity beta

5.323 GEMA's unlevered beta, asset beta and notional equity beta are set out in Table 5-2.

[445] GEMA FD Finance Annex, paragraph 3.72.
[446] GEMA FD Finance Annex, paragraph 3.74. GEMA noted that considerations that imply downward pressure include: GARCH results, risk reduction policies for RIIO-2 and specific recent events such as nationalisation and political risks.
[447] GEMA FD Finance Annex, paragraphs 3.74.
[448] GEMA FD Finance Annex, paragraphs 3.64–3.67.

Table 5-2: GEMA's unlevered beta, asset beta and notional equity beta

Component	GEMA estimate	Ref	Source
Observed gearing	50%	A	GEMA judgement
Notional gearing	60%	B	GEMA judgement
Unlevered beta	0.311	C	GEMA judgement
Debt beta	0.075	D	GEMA judgement
Asset beta	0.349	E	= C + A*D
Notional equity beta	0.759	F	= (E – (B*D)) / (1-B)

Source: GEMA FD Finance Annex, Table 9.

The alleged errors

5.324 All eight appellants have raised concerns with GEMA's calculation of beta. The errors alleged by the parties can be split into the following sections:

a) GEMA's selection of comparators, further broken down as follows:

(i) 'The water company issue'

(ii) 'The European comparator issue'

(iii) 'The National Grid issue'

(iv) 'The SSE issue'

(v) 'The gas networks issue'

b) GEMA's application of statistical methods, split into sub-grounds as follows:

(i) 'The sample period issue'

(ii) 'The GARCH issue'

(iii) 'The Coronavirus (COVID-19) data issue'

(iv) 'The rolling average issue'

(v) 'The debt issue'

c) Some appellants also argued that GEMA's debt beta includes inappropriately high estimates at the top of the range.

d) Finally, some appellants argued that GEMA had picked towards the low end of the asset beta range, notwithstanding the points raised in relation to the creation of the range.

5.325 In the paragraphs below we summarise the evidence that has been presented to us, set out our provisional assessment and then consider the parties' responses to our provisional determination before providing our final conclusion of whether GEMA's estimation of beta was wrong.

Submissions on comparator errors

The water company issue

Appellants' initial submissions

5.326 NGET/NGG,[449, 450] SSEN-T,[451] Cadent,[452] and SGN[453] submitted that GEMA had wrongfully placed too much reliance on evidence from the water sector and that placing too much weight on water companies resulted in a beta range that is too low because water companies are subject to lower systematic risk than energy companies.

5.327 All eight appellants told us that energy networks incur greater systematic risk than water companies and therefore the beta derived from a water company comparison would be too low.

a) SSEN-T submitted that water companies have fundamentally different asset risk profiles and consistently show lower asset betas in empirical evidence.[454] SSEN-T told us that the asset beta estimates presented by GEMA show that National Grid's beta is consistently higher than the average asset beta of UK water companies across all estimation windows and that this objective market data provides clear evidence as to why the asset beta for energy networks would be materially higher than for water companies. SSEN-T submitted that GEMA was therefore incorrect to place any weight on the betas of water companies.[455]

b) SPT submitted that investors in energy transmission companies face systematically higher risk than investors in water networks.[456] SPT's advisor, NERA, submitted that investors in TOs face higher risk than investors in water networks because of: (i) system operability risk; (ii)

449 NGET NoA, paragraph 3.103.
450 NGG NoA, paragraph 3.103.
451 SSEN-T NoA, paragraph 4.53(a).
452 Cadent NoA, paragraph 4.90(a).
453 SGN NoA, paragraph 188.
454 SSEN-T NoA, paragraph 4.53.
455 SSEN-T Reply, paragraph 3.21(a).
456 SPT NoA, paragraph 46.

uncertainty over the future role of TOs in a decarbonised energy sector; and (iii) greater risk from the complexity of investment.[457]

c) Cadent submitted that water companies face a significantly different set of systematic risks from energy networks generally and gas networks specifically. Cadent submitted that GEMA failed to take account of the full set of systematic and asymmetric risk as well as available real options that affect required equity returns for Gas Distribution Networks (**GDNs**) and which lead to differences between risk and therefore required returns. Cadent told us that GEMA's point estimate falls squarely within the range of beta evidence from water comparators and therefore does not reflect the difference in risk between the sectors.[458]

d) SGN submitted that GEMA's beta estimate ignores the higher systematic risk faced by investors in GDNs compared to water companies. It noted that investors in GDNs have experienced a paradigm shift in risk exposure and uncertainty in terms of expected future payoffs. SGN referred to KPMG's analysis which demonstrates that National Grid's beta has consistently been above that of the water company comparators across the last 5 years.[459]

e) SGN submitted that GEMA had failed to engage with analysis presented by SGN and the KPMG cost of equity report which supports an asset beta from energy comparators which are significantly above water company betas. SGN and NGN submitted evidence from KPMG which demonstrates an asset beta for National Grid across the full period of available data (from 1995) of 0.40, which is higher than the 0.349 asset beta point estimate chosen by GEMA.[460,461]

f) WWU submitted that for reasons largely relating to the UK's Net Zero policies and their impact on the sector, water companies were not a valid comparator for GDNs. It noted that the rapid technological change and an increased focus on decarbonisation suggests that the fundamental risk of energy networks is greater than that faced by water networks. WWU told us that water companies are subject to lower systematic risk and asset betas should be expected to be lower than those of GDNs, which WWU

[457] NERA (SPT), 'Expert report', paragraphs 107–110.
[458] Cadent NoA, paragraph 4.90(b).
[459] SGN NoA, paragraph 200.
[460] SGN Reply, Table 1.
[461] NGN Reply, paragraph 40.

noted was evident from National Grid comparisons with water companies.[462]

g) WWU also told us that it disputed GEMA's characterisation of this issue as a misapprehension that it attributed equal weights to water and National Grid betas, and rather that GEMA's error arises in the event that it places any weight on the beta of water companies to determine the beta.[463] WWU's advisers, Oxera, submitted that GEMA's Expert Witness was misleading by presenting the correlation matrix of National Grid and the UK water companies as correlations do not provide an assessment of the systematic risk of different companies and therefore do not provide any information on the risk differences between a pure-play energy network and UK water companies.[464] Oxera continued by noting that it had provided evidence showing that the risk of water companies is lower than the risk of energy companies.[465]

5.328 More broadly, NGET/NGG submitted that GEMA did not demonstrate that there were reasonable grounds to consider the betas of three water companies as suitable proxies of the beta of energy network companies.[466] Further, NGN told us that even if GEMA's precise weighting is unclear, it is not credible for GEMA to state that the water company betas did not drag down its beta point estimate.[467]

5.329 Some appellants told us that, when conducting beta analysis for the PR19 price control, neither Ofwat nor the CMA considered energy network companies as appropriate comparators for the water sector. The appellants stated that it was therefore wrong for water companies to be considered appropriate comparators for the energy networks in RIIO-2.[468]

5.330 In addition to stating that GEMA placed too much reliance on water company betas, appellants told us that GEMA did not place enough weight on National Grid beta. NGET/NGG told us that a more appropriate weighting of National Grid beta adds between 24 and 47bps to the cost of equity which they note is a material value.[469]

5.331 Appellants told us that the National Grid beta should be at the bottom of any beta range. NGET/NGG told us that there are no reasons why the beta

[462] WWU NoA, paragraphs B4.6 and B4.7.
[463] WWU Reply, paragraph B4.1.
[464] *Hope 4 (WWU),* page 19, referencing GEMA's Expert Witness PJ McCloskey.
[465] Oxera (WWU), 'Cost of equity report', paragraphs 8.5–8.6 and Appendix 7A.1.
[466] NGG NoA, paragraph 3.104 and NGET NoA, paragraph 3.104.
[467] NGN Reply, paragraph 40.
[468] NGET NoA, paragraph 3.105, NGG NoA, paragraph 3.105, and SSEN-T NoA, paragraph 4.55.
[469] NGET and NGG joint Reply, paragraph 3.11.

estimates selected by GEMA should be lower than the National Grid beta.[470] SSEN-T told us that National Grid's beta is the 'minimum level, regardless of whether you decomposition or not.'[471] Oxera (on behalf of SSEN-T and WWU) said that the asset beta for National Grid should be the 'minimum',[472] a point which was reflected by KPMG (on behalf of Cadent, NGN and SGN) who noted that its report was 'exactly consistent with that.'[473] SPT told us that National Grid is mainly a TO business so setting SPT's beta lower than National Grid beta would 'therefore be technically wrong' and that there are good reasons why National Grid may understate TO energy network risk given the ownership of lower risk US operations and evidence from European energy networks.[474]

5.332 NERA, economic adviser to SPT, told us that no weighting should be placed on water company betas.[475] NGET/NGG highlighted concerns with utilising water company betas, noting the importance of following the 'evidence around energy' and not 'just choosing the risk profile of water and then apply[ing] that to the energy sector.'[476]

5.333 NGET/NGG disputed GEMA's assertion that a 'substantial' proportion of its activities were unregulated. It told us that work undertaken by its adviser, Frontier, demonstrated that on average, National Grid's core regulated networks businesses accounted for 90% of operating income between 2015 and 2020. It said that some of the remaining 10% of the business is regulated by GEMA, meaning that the total regulated businesses make up over 95% of the group underlying profit. Therefore, it told us that National Grid's unregulated business 'cannot reasonably characterised as "substantial".'[477]

5.334 Appellants also told us that GEMA's interpretation of the water company and National Grid's data was wrong:

a) NGET/NGG told us that GEMA selectively chose data points from its tables to support its point estimate, but a more balanced consideration of all the evidence (recognising issues such as sample length, energy versus water, book value of debt basis) shows that GEMA's data points support higher values. They explained that GEMA's point estimate is below 80% of GEMA's own data points for National Grid across 2-year, 5-year and 10-year estimation windows and 'therefore, to highlight one

[470] NGET/NGG Main Hearing Transcript, 29 June 2021, page 25, lines 1–18.
[471] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 80, lines 24–25.
[472] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 81, lines 16–17.
[473] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 81, lines 20–21.
[474] SPT Closing Statement, paragraph 13.
[475] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 66, line 22–page 67, line 16.
[476] NGET/NGG Main Hearing Transcript, 29 June 2021, page 27, lines 9–21.
[477] NGET/NGG Closing Statement, paragraph 2.4.

example where its beta is in line with that of National Grid is selective and fails to reflect the underlying evidence.'[478]

b) Cadent submitted that GEMA's position that any 'water company issue' error has no material impact on the cost of equity allowances hinges on taking National Grid beta estimates over a particular 10-year estimation window and comparing them with water company betas over a 5-year estimation window. It told us that this is inappropriate and amounts to 'cherry picking'.[479]

GEMA's initial submissions

5.335 GEMA submitted that the 'water company issue' appears to arise out of the misapprehension that GEMA attributed equal weights to the observed unlevered betas of National Grid and the UK water companies, and that this is incorrect. GEMA told us that it did not apply a mathematical weighting to the beta observations for the UK proxy companies, nor did it select the mid-point. Rather, GEMA told us, it made a judgement having regard to the evidence in the round.[480]

5.336 GEMA told us that it placed greater weight on the unlevered beta observations for National Grid and highlighted that its unlevered beta point estimate is:

a) Higher than the UU unlevered beta estimates for all estimation windows and averaging periods; and

b) Higher than SVT's unlevered beta estimates for all but three estimation windows and averaging periods.[481]

5.337 GEMA submitted that the issue has no material impact on the allowed return on equity if the CMA accepts that GEMA was right to place greater weight on observations of beta over large samples, in line with the points raised by GEMA as set out at paragraphs 5.465 to 5.467 below.[482]

5.338 While GEMA submitted that it did not apply a mathematical weighting to the beta observations, it told us that there are two ways to interpret its estimate of 0.311:[483]

[478] NGET and NGG joint Reply, paragraph 3.12.
[479] Cadent Reply, paragraph 85(a).
[480] GEMA Response A, paragraph 157.
[481] GEMA Response A, paragraph 158.
[482] GEMA Response A, paragraph 159.
[483] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 76, line 122–page 77, line 5.

a) Broadly the average of the three 10-year measurements for National Grid; or

b) Considering all of the data with a 70 per cent weight on the pool of National Grid betas and 30 per cent weight on the pool of water betas.

5.339 In relation to this alleged error, GEMA told us that the comparisons between water and energy companies were raised in the initial period of engagement through both the ENA (via Oxera) and that it has 'long considered' water as a comparator. GEMA said that the observation that investors treat these sectors very similarly mitigates the concern. It told us that it is comfortable with the view that it took and that it considered the full range of evidence.[484]

5.340 As discussed in paragraph 5.307, GEMA published a report from its adviser, CEPA, which sets out its approach to determining the most relevant comparators for assessing beta in RIIO-2.[485] CEPA found that GB energy and water regulated utilities exhibit many similarities in factors that might be considered to affect systematic risk. It noted that regulatory protections of value, exposure to within period demand risks, price control risks and firm characteristics are broadly similar between sectors. However, it noted that depending on the weight placed on different components of risk, GB energy networks may be judged riskier than water networks – or at least that the sources of systematic risk are sufficiently different that water networks are an imperfect investment substitute for a pure play energy network in RIIO-2.[486]

5.341 GEMA also submitted correlation analysis which it considered to demonstrate the similarities between the water and energy networks. It found that the correlation between National Grid and UU (0.7) is almost as strong as the correlation between SVT and UU (0.8). It noted that, by contrast, the correlation between SSE and UU is weaker (0.5).[487]

5.342 GEMA also submitted that a significant proportion of National Grid activities are unregulated, therefore it would not be appropriate to place sole weight on its beta.[488] Table 5-3 below is from GEMA's DDs and demonstrates its interpretation of the percentage that National Grid UK regulated networks forms of different metrics.

[484] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 78, line 17–page 79, line 11.
[485] CEPA (GEMA), 'RIIO-2: Beta estimation issues'.
[486] CEPA (GEMA), 'RIIO-2: Beta estimation issues'.
[487] *McCloskey (GEMA),* paragraph 291 and Table 6.
[488] *McCloskey (GEMA),* paragraphs 236–237.

Table 5-3: The proportion of National Grid revenue, operating income and total assets made up by UK regulated networks and other activities.

Averaging period	NG's UK regulated networks
Proportion of revenue	36%
Proportion of operating income	51%
Proportion of total assets	42%

Source: GEMA (2020), RIIO-2 Draft Determinations – Finance, Table 10

Interveners' initial submissions

5.343 Citizens Advice told us that it strongly agreed with GEMA's conclusion 'that pure play energy networks in GB have several similar risk characteristics as pure-play GB water networks, suggesting that [the pure play water companies Severn Trent (SVT) and United Utilities (UU)] are appropriate comparators for estimating betas for pure play GB energy networks'.[489]

5.344 In addition, Citizens Advice highlighted a number of concerns with the CMA's interpretation of water data in determining beta for the CMA PR19 Redetermination. It told us that this approach overstates the water companies' equity betas.[490]

The water company issue – our provisional assessment

5.345 When assessing whether GEMA was wrong to include water company betas in its assessment of the appropriate beta for the energy networks, we started with an acceptance of the fact that a lack of pure-play listed comparators in the energy sector means that determining a suitable accurate estimate of beta will inevitably require the consideration of imperfect proxies.

5.346 We recognised in our provisional determination that the empirical data submitted to us (such as GEMA's own beta table at Figure 5-4) did demonstrate that energy network betas, specifically the National Grid beta, do tend to be somewhat higher than the betas of the two listed water companies. However, when making a broader assessment of the two sectors' relative exposures to systematic risk, we found that the appellants had not persuaded us that the levels of systematic risks faced are materially different.

5.347 Both sectors enjoy extremely high levels of regulatory protections, in particular in relation to regulated asset bases, inflation protection, revenue certainty and the funding of operating and investment costs. We considered that the most powerful influence on water and energy network unlevered betas is likely to

[489] Citizens Advice Intervention Notice, paragraph 112, quoting GEMA DD – Finance Annex, paragraph 3.49.
[490] Citizens Advice Intervention Notice, paragraphs 105–135.

be the fact that they are UK regulated monopolies. As such, water companies are, in principle, reasonable and useful comparators when estimating the beta for the energy networks. This usefulness only increases when the lack of pure-play listed energy networks is taken into account. Therefore, we considered that GEMA was not wrong to include water companies as comparators in its assessment of the best estimate of the beta of energy networks.

5.348 We acknowledged that neither Ofwat nor the CMA used energy network companies as comparators when assessing the beta for the water sector. However, we disagreed with the argument that this implies that it is irrational to include water companies in the estimation of the correct energy network beta. The water sector benefits from two listed 'pure-plays' with a sufficiently long history of relevant data (PNN is listed and now a 'pure-play', but much of its historical data includes periods where it had significant non-regulated operations), and so do not necessarily require proxies to be considered in order to construct an accurate estimate of the sector's beta. This is not the case in energy, and so we considered that it was appropriate that relevant proxies may need to be considered. It was our view that the approach taken in the two sectors did not need to be symmetrical for both to be rational.

5.349 In considering whether GEMA should have relied solely on National Grid's beta, we noted that while National Grid is a listed energy network, it is not a pure-play comparator due its non-regulated revenue streams and the fact that it also operates in jurisdictions outside of the UK. Therefore, we did not consider that GEMA made an error in choosing to consider other betas (such as those from the water sector) when calculating its estimate, nor did we consider that GEMA was wrong to not rely solely on National Grid's beta in determining its estimate. We noted the argument that the usefulness of National Grid's beta may be increased by decomposing the beta to adjust for the non-regulated and non-UK activities, we consider this further from paragraph 5.395 below.

5.350 Bringing these assessments together, we considered it an appropriate approach for GEMA to include both water company betas and the beta of National Grid in determining the beta estimate for RIIO-2.

5.351 With regard to the weighting of the evidence, we noted that GEMA had placed more weight on National Grid's beta than the water betas – this is reflected in an assessment of the betas per Figure 5-4 and in GEMA's statements that, while it did not apply a mathematical weighting when selecting its estimate, it works out at around a 70:30 split, National Grid to water, across all data points.

5.352 Considering the evidence base per Figure 5-4, we noted that National Grid's beta is higher than that of SVT and UU for all estimation windows and averaging periods. National Grid's beta is also higher than the average beta of SVT, UU and PNN across all estimation windows and averaging periods.

5.353 There are some instances where National Grid's beta is lower than PNN, however we noted that during the CMA PR19 Redetermination, the CMA did not use PNN as a comparator within the water sector because, until recently, it had a large unregulated waste disposal business. The inclusion of PNN in GEMA's comparator set may, as a result, be seen to be somewhat generous to the parties – as is evident in the results per Figure 5-4, PNN has significantly higher betas than SVT and UU.

5.354 Based on the evidence that was presented to us and GEMA's description of its approach, we therefore expected GEMA's beta estimate to be closer to the National Grid figures than water company results. This is evident in the beta estimate chosen by GEMA (of 0.311) which is greater than the average beta of the water companies across all time periods (0.291),[491] greater than the 10-year estimate of the water company betas (0.287),[492] and in line with average of the 10-year National Grid betas (0.308).[493]

5.355 While the parties may disagree about the extent to which the energy network beta should be higher than the water sector beta, it appeared clear to us that GEMA used an estimate that implies that the systematic risk faced by energy networks is higher than the systematic risk faced in the water sector. As a result, and in combination with our view that water companies are relevant comparators, we did not see convincing evidence that GEMA's inclusion of water companies in its analysis introduced undue downward bias or caused, in isolation, an error in the form of an estimate of beta that is too low.

Appellants' response to the provisional determination

5.356 In response to the provisional determination, the appellants told us that GEMA made an error in its beta estimate by inadequately reflecting the risk differential between the water and energy sectors.[494]

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[491] This estimate is calculated as the average of PNN, SVT and UU's estimates (both book and market value) across all estimation windows and averaging periods (ie 66 instances) per Figure 5-4.
[492] This estimate is calculated as the average of PNN, SVT and UU's estimates (both book and market value) across 10-year averaging periods (for 2-year and 5-year estimation windows) and across 10-year estimation windows (ie 30 instances) per Figure 5-4.
[493] This estimate is calculated as the average National Grid estimate (using both book and market values) across 10-year averaging periods (for 2-year and 5-year estimation windows) and across 10-year estimation windows (ie 10 instances) per Figure 5-4.
[494] Appellants' Joint Response to PD on Ground A, page 6.

a) SPT told us that the provisional determination does not address the fact that water companies that face lower risk than energy companies (which it submits is demonstrated by empirical beta data) have a higher allowed return on equity than the appellants. Yet, SPT submitted, the appellants face more challenging Net Zero related expenditure programmes, expected to be pushed further following COP26 and the focus on achieving Net Zero.[495]

b) SSEN-T and WWU submitted that the provisional determination's conclusion that GEMA's decision to include water betas in its assessment is within the scope of regulatory judgement cannot be supported by a merits assessment of the evidence because:

(i) the provisional determination recognises that empirical data demonstrates that the betas for energy networks tend to be higher than for water companies and that this is strong and compelling evidence of differences in systematic risk. They told us that Oxera has presented evidence showing that National Grid's asset beta is meaningfully higher than the average UK water company asset beta.

(ii) the CMA PR19 Redetermination highlighted that 'the risks associated with water are different to energy and there is no direct comparator to the cost of 'blackouts.' Therefore, SSEN-T and WWU submitted that they failed to comprehend how the CMA can in its recent PR19 Redetermination 'recognise the difference in risk between the sectors and then – just a few months later and following receipt of additional robust analysis from the appellants confirming this conclusion – reverse its position.'[496,497]

5.357 SSEN-T and WWU told us that GEMA's decision to take into account water betas when setting the beta was a clear error.[498,499]

5.358 Some appellants told us that National Grid's beta is higher than water company betas and it necessarily follows that the GB energy network beta will be higher than water betas and therefore reliance by GEMA on water company betas is an error. For example, SPT told us that any disagreement about the explanation for the differential between water betas and National

[495] SPT Response to PD, paragraph 67.
[496] SSEN-T Response to PD, paragraph 2.89.
[497] WWU Response to PD, paragraph B1.3.
[498] SSEN-T Response to PD, paragraph 2.90.
[499] WWU Response to PD, paragraph B1.3.

Grid beta does not change the empirical fact that the differences exist in any event.[500]

5.359 Other submissions in relation to the water company issue encompassed other issues as set out in the provisional determination. For example, appellants told us that:

a) Reference should be made to National Grid's betas for all estimation and averaging windows when comparing water and National Grid betas (ie the sample period issue).[501]

b) The provisional determination rests on the perceived lack of compelling evidence that the levels of systematic risk faced by energy and water networks are materially different and that the provisional determination should have accounted for the heightened systematic risks facing the gas sector as a result of the transition to Net Zero (ie the gas issue).[502]

c) There is no evidence that National Grid beta overstates the risk of a pure play energy network (thereby reducing the relevance of water betas as relevant comparators) (ie the National Grid issue).[503]

The water company issue – our final assessment

5.360 The submissions made by the appellants in response to the provisional determination are focused largely on the argument that we have failed to have regard to the difference in risk differential between water and energy companies.

5.361 As was set out at length in the provisional determination,[504] we recognise that the nature of beta estimation requires that (imperfect) proxies be utilised where there are no pure play comparators within the sector and that this is particularly the case for energy networks.

5.362 Our provisional assessment (as per paragraphs 5.345 to 5.355 above) recognised differences in the empirical beta estimates observed for water companies and National Grid and we continue to consider that water companies, as regulated utilities based in the UK, remain useful comparators in determining the beta of similarly UK-based, regulated energy companies

500 SPT Response to PD, paragraph 64.
501 Cadent Response to PD, paragraphs 11.31–11.35.
502 SGN Response to PD, paragraph 151.
503 NGN Response to PD, paragraph 157.
504 SPT Response to PD, paragraph 65.

due to similarities in factors that might be expected to affect systematic risk and, therefore, beta.

5.363 While the observed betas between water and energy companies differ, we note that (i) there are limited UK-based energy companies on which to base a comparison; (ii) the sole UK-based energy firm, National Grid, is not a pure-play operator in that it has both US networks and non-regulated activities, and (iii) differences in levels of beta estimate do not result in a comparison being meaningless.

5.364 We continue to believe that regulated energy networks operating in the UK are likely exposed to similar levels of systematic and regulatory risk and provide useful comparisons for one another. As CEPA highlighted, regulatory protections of value, exposure to within period demand risks, price control risks and firm characteristics are currently broadly similar between the GB water and energy sectors.[505]

5.365 The appellants made submissions on the empirically higher levels of beta in energy networks compared to water companies. We note however that the notional equity beta as chosen by GEMA for energy companies (of 0.76)[506] is higher than the notional equity beta as per the CMA PR19 Redetermination for water companies (of 0.71).[507] Therefore, a higher level of systematic risk is already assumed within GEMA's cost of equity calculation. As a result, we do not consider that either we, or GEMA, have failed to have regard to the risk differential between water and energy companies.

5.366 As set out in the Legal Framework,[508] where GEMA has exercised regulatory judgement in selecting amongst various alternative solutions to a regulatory problem, we will not substitute our own assessment or weighting of the evidence or reasoning for that of GEMA unless we are persuaded that GEMA's approach was wrong – for example, because there was a clearly superior alternative approach. In this case, we are not so persuaded.

5.367 With regard to SPT's submission that water companies have a higher allowed return on equity than energy companies and comparison between the two, we note that this is discussed in greater detail from paragraph 5.743 within our 'in the round' analysis.

5.368 Based on our reasoning as set out in the provisional determination (reflected in paragraphs 5.345 to 5.355 above) as well as our expanded reasoning set

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505 CEPA (GEMA), 'RIIO-2: Beta estimation issues', page 5.
506 GEMA FD Finance Annex, Table 11.
507 CMA PR19 Redetermination, Table 9-37.
508 See the section on regulatory judgement and in particular paragraph 3.78.

of water companies in its analysis introduced undue downward bias or caused, in isolation, an error in the form of an estimate of beta that is too low.

The European comparator issue

Appellants' initial submissions

5.369 The appellants told us that GEMA was wrong to exclude European comparators in determining its beta estimate, and that the assessment that its adviser, CEPA, undertook with regard to European comparators included inappropriate comparators. The assessment undertaken by CEPA indicated an asset beta for European energy networks in the range of 0.32 to 0.39, with CEPA's preferred sample (being that measured over the most recent 5-year period) suggesting an asset beta of 0.36 to 0.37.[509]

5.370 Firstly, the appellants told us that GEMA's own analysis of European comparators was incorrect:

a) SSEN-T submitted that GEMA used an incorrect sample of European energy networks which included clear outliers with low equity liquidity that should have been excluded in order to produce a robust and meaningful comparison.[510, 511] SSEN-T told us that GEMA has concerns with illiquidity elsewhere in its analysis (eg concerning the use of AAA-rated corporate bonds to inform the estimate of RFR) but is inconsistent when it comes to selecting the sample of comparators for beta.[512]

b) Cadent submitted that GEMA's analysis suffered from too narrow a selection of comparators which also included inappropriate businesses that have features indicating a lower risk profile, and that this introduced a downward bias into the analysis.[513]

c) WWU submitted that the European comparators considered by GEMA in its assessment did not have appropriate characteristics to qualify as a reasonable comparator for GDNs.[514]

[509] CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', page 51.
[510] SSEN-T NoA, paragraph 4.53(b).
[511] This links with Oxera's submission that Elia and REN, used as comparators by CEPA, are clear outliers based on their illiquidity. (Oxera (WWU), 'Cost of equity report', Table 7.3)
[512] SSEN-T Reply, paragraph 3.21(b).
[513] Cadent NoA, paragraph 4.92.
[514] WWU NoA, paragraph B4.9

d) SGN told us that selected comparators had different risk profiles relative to UK GDNs and were therefore downward biased.[515]

e) NGN told us that this analysis failed to include evidence from a sample of European comparators that are sufficiently comparable with UK GDNs.[516]

f) SSEN-T and WWU submitted that GEMA incorrectly compared the French energy sector to the UK energy sector despite fundamentally different regulatory and economic conditions which means that the beta range is distinct from that for a UK company.[517,518,519]

5.371 The appellants also submitted evidence from alternative European comparator samples which they considered supported a higher beta estimate and should be taken into account in estimating the beta:

a) NGET/NGG submitted evidence from their adviser, Frontier, which considered a sample of nine European comparators which supported a higher beta point estimate than that chosen by GEMA.[520] Frontier's analysis demonstrated an average asset beta range of 0.42 to 0.45 which it compared to an average range of 0.34 to 0.38 in the CEPA sample (as used by GEMA).[521]

b) NGN and SGN referred to work undertaken by their advisors, KPMG, which supported a higher beta estimate based on its analysis of European comparators. SGN told us that KPMG estimates the asset beta for its portfolio of European comparators, which is a subset of CEPA's preferred sample, to be 0.42 to 0.43 (higher than GEMA's point estimate of 0.349). SGN submitted that GEMA should not have disregarded this evidence.[522]

c) Oxera, on behalf of WWU, told us that the Oxera European comparator analysis (which supports an asset beta estimate of 0.33 to 0.39)[523] filters out illiquid stocks to remove the distortive effects of keeping illiquid companies in the sample for beta estimation.[524]

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[515] SGN NoA, paragraph 206(ii).
[516] NGN NoA, paragraph 185(iii).
[517] SSEN-T NoA, paragraph 4.53.
[518] WWU NoA, paragraph B4.9.
[519] Note that in the Finance Annex to its FDs, GEMA referred to work undertaken by Oxera for a French regulator suggested an asset beta of 0.32 to 0.38 for the electricity transmission network. GEMA noted that its final view is consistent with the 'wider range of 0.32 to 0.41 implied by Oxera'. See: GEMA FD Finance Annex, paragraph 3.68.
[520] NGET NoA, paragraph 3.118 and NGG NoA, paragraph 3.118.
[521] Frontier (NGET/NGG), 'Estimating Beta for RIIO-2: A report prepared for National Grid', pages 80–81.
[522] SGN Reply, Table 1.
[523] Oxera (WWU), 'Cost of equity report', Table 7.4.
[524] *Hope 1 (WWU),* page 17.

5.372 NGN noted that GEMA's advisers endorse the view that European energy networks are suitable comparators for UK energy networks and against that backdrop it is rather surprising that GEMA has failed to place any weight on any evidence from European comparators in the FD, and they do not inform its range.[525]

5.373 Oxera, on behalf of WWU, submitted that GEMA is incorrect to place no weight on EU energy networks. It said that GEMA provides no evidence that material cross-jurisdictional risk differences exist, and that a comparator sample should contain companies performing the same business but that GEMA bases its estimation on a sample 75% of which is composed of companies in a different business segment (water companies).[526]

GEMA's initial submissions

5.374 GEMA submitted that it was justified in relying on UK beta observations rather than making a 'speculative adjudication on the relative merits of different European samples and how these would translate into the UK context.'[527] Specifically, GEMA told us that:

a) Multiple types of risk might be expected to differ between the UK and European jurisdictions (eg political risk, regulatory risk and macroeconomic risk) requiring multiple adjustments to European data to make it a suitable proxy. It told us that the cumulative effect of the margin for error on each adjustment may distort the overall outcome thereby depriving it 'of all probative value.'[528]

b) The observations from European energy networks support an unlevered beta either above or below GEMA's point estimate. It told us that the comparators excluded in its analysis have a high proportion of unregulated, non-network business and imply an unlevered beta below GEMA's point estimate.[529, 530]

The European comparator issue – our provisional assessment

5.375 In considering whether it was an error for GEMA to exclude European comparators from its final calculation of the energy network beta, we once again acknowledged in our provisional determination that estimating beta is a

525 NGN NoA, paragraph 185(ii).
526 *Hope 4 (WWU),* page 15.
527 GEMA Response A, paragraph 160.3.
528 GEMA Response A, paragraph 160.1.
529 GEMA Response A, paragraph 160.2.
530 *McCloskey 1 (GEMA),* paragraphs 241–242 and paragraph 243 first bullet.

complex exercise that requires significant applications of judgement. There are no strict rules and regulators must use the data and techniques that they believe will lead to the most accurate and appropriate estimate.

5.376 The evidence presented to us indicated that GEMA would have also been required to exercise its judgement had it decided to use European comparators in its final assessment. For example, we were presented with evidence that suggests there are inconsistencies across the samples chosen by the appellants' economic advisers, demonstrating that there is significant complexity and the possibility for reasonable disagreement in determining the most appropriate comparators.

5.377 We considered it to be clear that GEMA, via CEPA, undertook reasoned analysis in selecting its comparators. As a result, we did not consider that GEMA erred in considering the sample of European comparators selected by CEPA.

5.378 In assessing whether GEMA was wrong not to include European comparators in its final estimate, we agreed with the appellants that European comparators could have been a useful proxy in determining beta estimates as they undertake similar business activities to UK-regulated energy networks. However, we also recognised GEMA's explanation that differences in regulatory regimes may be significant enough to introduce a margin of error that makes them less useful (compared to alternative comparators such as water) in determining an appropriate UK energy network beta. The CMA has made similar judgements in the past. For example, in its NATS Determination, the CMA noted that it decided not to include beta data from Sydney or Auckland airports on the basis that it 'did not feel confident that the investors in these very geographically distinct markets could be assumed to be comparable investors with a comparable view on systematic risk'.[531]

5.379 We noted that GEMA has clearly and appropriately considered the potential to include European comparators and chosen not to do so based on the potential error that could be introduced. In our view, such consideration and decisions fall well within GEMA's margin of appreciation. Therefore, we provisionally concluded that GEMA did not make an error in choosing to exclude European comparators in its analysis for the FD.

[531] *NATS* Final report, paragraph 13.75.

Appellants' response to the provisional determination

5.380 In response to the provisional determination, the appellants reiterated that GEMA was wrong to exclude relevant European comparator evidence from its assessment of beta.

5.381 The appellants reiterated that European comparators are relevant proxies considering the lack of pure play listed energy companies in the UK and that GEMA was wrong to exclude such relevant evidence. For example, Cadent told us that the provisional determination's recognition of the margin of appreciation afforded to GEMA in deciding to exclude European comparators is inconsistent with the provisional determination's recognition that estimating the appropriate beta for energy networks inevitably requires the consideration of imperfect proxies, given the lack of pure play listed comparators.[532]

5.382 The appellants told us that it was wrong to exclude relevant evidence on European comparators (in the same sector but different jurisdiction) while water comparators were included (in a different sector but the same jurisdiction). For example:

a) Combining its points on both European comparators and the National Grid issue, Cadent told us that it is hard to see any basis why European energy networks and National Grid's UK network business should be considered to be less appropriate comparators for assessing the systematic risk of UK energy networks than UK water companies. It submitted that inclusion of European comparator data and decomposition 'is critical in reducing the downward bias present in the beta estimate based solely on NG Group and water networks.'[533] It told us this is because of:

(i) The unequivocal empirical evidence that energy beta exceeds that of water;

(ii) The greater systematic risk exposure for GDNs relative to water; and

(iii) The risk that, on balance, National Grid Group beta understates the systematic risk exposure of a UK energy network due to the materiality of its lower risk business.

b) Similarly, NGET/NGG noted the provisional determination's recognition that European comparators could be a useful proxy in determining beta estimates and that its finding that GEMA was not wrong to exclude this

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[532] Cadent Response to PD, paragraph 11.36–11.38.
[533] Cadent Response to PD, paragraph 11.39.

data source did not reflect the likelihood or impact of error that could be introduced, nor whether it could be mitigated. They told us that it cannot be right that GEMA is entitled to exclude informative data without giving it any weighting at all.[534]

5.383 The appellants submitted that there is evidence of the comparability of the UK and European regimes, meaning that the evidence is relevant. For example, SPT told us that it has submitted evidence from its adviser, NERA, which demonstrates that the European and UK regimes are comparable, and that European comparators support betas above 0.31 regardless of whether SPT or GEMA's samples are used.[535] NERA's European comparator analysis utilising four comparator companies estimates asset betas in the range of 0.38 to 0.40.[536] NERA also performed analysis utilising the same six comparator companies as those used by CEPA, generating an asset beta estimate of 0.32 to 0.35.[537]

5.384 Appellants told us that GEMA excluded the relevant evidence without presenting evidence of what the differences in European and UK regulatory regimes are, and why these are material. The appellants reiterated that GEMA's adviser, CEPA, considered the regulatory regimes to be sufficiently similar for comparison purposes. [538, 539, 540, 541]

5.385 In this context, SSEN-T and WWU highlighted the CMA's exclusion of comparators in different geographic markets in the NATS determination for NERL, but noted that this is not an analogous comparison, and the reason for exclusion was appropriate in this scenario as a result of differences in the regulatory arrangement. They submitted that there is no basis to consider there to be a similar degree of difference between the regulatory regimes of the European energy network comparators and the RIIO-2 regime.[542, 543]

The European comparator issue – our final assessment

5.386 The appellants' argument with regard to European comparators is that firms in the same sector and with reasonably similar regulatory environments must

[534] NGET/NGG Response to PD, paragraph 3.31.
[535] SPT Response to PD, paragraph 68.
[536] NERA (SPT), 'Expert report', paragraph 119.
[537] NERA (SPT), 'Expert report', paragraph 120.
[538] SPT Response to PD, paragraphs 69–70.
[539] SSEN-T Response to PD, paragraph 2.91.
[540] WWU Response to PD, paragraph B1.3.
[541] SSEN-T Response to PD, paragraph 2.92.
[542] SSEN-T Response to PD, paragraph 2.93.
[543] WWU Response to PD, paragraph B1.3.

provide a reasonable benchmark if water companies, which are in a different sector, are considered to represent useful proxies.

5.387 There are two strands to the appellants' submissions with respect to European comparators: first, that GEMA erred in not placing weight on these comparators in its overall beta assessment, and second that, if an appropriate European comparator set were selected, this evidence supported the finding of a higher beta.

5.388 As a matter of principle, as set out at paragraph 5.378 above, we agree that European comparators operating in the same sector can, in theory, provide a useful benchmark of the appropriate beta for the GB energy network businesses. However, we do not agree that this view means that such comparators must necessarily be used if there are other good reasons for excluding them. Such reasons could include 'noise' arising from a significant proportion of non-regulated activities being undertaken by the comparator firms, differences in the regulatory environments in other jurisdictions, or issues with the quality of the beta data available, for example, due to illiquid share trading, volatility in betas over time etc.

5.389 In this context, we considered the analysis undertaken by CEPA and the advisers to the appellants. We observed that there are clear differences in opinion on what appropriate European comparators should be and methodological approaches to measuring the data. For example:

a) NERA's analysis suggests that CEPA's dataset includes two comparators (Elia and REN) that are relatively illiquid and should be excluded, reducing the sample to four comparators.[544] This is reflected in the sample chosen by Oxera[545] and KPMG.[546] Frontier, however, extended the sample to nine comparators and chose to include REN and Elia in its analysis.[547]

b) With regard to methodological approach, CEPA included analysis on a 5- and 10-year basis.[548] NERA[549] and Frontier[550] focused instead on 2- and 5-year windows, while KPMG[551] and Oxera[552] focused their analysis across a 2-, 5- and 10-year basis.

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544 NERA (SPT), 'Expert report', paragraph 117.
545 *Hope 1 (WWU),* paragraph 7.20.
546 KPMG (NGN and SGN), 'Estimating Cost of Equity for RIIO-GD2', Table 11.
547 Frontier (NGET/NGG), 'Estimating Beta for RIIO-2: A report prepared for National Grid', Figure 47.
548 CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', page 50.
549 NERA (SPT), 'Expert report', paragraph 118(b).
550 Frontier (NGET/NGG), 'Estimating Beta for RIIO-2: A report prepared for National Grid', Figure 47.
551 KPMG (NGN and SGN), 'Estimating Cost of Equity for RIIO-GD2', Appendix 4.
552 *Hope 1 (WWU),* Table 7.4.

c) Further, CEPA focused on local indices and the Eurostoxx for its EU network beta estimates[553] and there were differences in opinion across the advisers with regard to the appropriate indices to be utilised in the analysis. For example, some appellants (eg Oxera[554] and NERA[555]) utilised the Eurostoxx, with NERA noting that pan-European indices should be used over local markets. This contrasted with Frontier's suggestion that it 'generally consider[s] the local index to be most appropriate for beta estimation.'[556]

5.390 In reviewing this data, we note firstly that CEPA appears to have undertaken a robust assessment in measuring European comparator data. It assessed its comparators against four criteria: (i) regulated share of value; (ii) regime similarity; (iii) liquidity; and (iv) data robustness and demonstrated a robust consideration of the appropriate reasons to include or exclude comparators. Similar assessments were undertaken by the other advisers, resulting in varying conclusions on the comparators to include or exclude. On this basis, we note that there is not a clear-cut 'right' or 'wrong' comparator sample and conclude that CEPA has undertaken a robust assessment to reach its conclusion. This view is reflected also in the utilisation of differing indices by the advisers in determining their European comparator ranges. As set out above in the Legal Framework,[557] where there are alternative options to those utilised by GEMA and they each have competing pros and cons, and none is clearly superior, it will be more difficult to persuade us that GEMA has erred. In this case, as the appellants have failed to persuade us that the alternative comparator samples are clearly superior to those utilised by GEMA, we are not satisfied that GEMA's choice of comparator sample was wrong.

5.391 With regard to methodology, again we note differences across the advisers. As is set out in the 'sample period issue' section below (from paragraph 5.460) we continue to regard 2-, 5- and 10-year periods to be appropriate timeframes when estimating long-run beta while also recognising the rationale for a focus on longer-term estimates in the context of measuring the energy network beta. In this context, we observe that the use of estimation windows in CEPA's analysis is in line with a focus on longer-term betas and we do not regard the approaches taken by other appellants to be manifestly better.

5.392 On the basis of comparing (i) comparator selection; (ii) estimation windows; and (iii) indices comparison, we conclude that there is significant uncertainty

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[553] CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', page 50.
[554] *Hope 1 (WWU),* note to table 7.4.
[555] NERA (SPT), 'Expert report', paragraph 118(a).
[556] Frontier (NGET/NGG), 'Estimating Beta for RIIO-2: A report prepared for National Grid', page 78.
[557] See paragraph 3.34.

in determining an appropriate dataset and methodology to measure a beta range for European comparators. In this context, we find that there is complexity and a requirement for a large number of judgements to be made in performing European comparator analysis and are not persuaded that inclusion of such data would have improved the robustness of GEMA's beta estimation.

5.393 Further, we note (per paragraph 5.374b)) that it is not clear that reliance on European comparators would result in a higher beta, as there is evidence to suggest that European energy network comparator data could point to a beta either above or below GEMA's estimate, while also being less reliable as a measure of UK energy network betas given the range of other reasons listed in paragraph 5.388 above.

5.394 For these reasons, and in line with the reasoning set out in our provisional determination as per paragraphs 5.375 to 5.379 above, we conclude that GEMA has not erred in excluding European comparators from its consideration of asset betas. In making our assessment, we note that regulators can be faced with a range of potential imperfect proxies, and it is not unreasonable to narrow the dataset to only the most relevant when making a final decision.[558] The appellants have not persuaded us that the European comparator data would plainly be better in order for GEMA to create an appropriate estimate of beta for this price control, or that if GEMA had done so and used the most reliable available evidence, it would have resulted in a different beta point estimate. As a result, we maintain our assessment as set out in the provisional determination and conclude that GEMA was not wrong in its decision not to utilise European comparator data in determining its proxy for UK energy network betas.

The National Grid issue

Appellants' initial submissions

5.395 Appellants submitted that GEMA was wrong not to use a decomposed UK NG beta in estimating the beta of the UK regulated energy networks.

a) NGET/NGG,[559,560] Cadent,[561] NGN[562] and SGN[563] submitted that National Grid observed beta understates the riskiness of the UK regulated

[558] For example, see the approach in: *NATS* Final report.
[559] NGET NoA, paragraph 3.111.
[560] NGG NoA, paragraph 3.111.
[561] Cadent NoA, paragraph 4.91.
[562] NGN NoA, paragraph 185(vi).
[563] SGN NoA, paragraph 200.

business and that a decomposition of National Grid's beta would remove downwards pressure from the US business and result in an increased beta. SGN noted that decomposition of the National Grid beta would isolate the systematic risk of UK activities, removing the downward pressure arising from the US operations while maintaining a blend of gas distribution, gas transmission and electricity transmission risk.[564]

b) Based on analysis by its advisers, KPMG, Cadent told us that a National Grid UK asset beta would be above 0.4, and therefore that GEMA's overall asset beta mid-point of 0.349 is materially understated.[565]

c) Referring to analysis undertaken by its adviser, KPMG, SGN noted that KPMG recognises the uncertainty in the assumptions that underpin the decomposition analysis it performed and that it does not propose to apply equivalent weight to its results. However, SGN noted that KPMG considers that the decomposition analysis is an important cross-check which should be taken into account when estimating betas. It told us that KPMG performs robustness checks by varying its proposed set of US comparators and continues to estimate asset betas significantly in excess of the beta estimate proposed by GEMA.[566]

5.396 NGET/NGG disputed GEMA's argument (see paragraph 5.398 below) that the work of its advisor, Frontier, suggests that the National Grid UK beta risk is lower than National Grid corporate. It told us that GEMA based this conclusion on a selective subset of data which did not consider Frontier's 'full review of the evidence.'[567]

GEMA's initial submissions

5.397 GEMA told us that it gave limited weight to National Grid's decomposition because decomposition analysis is complex and requires a large number of judgements, which introduce a margin of error and the cumulative effect risks distorting the overall outcome.[568]

5.398 GEMA also told us that the decomposition work done by NGET/NGG's advisers, Frontier, and also the work that was done for GEMA by its advisers, CEPA, suggested that there are times when the National Grid's 'UK' beta

[564] SGN NoA, paragraph 200.
[565] Cadent NoA, paragraph 4.91.
[566] SGN Reply, Table 1.
[567] NGET/NGG Closing Statement, paragraph 2.3.
[568] GEMA Response A, paragraph 161.1

seems to be higher than the 'US' beta and vice versa. GEMA stated that this was why it took the unadjusted numbers as its full measure.[569,570]

The National Grid issue – our provisional assessment

5.399 In considering the National Grid issue in our provisional determination, we assessed whether GEMA was wrong not to decompose National Grid's beta in order to obtain a more accurate estimate of the UK-specific beta.

5.400 We noted GEMA's arguments that potential differences in the regulatory regime in the US means that there are justifiable differences in beta estimates across jurisdictions. We also recognised the appellants' argument that the beta estimate could be too low if the 'combined' National Grid beta materially understates the level of risk in the UK market (as a result of including lower risk US activities).

5.401 We were presented with evidence from GEMA that demonstrated that CEPA analysed the impact of decomposing the National Grid beta. CEPA's work suggests that the results of this type of analysis can be volatile, with outputs varying materially between different sampling periods. We noted that GEMA's review of this analysis considered the potential margin of error which could be introduced into its beta estimate as a result of relying on decomposition analysis. We also noted the point raised by GEMA that its decomposition analysis suggests that, depending on the measurement period, a UK National Grid beta may be either higher or lower than a US National Grid beta, which was not disputed by appellants.[571]

5.402 It appeared clear to us that GEMA gave adequate consideration to the potential inclusion of a decomposed National Grid beta and, on balance, determined to rely instead on un-adjusted data. With recognition of the margin of error inherent in decomposition analysis and on the basis that GEMA weighed up the pros and cons of including such analysis in its beta estimation, we regarded GEMA's decision to be well within its margin of appreciation. As a result, we provisionally concluded that GEMA did not make an error by choosing not to base its final analysis on a decomposed National Grid beta.

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[569] GEMA Response A, paragraph 161.2.
[570] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 80, lines 18–24.
[571] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 80, lines 18–24 and NGET/NGG Main Hearing Transcript, 29 June 2021, page 29, line 29–page 30, line 17.

Appellants' response to the provisional determination

5.403 The appellants submitted that analysis of a decomposed National Grid beta is relevant evidence which should be considered in determining the beta for RIIO-2.[572]

5.404 As set out at paragraph 5.382 above, Cadent submitted that it did not consider that National Grid's UK network business should be considered to be a less appropriate comparator for assessing the systematic risk of UK energy networks than UK water companies.

5.405 NGN submitted that GEMA's concerns over volatility or differences between UK versus US betas can be resolved by considering the decomposed beta for periods absent major market changes or by taking an unweighted average of all available periods.[573]

5.406 NGET/NGG referred to the 'margin of error' that could be introduced in using a decomposed UK National Grid beta as set out in the provisional determination. NGET/NGG told us that this 'binary approach to using data – either to include it or not to include it unadjusted – cannot be right.' They told us that there is always the potential for error which makes it even more important that a wide range of data is used and appropriately weighted, rather than being excluded. They told us that it is not clear how GEMA arrived at the precise beta value of 0.311 and that in this context it cannot be right that GEMA is entitled to exclude informative data without giving it any weighting at all.[574]

The National Grid issue – our final assessment

5.407 We considered the points raised by the appellants in response to the provisional determination and noted the similarities between the appellants' requests for inclusion of a decomposed National Grid beta alongside European comparator data (as set out in more detail from paragraph 5.369). We note that GEMA had regard to the evidence and consider that it reached a balanced conclusion, having weighed up the pros and cons of including a decomposed National Grid beta, and that the case was not sufficiently strong to require its inclusion in its beta assessment. Our conclusion in this respect is based on our agreement with GEMA that decomposing National Grid's beta is a complex analysis, which requires a large number of judgements, and which gives estimates which are volatile over time. This reasoning was set out in our

[572] NGN Response to PD, paragraph 158, Cadent Response to PD, paragraph 11.39, NGET.NGG Response to PD, paragraph 3.31. and SPT Response to PD, paragraphs 86–87.
[573] NGN Response to PD, paragraph 158.
[574] NGET/NGG Response to PD, paragraph 3.31.

provisional determination, as reflected in paragraphs 5.399 to 5.402 above, and we consider that it remains relevant in making our final assessment. We further note that the fact that in some periods these estimates may suggest a figure above National Grid's overall beta, while in other periods they suggest a lower figure supports the view that including the results of this type of analysis would not have improved the robustness of beta estimation overall and that GEMA's decision to rely on the overall National Grid beta was not an error.

The SSE issue

Appellants' initial submissions

5.408 NGET/NGG told us that although SSE's business included elements which may not closely reflect the beta of GB regulated networks, as the only other UK-listed energy network company, it was wrong for GEMA to place no weight at all on this evidence. They told us that if this were taken properly into account it would offset the downward bias which results from the 75% weighting to water companies in GEMA's sample. NGET/NGG submitted that, alternatively GEMA could have used a decomposition approach to exclude SSE's non-regulated energy networks businesses.[575]

GEMA's initial submissions

5.409 GEMA submitted that the exclusion of SSE was a judgemental decision and is 'unimpeachable'.[576] It told us that it gave the SSE observed betas no weight given:[577]

a) Oxera suggested that SSE be excluded because its beta has diverged from other networks, thereby suggesting the risk profile is not aligned with the other comparators.

b) The greater proportion of unregulated, non-network activities carried out by the publicly traded SSE entity.

c) The expectation that unlevered beta will be higher for unregulated, non-network activities than for the 'pure play' energy company that GEMA seeks to estimate a notional equity beta for.

d) The observed unlevered betas for SSE were 'very substantially higher' than those of National Grid and UK water companies across all estimation

[575] NGET NoA, paragraph 3.116 and NGG NoA, paragraph 3.116.
[576] GEMA Response A, paragraph 162.
[577] GEMA Response A, paragraphs 162.1–162.4.

windows and averaging periods. GEMA submitted that this can reasonably be inferred to be due to the higher proportion of unregulated business carried out by SSE.

5.410 GEMA told us that it considered 'correlational statistical differences' between SSE and pure play regulated assets and found them to be high and 'noisy'.[578] GEMA explained that while some of this 'noise' may be reduced going forwards (as a result of divestment of some of the non-regulated business), there is not a clear picture of what this will mean for beta estimates going forwards.[579]

The SSE issue – our provisional assessment

5.411 In making our assessment in the provisional determination, we considered whether GEMA was wrong to exclude SSE's higher beta in determining its point estimate based on beta estimates per Figure 5-4. In doing so, we agreed in principle with the appellants that SSE has the potential to be a useful comparator considering it is the UK's only other listed energy network company. However, we also acknowledged that SSE has exposure to a significant proportion of unregulated non-network activities, and that this reduces the usefulness of SSE's beta as a proxy for the regulated energy networks. This difference is evident in SSE's significantly higher beta by comparison to pure-play regulated utilities.

5.412 We also acknowledged that a decomposition of SSE's beta may have been useful in determining an estimate for the relevant network activities. However, we recognised that this has the potential to introduce a margin of error, as per GEMA's assessment of the decomposition analysis undertaken by CEPA (see discussion in relation to National Grid from paragraph 5.395).

5.413 We were presented with evidence that GEMA considered the benefit of including SSE in its estimate and chose not to, based on its understanding of the structure of SSE's regulated/unregulated business.

5.414 We considered that GEMA's exclusion of SSE data when determining its point estimate of beta was based on considered judgement that recognised the material differences in exposure to systematic risk between SSE and a pure-play energy network company. We provisionally considered this application of

[578] *McCloskey (GEMA),* paragraph 291 and Table 6 and GEMA Clarification Hearing Transcript, Parts 1 & 2, 21 May 2021, page 57, line 23–page 58, line 9.
[579] GEMA Clarification Hearing Transcript, Parts 1 & 2, 21 May 2021, page 59, lines 11–23.

judgement to be in line with GEMA's regulatory margin of appreciation and is therefore not an error.

Responses to the provisional determination

5.415 We did not receive any submissions focused on the SSE issue in response to the provisional determination.

Our final assessment

5.416 With no submissions made on the SSE issue, and with consideration of the beta estimate in the round, we consider that our reasoning as set out at the provisional determination, reflected in paragraphs 5.411 to 5.414 above, remains relevant. We conclude that GEMA's exclusion of SSE data when determining its point estimate of beta was based on considered judgement that recognised the material differences in exposure to systematic risk between SSE and a pure-play energy network company. Further, with respect to the possibility of decomposing SSE's beta to identify an estimate for its regulated networks business, we find that the same issues of complexity and the requirement for a large number of judgements to be made arise. In this context, we are not persuaded that such an approach would have improved the robustness of GEMA's beta estimation. Therefore, we conclude that GEMA has not made an error with respect to its decision to exclude SSE's data from its assessment of an appropriate beta.

The gas networks issue

Appellants' initial submissions

5.417 The gas network appellants submitted that gas companies face greater systematic risk than electricity companies, and that these risks have not been considered in GEMA's assessment of beta.

5.418 NGN submitted that GEMA uses only National Grid group level beta as a comparator. It notes that this includes electricity transmission and gas transmission, as well as US operations. Therefore even if GEMA placed more weight on the National Grid group-level beta, this would not fully capture the specific systematic risks faced by GDNs as a result of asset stranding.[580] NGN noted that investors in GDNs are currently experiencing heightened risk exposure, a component of which is systematic, and GEMA's use only of water

[580] NGN NoA, paragraph 184(iii).

companies and National Grid group as beta comparators does not provide for this GDN specific risk.[581]

5.419 NGN submitted that data from European comparators finds powerful evidence of the systematically higher risk for gas, compared to electricity companies. It referred to analysis undertaken by KPMG and submitted that this finds that gas networks have materially higher asset betas than electricity networks, and that this difference increases over time. It noted that given the entities within the sample used by KPMG operate in the same countries under the same regulatory regime, the key difference explaining divergence is likely to be the greater systematic risk faced by the gas sector.[582]

5.420 SGN submitted that GEMA's comparators do not capture the heightened systematic risks faced by GDNs. It told us that GDNs presented GEMA with significant evidence that investors perceived higher risk for gas networks (compared to electricity) arising from the Net Zero agenda due to heightened uncertainty and operational risks as well as a systematic component to asset stranding.[583]

5.421 SGN told us that GEMA's dismissal of the systematic risk of asset stranding for the gas sector on the basis that it is not perfectly systematic was illogical and an insufficient basis on which to disregard the risk entirely.[584]

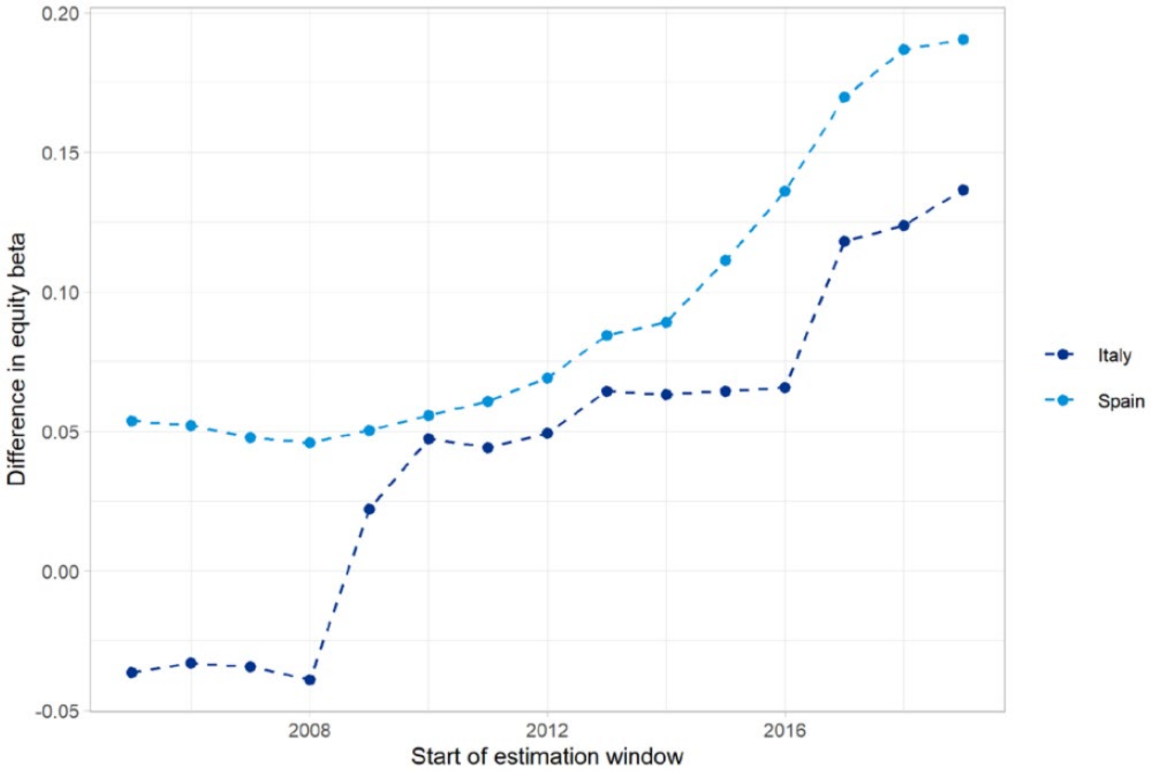
5.422 SGN submitted that widening the beta comparator sample to include European regulated energy networks provides empirical evidence which reflects the heightened systematic risk in gas networks. SGN highlighted KPMG's analysis which found divergence in the raw equity betas of gas and electricity networks over time.[585]

5.423 Figure 5-5 below demonstrates KPMG's comparison of the differences between the raw equity betas of the gas and electricity networks in its sample, across Spain and Italy separately, over a range of estimation windows that start between the years 2004 to 2019. KPMG submitted that the difference between the raw equity betas trends upwards as the start date of the estimation window becomes more recent (with a positive difference indicating that the beta of the gas network is higher than the electricity network). KPMG notes that this shows that the difference in systematic risk between gas

[581] NGN NoA, paragraph 185(i).
[582] NGN NoA, paragraph 185(iv).
[583] SGN NoA, paragraph 202.
[584] SGN NoA, paragraph 203.
[585] SGN NoA, paragraph 206.

network equity and electricity network equity is growing over time, across Spain and Italy.[586]

Figure 5-5: KPMG's submission on the difference between raw equity betas of European gas and electricity networks over time



Source: KPMG, 'Cost of equity Report', (2021), Figure 9, based on KPMG analysis.

5.424 SGN told us that GEMA's reasons for dismissing the gas networks issue do not explain the growing divergence in asset betas between Italian and Spanish gas and electricity networks.[587] This was reflected by NGN who noted that GEMA refers to a number of factors that it suggests invalidates the evidence but has not robustly tested whether any of these actually explain the divergence in betas that is observed.[588] NGN submitted evidence from KPMG which tested each of the factors set out by GEMA to invalidate the evidence.[589]

5.425 Per KPMG's analysis, it investigated the extent to which the divergence in Italian and Spanish betas over time is due to:

a) Changes in the level of diversification of the companies across non-regulated business activities;

[586] *Gregory and Deakin 1 (SGN)*, paragraph 7.4.57.
[587] SGN Reply, pages 8–9.
[588] NGN Reply, paragraph 43.
[589] NGN Reply, paragraph 43.

b) Changes in the levels of gearing; and

c) The inclusion of data from the Coronavirus (COVID-19) period.

5.426 In each scenario, KPMG found that the upward trend in the difference in betas remains, which KPMG suggests means that the divergence in systematic risk over time is not a result of any of the above factors.[590]

5.427 With regard to GEMA's argument that there are different regulatory, political and macroeconomic risks facing UK energy networks and European counterparts, KPMG told us that to explain the observed upward trend in betas, these broader risks would need to affect gas transmission and electricity transmission sectors differently and increasingly through time. It concluded, therefore, that differences in regulatory, political, and macroeconomic risks are unlikely to explain the upward trend in beta differences.[591]

5.428 KPMG referred to evidence submitted by GEMA which notes that a review of Belgian data demonstrates a gas asset beta materially lower than an electricity asset beta.[592] KPMG submitted that neither entity included in GEMA's Belgian assessment were deemed by KPMG to be appropriately reflective of the risk exposure faced by UK GDNs and therefore excluded from its sample because:

a) Elia, the electricity asset, has a significant level of public ownership, suggesting that its risk exposure is likely to understate the risks faced by UK energy networks;

b) Fluxys, the gas asset, is not deemed by KPMG to have sufficient traded liquidity.[593]

5.429 KPMG summarised that the upward trend in beta differences between Spanish and Italian gas and electricity networks can most likely be explained by the long-term demand risk (including possible asset stranding) and uncertainty around future payoffs for investors in gas networks, which it submits are less prevalent in electricity networks.[594]

5.430 Based on KPMG's analysis, NGN submitted that the findings therefore remain consistent with the hypothesis that gas networks are disproportionately

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590 KPMG (NGN), 'Targeted analysis of GEMA's Response on the CoE', paragraphs 4.1.5–4.1.6.
591 KPMG (NGN), 'Targeted analysis of GEMA's Response on the CoE', paragraphs 4.1.7.
592 *McCloskey (GEMA),* paragraph 299.
593 KPMG (NGN), 'Targeted analysis of GEMA's Response on the CoE', paragraphs 4.1.8.
594 KPMG (NGN), 'Targeted analysis of GEMA's Response on the CoE,' paragraphs 4.1.10.

affected by the economy-wide transition to Net Zero, which it says GEMA has failed to capture.[595]

5.431 SGN told us that the evidence presented by KPMG (as per Figure 5-5 above) illustrates that the divergence in asset betas between Italian and Spanish gas and electricity networks is more pronounced for recent estimation windows which suggests that long-term estimates of the asset beta for National Grid are unlikely to capture recent divergence in the systematic risk of GDNs following National Grid's majority divestment of its gas distribution business in 2017.[596]

5.432 Cadent submitted that it cannot be concluded with any degree of confidence that signals of gas risk included in the National Grid's share price from five or more years ago are appropriate for gauging the risk of a gas distribution network at present. It said that different sector risks around the Net Zero agenda have only crystallised in the last few years, with NGN reflecting the same point.[597,598]

5.433 SPT submitted that there is insufficient evidence that gas network risk is higher than electricity network risk, and that there is evidence that points strongly the other way. It told us that work undertaken by its advisor, NERA, demonstrates that:

a) SPT faces twice higher volume capex risk than GDNs, measured by capex: Regulatory Asset Value (**RAV**). SPT noted that GEMA considers companies with a higher capex to RAV ratio to be more exposed to cash-flow risks and allowed higher betas; and

b) GEMA has determined a notional gearing level of 55 %, lower than that prescribed for the GDNs, which notes as meaning that GEMA's decision implicitly assumes that TOs are higher risk.[599]

GEMA's initial submissions

5.434 GEMA submitted that it 'carefully considered the qualitative evidence as to the relative systematic risks of gas and electricity networks – and found it inconclusive.'[600] It told us that:

595 NGN Reply, paragraph 43.
596 SGN Reply, Table 1.
597 Cadent Reply, paragraph 85(b)
598 NGN Reply, paragraph 42.
599 SPT Closing Statement, paragraphs 12–13.
600 GEMA Response A, paragraph 163.

a) Weighting its beta towards long term (10-year) estimates of National Grid beta would mitigate concerns about risk differences between electricity and gas as it would incorporate National Grid's gas transmission and gas distribution businesses.[601] This links to GEMA's expert witness argument that using a large sample period (10-year) avoids a subjectivity error as it 'means using NG plc data prior to the sale of its GD business to Cadent' and therefore 'has the benefit of capturing information relevant to all the RIIO-2 energy businesses including GD.'[602] GEMA submitted evidence that referred to its FD which stated that 'given the increased weighting on NG's observed beta, and our approach to put more weight on larger samples of data, thus capturing GD, GT and ET risks, we are also mindful not to double count, for example by implying that one sector is above 0.31 without implying that another sector is below 0.31.'[603]

b) The evidence of alleged differences in observed betas of Italian and Spanish gas and electricity companies relied on by Cadent, SGN and NGN in their NoAs was not drawn to GEMA's attention and is of limited probative value because:[604]

(i) The Italian and Spanish gas companies have a greater proportion of unregulated business than the electricity companies. Thus, higher betas for the Italian and Spanish gas companies may be a result of a higher unregulated share of the business and not higher systematic risk associated with gas networks.

(ii) The relative betas of the Italian and Spanish gas companies versus electricity companies vary depending on the sample period. GEMA told us that higher gas company betas appear to be driven in particular by the inclusion of Coronavirus (COVID-19) data.

(iii) There are difficulties relying on data from non-UK jurisdictions where regulatory, political, macroeconomic etc risks can differ.

(iv) Other European evidence (notably from Belgium) suggests higher observed betas for electricity as compared to gas.

The gas networks issue – our provisional assessment

5.435 In undertaking our assessment for the provisional determination, we considered whether there was sufficiently persuasive evidence to support the

[601] GEMA Response A, paragraph 163.
[602] *McCloskey 1 (GEMA),* paragraph 274–276.
[603] *McCloskey 1 (GEMA),* paragraph 248, quoting GEMA FD Finance Annex, paragraph 3.77.
[604] GEMA Response A, paragraphs 164 and 164.1–164.4.

contention that gas networks are exposed to higher levels of systematic risk than water and electricity companies, and whether GEMA was wrong not to adjust beta accordingly.

5.436 We noted that the majority of the arguments made by appellants around gas being riskier than water/electricity companies related to the Net Zero agenda and the potential for future asset stranding.

5.437 After consideration, we were not persuaded by the argument that any risks associated with the Net Zero agenda constitute increased systematic risk exposure in the gas sector, or the energy sector more broadly. We considered that, fundamentally, risks arising from Net Zero have the potential to be diversified away. Large institutional investors, such as those investing in UK regulated utilities, should be able to diversify their exposure to Net Zero, either by investing in sectors and regions not impacted by such risks, or by specifically investing in opportunities that are exposed to upside risk from the Net Zero agenda, such as battery or renewable energy-related companies.

5.438 We did, however, recognise that Net Zero could theoretically lead to gas networks and their investors becoming exposed to additional non-systematic risks – but concluded that if this is an issue, it would be better considered in relation to 'aiming' the cost of capital, as opposed to beta. We consider this point in more detail from paragraph 5.851.

5.439 In relation to GEMA's argument that the inclusion of National Grid's 10-year beta provides information on the impact of Net Zero on gas networks, we noted both that the specific details of the Net Zero agenda have only recently been confirmed and would have limited presence in the 10-year data, but also that the broad environmental trends that influence Net Zero have been known to investors for many years now. However, as we do not necessarily see that these risks would be systematic, we determined that this did not impact our conclusion on the gas networks issue.

5.440 We recognised KPMG's submission with regard to differences in gas and electricity betas in Italy and Spain over time. However, in our view, we considered that while it is reasonable to conclude that entities within the sample will be equally comparable to one another, being within the same regulatory regime, we did not think there is a reliable way to conclude what this might mean for the relative systematic risk perceived by investors in UK networks. In line with our assessment of the requirement to include European comparators (see from paragraph 5.375 above), it was our view that GEMA can apply its judgement when deciding whether or not to include such data in its determination of the UK energy network beta and its assessment of differences in gas and electricity risks.

5.441 In addition, we asked the appellants whether a different beta should be implemented for gas and electricity networks[605] but did not receive sufficiently persuasive evidence suggesting that GEMA should have done so. In our view, NGET/NGG has a unique and useful perspective on this matter as NG plc owns both electricity and gas networks. When asked about the differences in risk between electricity and gas networks, NGET/NGG did not suggest that it would be appropriate for electricity and gas networks to have a different beta within the energy network price controls.[606]

5.442 Overall, we recognised that the energy networks will face uncertainty and potential changes as a result of the Net Zero agenda. We also noted our understanding that gas networks and electricity networks may be impacted in different ways as a result of changes to the energy sector. However, we provisionally concluded that we were not convinced that any risks arising from Net Zero can be defined as systematic risks and that we did not consider that the impact of the Net Zero agenda can be appropriately adjusted for within the beta element of CAPM.

Appellants' response to the provisional determination

5.443 Appellants responded to the provisional determination by arguing that gas specific risks arising from Net Zero are not fully diversifiable and can be considered to have a systematic element. In particular, appellants focused on the evidence of the divergence of gas and electricity betas in Italy and Spain.[607]

- *Systematic nature of Net Zero risks*

5.444 The appellants told us that the decision of 'no error' in the gas networks issue is dependent on the assumption that Net Zero risks can be diversified away and that the evidence they have submitted to us demonstrates that a systematic component of risk does remain.

5.445 NGN,[608] SGN[609] and Cadent[610] reiterated the argument that the analysis undertaken on Spanish and Italian gas and electricity networks demonstrates increased systematic risk in the gas sector. They reiterated KPMG's

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605 Cost of Equity Joint Hearing Transcript, 21 June 2021, page 83, lines 15–21 and page 84, lines 18–20.
606 NGET/NGG Main Hearing Transcript, 29 June 2021, page 29, line 29–page 30, line 17.
607 NGN Response to PD, paragraph 7.1(iv)(a).
608 NGN Response to PD, paragraphs 119–126.
609 SGN Response to PD, paragraphs 109–114.
610 Cadent Response to PD, paragraphs 11.41–11.47.

assessment (as set out at paragraphs 5.425 to 5.426) that the divergence between the gas and electricity betas is not driven by:

a) Changes in the level of diversification of the companies across non-regulated business activities;

b) Changes in the level of gearing;

c) The inclusion of data from the Coronavirus (COVID-19) period; or

d) Differences in regulatory, political and macroeconomic risk

5.446 The appellants reiterated their argument that the only plausible explanation for the upward trend in differences between the beta for Spanish and Italian gas and electricity networks is the long-term demand risk (including possible asset stranding) and uncertainty around future pay-offs for investors in GDNs, which, they told us, is less prevalent for electricity networks.[611,612]

5.447 The appellants told us that, broadly speaking, Net Zero risks affecting gas networks must be categorised as country-specific, sector-specific or company-specific. They submitted with regard to each:

a) Country specific: The UK became the first major economy to pass Net Zero emissions laws in 2019 with a Net Zero target considered to be one of the most ambitious in the world. Therefore, UK gas networks are likely to be more directly affected by Net Zero risks than Spanish or Italian counterparts.

b) Sector specific: The appellants submitted that a key aspect of the appeal for GDNs has been GEMA's disregard of the current Net Zero risks faced by their investors and they are not aware of any evidence which would suggest that the UK's regulated energy sector is more insulated from Net Zero risks than Spain or Italy.

c) Company specific: The appellants told us that against this evidence, it seems clear that the regulated energy sectors of the UK, Spain and Italy are at least comparable, and the findings are unlikely to be driven by company specific risk, given KPMG's findings apply to two distinct jurisdictions.

5.448 The appellants told us that the evidence from Spain and Italy is consistent with Net Zero risks having a systematic component because:

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[611] NGN Response to PD, paragraph 121.
[612] Cadent Response to PD, paragraph 11.42.

a) The transition to Net Zero will be quicker, easier and more affordable where the economy is performing well and vice versa in an economic downturn;

b) The recovery of current gas assets and the risk of potential under-recovery will necessarily be linked to affordability and therefore the performance of the wider economy; and

c) Technology and execution risk are clearly significant, which are inherently closely linked to the state of the economy.[613]

5.449 The appellants submitted that the provisional determination acknowledges that the differences between Spanish and Italian gas and electricity betas evidence cannot be driven by the factors that GEMA cited to discount it. The appellants told us that despite this acknowledgement, the provisional determination fails to reach the conclusion that this evidence is strongly indicative of an increased systematic risk faced by the gas sector in the UK.

5.450 With regard to GEMA's argument that weighting the beta towards long term estimates of National Grid's beta can mitigate concerns about risk differences between electricity and gas, as set out at paragraph 5.434a), Cadent noted that the divergence in asset betas between Italian and Spanish gas and electricity betas is more pronounced for more recent estimation windows, consistent with the more recent crystallisation of Net Zero risks in the last few years, therefore GEMA's argument is not effective in mitigating concerns about risk differences between electricity and gas.[614]

- *Electricity vs Gas Net Zero risk*

5.451 Cadent told us that significant weight appears to have been placed on NGET/NGG's views regarding the relative risks of gas and electricity networks. It told us that weight should be placed on quality evidence rather than opinions of any party. It noted that NG's position may be influenced by its decision to exit the gas sector entirely with the proposed sale of its gas business.[615]

The gas network issue – our final assessment

5.452 Firstly, from a conceptual point of view, we remain unconvinced as to the systematic nature of risks arising from the Net Zero agenda. We remain of the

[613] Cadent Response to PD, paragraph 11.47.
[614] Cadent Response to PD, paragraph 11.45.
[615] Cadent Response to PD, paragraph 11.48.

view that these risks can be diversified by investors and, in particular, we are unpersuaded that the ability to recover the value of any stranded gas assets is likely to be materially related to the broader economic cycle. Our detailed reasoning on these points is set out at paragraphs 5.866 to 5.870 below. We note that while several appellants have put forward reasoning as to why gas assets are likely to have a higher beta, SPT has put forward reasoning in the opposite direction.

5.453 However, we recognise the importance of considering not just the theoretical arguments but also the available evidence on actual betas/beta trends, particularly to the extent that these might suggest that the market holds a different assessment from ours. Therefore, we examined KPMG's analysis of trend in Italian and Spanish betas and the other available evidence carefully. In the first instance, we observed that KPMG's charts presented differences in raw equity betas, rather than asset betas, with the lines showing the differences in betas estimated from various dates up to the present time. We found this approach potentially hard to interpret and considered that a simple comparison between asset betas over time, as set out in CEPA's beta estimation report prepared for GEMA, would be clearer (see Figure 5-6 below).

Figure 5-6: CEPA's assessment of European asset betas relative to local indices

C.1.1.European asset betas, relative to local indices

We present below evidence on our European comparators relative to local indices.

Figure C.1: European asset betas versus local indices; set 1

Source: CEPA analysis of Bloomberg data

Source: CEPA (GEMA), 'RIIO-2: Beta estimation issues – Ofgem', page 99.

5.454 We find that this evidence does not clearly support the view that gas betas are higher than electricity betas, even where comparisons are limited to comparing firms within single countries. Both pairs of firms – Snam and Terna, and Enagás and Red Electrica – show a pattern of betas fluctuating around similar levels, with the gas betas sometimes higher and sometimes lower than the electricity ones. With the exception of 2010, the two Italian firms have betas which appear to move particularly closely with one another. While a larger gap has opened up between Enagás and Red Electrica in the last year, we observe that (i) Red Electrica's asset beta has been relatively more volatile over the last decade as a whole – between 2014 and 2016, there was a material gap in the opposite direction – and (ii) this gap largely coincides with the Coronavirus (COVID-19) pandemic. Taken as a whole, therefore, we do not find this evidence would support a conclusion of a clear or material difference in betas between the two sectors.

5.455 As a result, while we recognise that the energy networks will face some uncertainty and potential future changes as a result of the Net Zero agenda, we remain unconvinced that any risks arising from Net Zero can be defined as systematic risks and we do not consider that the Italian/Spanish evidence submitted supports a finding of a clear or material difference between gas and electricity betas. Therefore, we find that GEMA did not err in not making an adjustment to gas (or electricity) betas due to the potential impact of the Net Zero agenda.

Comparator errors – our overall provisional assessment

5.456 In summary in our provisional determination, we recognised the complexity involved and judgement required when determining the appropriate inputs in estimating the beta for a sector with no pure-play listed comparators. We considered that GEMA has performed an analysis based on the information available to it and used its regulatory judgement to determine when it should or should not include comparators within its assessment.

5.457 In many cases, there is the potential for well-informed decision makers to make different choices in determining what an appropriate comparator would be and we recognise the exercise of judgement in doing so. We considered that water companies are an appropriate proxy for UK energy networks and that GEMA was right to include National Grid's beta in its analysis. We understood the rationale behind excluding SSE as well as European comparators. We considered that the appellants had not persuaded us that Net Zero risks may be regarded as systematic risks to be dealt with through a beta adjustment.

5.458 Taking all of these factors together, we provisionally concluded that GEMA had not made an error in determining the comparators to use when estimating the beta of UK energy networks.

Comparator errors – our overall final assessment

5.459 Based on our conclusions as set out in each subsection above, we continue to conclude that GEMA has not made an error in determining the comparators to use when estimating the beta of UK energy networks.

Submissions on methodological errors

The sample period Issue

Appellants' initial submissions

5.460 The appellants submitted that GEMA was wrong to rely on long-term estimation windows as this did not account for recent changes to risk or other broader changes within the market. The appellants noted that relying on long-term data is wrong because such betas do not reflect forward-looking risk:

a) SSEN-T told us GEMA had failed to recognise changes in the beta risk of a company over a longer period of time due to M&A activities and shift in market demand and perceptions.[616]

b) SPT told us that the exclusive use of very long estimation periods (which SPT submitted is 10 years but effectively more since it is a trailing average) does not adequately account for more recent changes to regulatory risk or changes in the composition of the market portfolio. It told us that using the longer time period captures a period of depressed betas (for National Grid) as a result of the global financial crisis.[617] SPT also said that GEMA's argument ignored the fact that there is no reason to believe flight to quality during the global financial crisis/debt crisis is relevant for RIIO-2 forward looking risks.[618]

c) More broadly, SSEN-T submitted that GEMA had incorrectly relied on long-term estimation windows of 10+ years as opposed to two years and five years.[619]

[616] SSEN-T NoA, paragraph 4.53(d).
[617] SPT NoA, paragraph 45(1).
[618] SPT Reply, paragraph 23 (i).
[619] SSEN-T NoA, paragraph 4.53.

5.461 SGN submitted that it recognised the merits of placing weight on longer estimation windows but that GEMA had failed to consider the full period of available data for National Grid from 1995 in the absence of structural breaks. It told us that this demonstrates an asset beta of 0.40 which is materially in excess of GEMA's estimate of 0.349. SGN said that GEMA cannot therefore assume away a number of the errors cited by the appellants simply because its estimate was in line with the 10-year National Grid beta.[620]

5.462 Five of the appellants told us that GEMA did not sufficiently take into account the presence of structural breaks[621] in the 10-year estimation windows.

a) SSEN-T told us that GEMA had failed to recognise a significant break in the time series for UK utilities in September/October 2008 that indicates structural shifts.[622]

b) Cadent told us that evidence from the UK water sector suggests a structural break for UK water around the PR14 period, and therefore more weight should be placed on 5-year window estimates in respect of the UK water comparators.[623]

c) NGN and SGN submitted that betas should be estimated over the longest run of data free of structural breaks, and that for water companies in particular there is a structural break in the data in September 2014.

d) WWU submitted that changes in systematic risk over time, including structural breaks within the 10-year period, make a long estimation window inappropriate.[624,625]

5.463 KPMG, on behalf of the GDNs, submitted that there was comparison bias in the estimation windows used.[626] In relation to this analysis by KPMG:

a) Converse to the preference for short-term estimation windows above, NGN and SGN submitted that if structural breaks are to be disregarded then the most robust approach to estimating beta is to use the full dataset

[620] SGN Reply, Table 2.
[621] In econometrics and statistics, a structural break is an observable change over time in the parameters of regression models, which can lead to forecasting errors and unreliability of the model. In the case of beta measurement, the most obvious structural break would come from a distinct and meaningful change to the gearing of companies being measured.
[622] SSEN-T NoA, paragraph 4.53.
[623] Cadent NoA, paragraph 4.95(a).
[624] WWU NoA, paragraph B4.10.
[625] *Hope 1 (WWU),* page 17.
[626] KPMG (NGN), 'Targeted analysis of GEMA's Response on the CoE', paragraphs 4.2.4.

back to privatisation, which for National Grid results in an asset beta of 0.40 (on a 0.075 debt beta basis).[627,628,629]

b) Cadent submitted that taking NG beta estimates over a particular 10-year estimation window is inappropriate and amounts to 'cherry-picking'.[630]

GEMA's initial submissions

5.464 GEMA submitted that there were various types of error that may be avoided by relying on longer term samples of data. It told us that it did not consider that any structural breaks in data wholly undermined the utility of any given sample but told us that it accepted that careful interpretation is required where data contains structural breaks.[631]

5.465 GEMA noted that the sample period issue is linked to other 'errors' raised by the appellants and that prioritising this 'error' may render the impacts of other alleged beta errors immaterial'.[632] GEMA told us that:

a) The impact of putting greater weight on National Grid's unlevered beta depends on the sample size used or favoured, and that National Grid's unlevered beta for the 10-year estimation window could be as low as 0.29. Therefore, putting more weight on National Grid's observed beta could lower the unlevered beta decision in GEMA's FD for a pure play GB energy company if full weight is then placed on National Grid's observed beta using a large (10 year) sample of UK data;

b) Putting less weight on water sector betas could lower the unlevered beta decision if full weight is then placed on National Grid's observed beta using a large sample of UK data;

c) Putting more weight on European energy companies would not increase the assessed unlevered asset beta for a pure play energy company or the notional equity beta or the allowed return on equity under RIIO-2, given CEPA's preferred sample of European energy companies on a 10-year basis.[633]

5.466 GEMA also told us that in light of significant interlinkages within (and between) the appellants' cases, there are five other errors that could be

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627 NGN Reply, paragraph 47.
628 SGN Reply, paragraph 43.
629 Gregory, Harris and Tharyan (Cadent, NGN, SGN), 'Notes on Robertson's "Estimating Beta II*'*.
630 Cadent Reply, paragraphs 85–86.
631 GEMA Response A, (2021), paragraphs 167.
632 *McCloskey(GEMA),* paragraph 263.
633 *McCloskey (GEMA),* paragraph 263.

introduced by replacing GEMA's large UK sample with a smaller UK sample, each of which are considered in turn. Specially, GEMA told us that its large sample:

a) avoids a 'timing error'. GEMA presented evidence of two year daily returns of National Grid's beta.[634] It noted that the difference in raw equity beta for National Grid for the period between September 2011 and August 2013 and the period between September 2013 and August 2015 indicates a 0.39 difference in beta. It told us that 'unless we believe that risk can double (or half) without changes to the underlying regulatory framework or benchmark investment index, both samples appear unreliable'. It told us that using a large sample mitigates a 'timing error' that could occur from simply using the most recent 2-year sample.[635]

b) avoids an 'averaging error'. GEMA submitted that averaging errors can occur when taking a simple average of two samples rather than one combined sample. It noted that 'in the pursuit of accuracy (in either equity beta, asset beta or unlevered beta terms), and to respect the limitations of OLS, taking averages of small samples without noting this estimation issue should be avoided.' GEMA submitted evidence that illustrated a 10% difference in National Grid's beta estimate dependent on sampling periods.[636]

c) avoids 'subjectivity error'. GEMA noted that extending the National Grid data to the period prior to the sale of its GD business to Cadent means that information relevant to all of the RIIO-2 energy businesses (ie GDNs and TOs) are captured in the data. It noted that a smaller sample would require a separate exercise to capture the systematic risk for gas distribution. Further, GEMA told us that capturing all three sectors in National Grid's beta results in less reliance needing to be placed on evidence from other countries, such as the US and Europe.[637]

d) avoids a large statistical error. GEMA told us that, statistically, the uncertainty from 2-year beta samples can be double the uncertainty from 10-year beta samples, as measured by the standard error.[638]

e) sample avoids a market value of debt error. GEMA told us that the market versus book value of debt issue is less significant when focusing on a large sample of data because asset betas are more similar (National Grid

[634] *McCloskey (GEMA),* Figures 21 and 22.
[635] *McCloskey (GEMA),* paragraphs 267–268.
[636] *McCloskey (GEMA),* paragraph 269–273.
[637] *McCloskey (GEMA),* paragraph 274–276.
[638] *McCloskey (GEMA),* paragraph 277.

v UU) over large samples than they are over small samples, regardless of whether the focus is on the market value or the book value of debt.[639]

5.467 GEMA submitted that it recognised that the main drawback from using a large sample of UK data is that it may inappropriately capture risk factors that have materially changed over time, and therefore the errors listed above should be considered as a trade-off with the risk of that alternative error. It told us, however, that there is very little evidence that systematic risk for UK energy businesses has materially increased over the previous 20 years, and that some evidence suggests that it has decreased.[640]

5.468 With regard to structural breaks in the data, GEMA noted that:

a) 'SGN's NoA does not raise a structural break concern for the 10-year sample of NG beta observations […] and

b) the vast majority of unlevered beta observations for SVT and UU over 5-year and 2-year period[s] are below the unlevered beta estimate of 0.311.'[641]

5.469 GEMA submitted that the presence of structural breaks in the data should not necessarily render it redundant, as a break can be quickly followed by data coming back into line with previous values. GEMA told us that looking at large samples of data shows that there have not been any material step changes, and that a large sample could indeed contain structural breaks statistically, but that does not mean that the data is of no use: it simply means that the data should be interpreted with an appropriate degree of caution and expertise.[642]

Interveners' initial submissions

5.470 Citizens Advice told us that it agreed with GEMA that RIIO-2 should seek to determine the 'forward looking' betas for the regulated energy network companies focusing on the 'longest horizon available, namely the betas for the RIIO-2 price control review period for long-term investors'. It said that this is a result of systematic risk and beta varying materially by time period as a result, primarily, of changes in the regulatory and policy framework. It told us that this is highly relevant for determining beta for RIIO-2 owing to the introduction of new uncertainty mechanisms (**UM**) which provide additional

[639] *McCloskey (GEMA),* paragraph 279.
[640] *McCloskey (GEMA),* paragraph 266.
[641] *McCloskey (GEMA),* paragraph 280.
[642] *McCloskey (GEMA),* paragraph 281.

protection to investors against systematic risk by transferring it to customers.[643]

Our provisional assessment

5.471 In our assessment in the provisional determination, we noted that the appellants had variously argued that GEMA should have focused on longer and shorter timeframes, and that such disagreement highlights the potential for differing views as to the best way to estimate beta.

5.472 In relation to the presence of, and need to adjust for, structural breaks - we noted the structural breaks referred to by the appellants are the same as those that were highlighted as part of the CMA PR19 Redetermination, where the same underlying water beta data was used. In the PR19 Redetermination, the CMA found that the appellants' analysis of structural breaks was inconsistent (eg different parties identified different starting and ending points for the structural breaks). In the CMA PR19 Redetermination, the CMA concluded that not all structural breaks were made equal, and it was more convinced by ones brought about by changes in business activities than those identified due to other shocks to the market (eg Coronavirus (COVID-19) or a new regulatory price control period).[644]

5.473 We considered, in making our provisional determination, that estimations over long time periods may still be useful regardless of the potential for structural breaks. In considering the potential benefit of longer-term (longer than 10-year) samples, we recognised that data from privatisation could potentially bring different or greater insight into the underlying beta profile of the energy networks. However, we also acknowledged that longer timeframes have the potential to introduce greater uncertainty into the applicability of early data in estimating current systematic risk. Similarly, in response to the point raised by GEMA at paragraph 5.467, we agreed with the assessment that if the risk factors faced by comparator companies have changed materially then they are not equally good comparators before and after that change.

5.474 Further, we noted that while there is dispute around the existence of structural breaks in the 10-year estimation window, there are events which we consider clear indicators of structural breaks (in the form of the sale of non-regulated business lines) within the water data which occurred prior to the 10-year window, and which would be included if a longer-term data back to privatisation were to be utilised. Therefore, we did not consider the inclusion

[643] Citizens Advice Intervention Notice, paragraph 113.
[644] CMA PR19 Redetermination, paragraph 9.461.

of data back to privatisation to be appropriate for estimating beta in this scenario.

5.475 As previously discussed, there is no one correct way to estimate beta. In relation to the timeframe used, there are evidently pros and cons to longer and shorter timeframes. Shorter timeframes could be the most accurate indication of the market's assessment of beta likely through the coming five years of the price control, or could reflect a specific market environment that is unlikely to be repeated (such as the current impact of Coronavirus (COVID-19) on markets). Conversely, longer timeframes could give a better indication of a 'through the cycle' beta that is useful when estimating for an unknowable future market environment, but could equally be seen as including historical data that is now less relevant to the systematic risks faced by the networks. It was our provisional assessment that 2-, 5- and 10-year periods are all appropriate timeframes when estimating long-run beta within regulatory frameworks and we noted that the CMA has used these timeframes in its own determinations of beta estimates. As a result, our provisional view was that GEMA did not make an error either in including such data, in choosing to place most weight on 10-year estimates or by choosing not to extend its sample period beyond the 10-year estimation window.

Appellants' response to the provisional determination

5.476 The Appellants highlighted a number of concerns with regard to the sample period issue in response to the provisional determination. In their joint response, the appellants submitted that GEMA made an error by placing most weight on long-run data which spans a period including structural breaks and underweights the more recent and hence more relevant 2-year and 5-year estimates. They told us that the consequences of this approach are that GEMA's estimate of asset beta is below most of the estimates for the most relevant comparator – National Grid – which, they submitted, is a clear error.[645]

- *GEMA should consider all timeframes*

5.477 Appellants told us that consideration should be given to National Grid's beta across all timeframes (ie not just 10-year timeframes).

[645] Appellants Joint Response to PD on Ground A, page 7.

a) NGN,[646] SGN[647] and Cadent[648] submitted that the economic evidence in the provisional determination supports placing equal weight on estimates from all windows. They told us that it does not follow that 10-year data points should be the primary basis for determining beta and that in disregarding alternative time windows when selecting its point estimate GEMA has failed to properly take into account relevant economic evidence from National Grid's beta. Cadent submitted that GEMA did not apply a robust methodology by placing equal weight on estimates from all windows, and that GEMA did not assess whether its chosen approach introduced bias into the estimate. [649]

b) Cadent submitted that GEMA's point estimate of 0.311 is lower than the average betas for National Grid across all time periods, which it calculates as being 0.325 and contributing a c. 30bps impact on the overall cost of equity. Cadent told us that it considers the average National Grid beta to underestimate the systematic risk of a GDN.[650]

5.478 NGET/NGG told us that the approach taken by the CMA in the provisional determination appears to grant GEMA the discretion to cherry pick which means that GEMA (and future regulators) have the potential to pick the timeframe which allows them the opportunity to select the data which suits their own desired outcome. They submitted that if 2-, 5-, and 10-year periods are all appropriate timeframes when estimating long-run beta within regulatory frameworks, the provisional conclusion that GEMA did not make an error in choosing to place most weight on 10-year data appears to give GEMA the freedom to cherry-pick any 2-, 5- or 10-year beta data with absolute discretion, including where the selected data is unrepresentative of the broader data, and that it cannot be right that a regulator has free rein to select whatever data it finds most convenient to produce the desired outcome at a given time.[651]

- *National Grid's 10-year beta is depressed*

5.479 Appellants submitted that there is empirical evidence that National Grid's 10-year beta is depressed as a result of factors such as the global financial crisis. SPT highlighted evidence previously submitted by NERA, on behalf of SPT,

[646] NGN Response to PD, paragraph 159.
[647] SGN Response to PD, paragraph 152.
[648] Cadent Response to PD, paragraphs 11.33–11.34.
[649] Cadent Response to PD, paragraphs 11.34–11.35.
[650] Cadent Response to PD, paragraphs 11.33–11.35.
[651] NGET/NGG Response to PD, page 35.

which argued that GEMA's FD asset beta of 0.31 is at the very low end of GEMA's own National Grid beta range:

Figure 5-7: NERA's submission that GEMA's asset beta is at the very low end of its own NG beta range

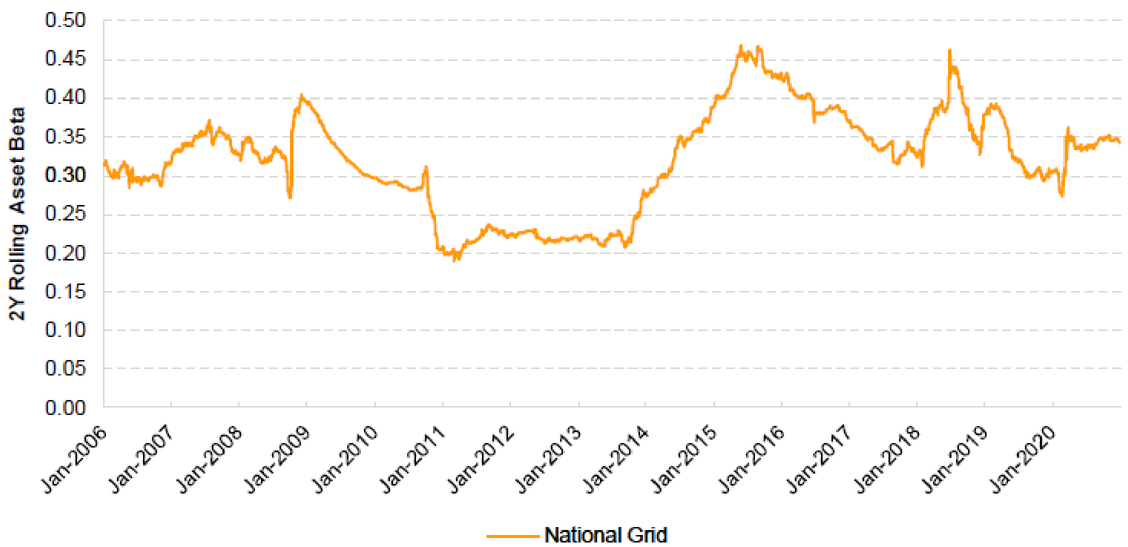
	NG asset beta (BVD)	NG asset beta (MVD)
Max	0.36	0.34
Upper Quartile	0.35	0.33
Lower Quartile	0.32	0.30
Min	0.30	0.29

Source: NERA (SPT), 'Cost of equity report', Table 3.2

5.480 NERA told us that the only beta estimates which are lower than 0.31 are the estimates that use 10-year estimation windows or averaging periods. It submitted that all of the other estimates based on 2-year and 5-year estimation windows and spot, 2-year and 5-year averaging periods are at least as high as GEMA's FD of 0.31 (range of 0.31 to 0.36).

5.481 To understand the reasons why GEMA's beta estimates for the 10-year estimation windows/averaging periods are lower than the other beta estimates as per Figure 5-8, NERA assessed 2-year rolling asset betas for National Grid for the previous 15-year period.

Figure 5-8: NERA's submission that GEMA's 0.31 Final Determinations beta is driven by inclusion of artificially depressed beta during 2011-2013



Source: NERA (SPT), 'Cost of equity report', Figure 3.1

5.482 NERA submitted that Figure 5-8 demonstrates that National Grid's beta was depressed during the period 2011 to 2013, while betas since 2014 have been substantially higher. It told us that 'as with other defensive stocks, NG's equity beta fell in the aftermath of the financial crisis due to higher market volatility relative to NG's volatility, and reduced correlation (which was relatively suppressed due to NG being a defensive stock). This is referred to as a 'flight to quality". However, NG's equity beta has since returned back to normal market conditions and pre-crisis levels.'[652]

5.483 NERA submitted that in drawing on long-term estimation windows or averaging periods, GEMA places undue weight on these historical periods that are unlikely to reflect market sentiment towards the regulated network sector over RIIO-2. It told us that GEMA's beta estimate is heavily affected by the historically low asset betas observed following the global financial crisis, and that this is an error as there is no basis to believe that flight to quality effects from 2011 to 2013 will affect GB networks' risk exposure during RIIO-2. NERA concluded that GEMA should instead draw on 2- to 5- year estimation periods and up to 2-years averaging periods which, it submitted, better capture relevant forward-looking risks while providing sufficient data points to provide robust estimates.[653]

5.484 Based on such evidence, SPT submitted that GEMA's FD is consistent only with the 10-year beta evidence for National Grid with no weight placed on 2- and 5-year windows. It told us that GEMA is not entitled to ignore such evidence, and that by erroneously disregarding this data, GEMA materially understates beta.[654]

Interveners' response to the provisional determination

5.485 Citizens Advice submitted that index-investing[655] can artificially drive short term betas and therefore that GEMA was right to put its weight on longer-term beta estimates.[656] Citizens Advice told us that it was unable to ascertain the CMA's views on the 'considerable impact of index-investing'[657] and its perception that index investing leads to an overestimation of betas based on the approach used by GEMA. Citizens Advice submitted that this shows a

[652] NERA (SPT), 'Expert report', paragraph 97.
[653] NERA (SPT), 'Expert report', paragraphs 98–99.
[654] SPT Response to PD, paragraphs 72–77.
[655] Citizens Advice proposed that index investing (also known as 'passive investing') has been a dominant and growing trend in investment since the CAPM was invented. It submitted that, as a result of index investing, the co-movement of returns, particularly in the short run, is driven primarily by trading activity rather than by fundamental events. It explained that a stock being part of an index will result in excessive correlation of returns, especially in the short run. Citizens Advice told us that this can amplify stock market volatility and, in turn, it is only fundamental systematic shocks and global shocks (such as the global financial crisis or Coronavirus (COVID-19) pandemic) which can reveal the true betas because those are instances of 'flight to quality'. Therefore, Citizens Advice contended, this confirms the high actual and perceived investor risk protections afforded by the UK regulatory regimes.
[656] Citizens Advice Hearing Transcript, 7 July 2021, page 23 line 2–page 24 line 21.
[657] Citizens Advice Response to PD, paragraph 28.

clear problem with using shorter term beta estimates[658] and that it disagrees with the view that 2-, 5- and 10-year periods are all appropriate timeframes when estimating long-run beta within regulatory frameworks.[659]

The sample period issue – our final assessment

5.486 We note that the question of the appropriate sample period would be of greater relevance in the case where the CMA had found an error with GEMA's decision to place some weight on water company comparators and that it should, instead, have focused solely or predominantly on National Grid beta. This is because the 'pure play' water company betas are lower than GEMA's chosen point estimate of 0.311 (unlevered) in almost all scenarios, whereas National Grid beta is broadly in line with GEMA's point estimate when 10-year estimates are considered but tends to be higher over shorter timeframes. As set out above, we have not found that GEMA erred in taking into account water company betas in its overall assessment.

5.487 We consider that our assessment with regard to the sample period issue, in particular in setting out our view on structural breaks, as set out at our provisional determination and reflected in paragraphs 5.471 to 5.475 above, remains relevant in setting out our reasoning for our final assessment on the sample period issue.

5.488 With regard to submissions made in response to the provisional determination, we consider each of the key topics raised with regard to the sample period issue in turn.

- *GEMA should consider all timeframes*

5.489 We continue to regard 2-, 5- and 10-year periods to be appropriate timeframes when estimating long-run beta within regulatory frameworks and note that there are pros and cons to both shorter and longer timeframes. However, it does not follow that each timeframe must be given equal weight in coming to a view on a point estimate, for example through a mechanical averaging of the three periods. Indeed, we note that such an approach might be considered to give too much weight to recent beta evidence, which would be included in all three time periods, in comparison with earlier evidence. In this context, we do not consider that utilisation of 2-, 5-year timeframes or an equal mix of data to be a manifestly better approach than using the 10-year timeframe.

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658 Citizens Advice Response to PD, paragraph 28.
659 Citizens Advice Response to PD, paragraph 28.

5.490 We consider that GEMA's rationale for using the 10-year timeframe (as set out at paragraphs 5.464 to 5.466) demonstrates that it has taken a balanced and appropriate approach to determining the beta estimate. We do not think that GEMA made an error in choosing to largely rely on beta estimates based on the 10-year timeframe.

5.491 With regard to the alleged 'cherry-picking', we do not agree with the appellants' assertion given the careful consideration GEMA has given to the advantages and disadvantages of the different timeframes (as set out at paragraphs 5.464 to 5.466). In particular, we find the issues of avoiding the large fluctuations in beta estimates observed over shorter time periods and ensuring that the data includes Cadent's activities as well as National Grid's on-going business activities, to provide support for adopting a longer time horizon in this case. We note, as per our assessment set out at paragraph 5.475 above, that we consider that GEMA was not wrong in leaning towards longer timeframes in determining its point estimate. We note that GEMA could have been clearer in setting out how it determined the relevance of each timeframe and how it chose its final point estimate, but do not consider this to be an error in itself.

5.492 Based on the information that has been provided during the appeal process, in particular, GEMA's rationale for longer time frames as set out at paragraphs 5.464 to 5.466, it does not appear that GEMA has focused on 10-year time frames with the intention of reducing its beta estimate to the lowest possible value. Rather, it appears that GEMA has adopted a balanced and appropriate approach in determining the relevant time frame to place most weight on.

- *NG's 10-year beta is depressed*

5.493 With regard to the potential for National Grid's beta to be depressed as a result of the global financial crisis, we consider that the global financial crisis is fundamentally an example of systematic risk. As a result, inclusion of data reflective of the period presents a picture of how National Grid's beta may react in periods of both strong and weak economic scenarios and that this is useful in determining an estimate of forward-looking beta.

- *Index-investing*

5.494 We recognise the submission made by Citizens Advice with regard to index-investing and note its views on the negative impact that this may have on shorter term betas. We note that GEMA has chosen to place weight on longer-term betas and therefore do not consider that Citizens Advice's submission demonstrates that GEMA's decision with regard to the sample period issue was an error.

- *Overall conclusion on the sample period issue*

5.495 Having considered the evidence and submissions leading to the provisional determination and the submissions received in response to the provisional determination, we continue to believe that there are pros and cons to longer and shorter timeframes as set out at paragraph 5.475. We consider that the evidence demonstrates that there is not one clearly superior timeframe that GEMA should have used in determining its beta estimate, nor that it should have applied an equal weighting to each timeframe. While GEMA could have been clearer in setting out how it determined its point estimate, it appears to us that GEMA placed some weight on all timeframes in the context of its chosen sample (ie including both water companies and National Grid) with most weight on the 10-year period. Considering this, we conclude that GEMA did not make an error either in choosing not to place equal weight on all timeframes, or in choosing to place most weight on the 10-year period or in choosing not to extend its sample period beyond the 10-year estimation window.

The GARCH issue

Appellants' initial submissions

5.496 Three appellants told us that GEMA should not have utilised GARCH in its analysis and should have focused on OLS tools only.

a) Cadent submitted that GEMA should have solely relied on OLS tools in estimating beta risk as GARCH estimates add considerable complexity and there is no academic consensus nor regulatory precedent to suggest that GARCH estimates improve the ability to estimate beta risk.[660]

b) NGN and SGN submitted that there is neither academic consensus nor regulatory precedent that GARCH estimates improve the ability to estimate beta risk vs standard OLS tools, while they add considerable complexity.[661]

GEMA's initial submissions

5.497 GEMA submitted that the GARCH issue has no material impact on its estimate of the unlevered beta or the assessment of the notional equity beta or allowed return on equity. It told us that its point estimate is consistent with 10-year observations of National Grid's beta using OLS techniques and above

[660] Cadent NoA, paragraph 4.95(e).
[661] NGN NoA, paragraph 186(v) and SGN NoA, paragraph 208(iv).

the majority of both long- and short-term observations of SVT's and UU's beta using OLS techniques. GEMA told us that GARCH estimates are either consistent with that, or lower.[662] It noted that its point estimate is:

a) Higher than the GARCH unlevered beta estimate (0.306) for National Grid for a 20-year estimation window; and

b) Consistent with the GARCH unlevered beta estimate for National Grid for a 10-year estimation window (0.312).[663]

5.498 When asked about the average difference between its GARCH and OLS estimates, GEMA noted that 'GARCH estimates – all else equal for the large samples, for example ten years or more – were about 5 per cent lower than the OLS estimates. For the smaller samples, they were about 10 per cent lower, the GARCH estimates versus the OLS estimates.'[664] This is shown in Figure 5-9 below:

Figure 5-9: Asset/unlevered betas, GARCH & OLS, over 5, 10 and 20-year periods per GEMA's analysis

Period	Company	GARCH (debt beta = 0.125)	OLS (debt beta = 0.125)	Difference (GARCH / OLS – 1)	GARCH (debt beta = 0)	OLS (debt beta = 0)	Difference (GARCH / OLS – 1)
2000 to 2020							
	SSE	0.467	0.498	-6%	0.435	0.466	-7%
	NG	0.366	0.379	-3%	0.306	0.319	-4%
	PNN	0.283	0.295	-4%	0.223	0.235	-5%
	SVT	0.303	0.321	-6%	0.238	0.256	-7%
	UU	0.325	0.339	-4%	0.260	0.274	-5%
2010 to 2020							
	SSE	0.542	0.583	-7%	0.485	0.545	-11%
	NG	0.369	0.378	-2%	0.312	0.322	-3%
	PNN	0.360	0.368	-2%	0.304	0.312	-3%
	SVT	0.325	0.339	-4%	0.260	0.273	-5%
	UU	0.314	0.323	-3%	0.244	0.253	-4%
2015 to 2020							
	SSE	0.620	0.684	-9%	0.578	0.642	-10%
	NG	0.379	0.406	-7%	0.323	0.351	-8%
	PNN	0.364	0.384	-5%	0.309	0.328	-6%
	SVT	0.334	0.347	-4%	0.268	0.282	-5%
	UU	0.333	0.341	-2%	0.263	0.271	-3%

Source: GEMA (2020), RIIO-2 Draft Determinations – Finance, Table 15.

5.499 GEMA submitted that all else being equal for the large samples, for example ten years or more, the GARCH estimates were about 5 per cent lower than the OLS estimates. It told us that for the smaller samples, the GARCH estimates were about 10 per cent lower than the OLS estimates.[665]

[662] GEMA Response A, paragraph 169.
[663] GEMA Response A, paragraph 153.
[664] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 113, lines 20–23.
[665] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 114, lines 9–18.

Our provisional assessment

5.500 In our provisional determination, we indicated that, based on the evidence presented to us, it appeared that while GEMA considered GARCH throughout its consultation period, in determining its final point estimate GEMA relied on OLS estimates alone. In choosing to base its analysis on the 'less complex' OLS approach, GEMA focused on OLS beta estimates that were consistently higher than those achieved through GARCH-based estimation.

5.501 Based on the evidence presented to us, we did not consider that either using or excluding GARCH analysis could be determined a 'correct' approach to determining beta. For example, we received evidence from academic experts arguing both for and against the use of GARCH. Further, we did not consider the potential introduction of additional complexity from the use of GARCH analysis to be, in itself, sufficient to deem its consideration an error. In addition, we noted that GEMA's ultimate focus on OLS estimates led to higher rather than lower beta estimates, to the benefit of the appellants.

5.502 As a result, we provisionally concluded that the decision made by GEMA involved an exercise of its regulatory judgement that falls within its margin of appreciation, and we were not persuaded by the argument that GEMA made an error by utilising GARCH estimates in considering an appropriate beta estimate.

Responses to the provisional determination

5.503 We did not receive any submissions focused on the GARCH issue in response to the provisional determination.

Our final assessment

5.504 With no submissions made on the GARCH issue, and with consideration of the beta estimate in the round, we maintain our conclusion that the decision made by GEMA was an appropriate exercise of its regulatory judgement based on the reasoning set out at paragraphs 5.500 to 5.502 above. As set out in the Legal Framework chapter,[666] if, out of the alternatives available, we conclude that some alternatives – on balance – clearly had greater merit than the solution chosen by GEMA, then we are more likely to be persuaded that GEMA has erred. On the other hand, where the alternative options each have competing pros and cons, and none is clearly superior, it will be more difficult to persuade us that GEMA has erred. Therefore, given that we do not

[666] See in particular paragraph 3.43.

consider that either using or excluding GARCH analysis can be determined a 'correct' approach to determining beta, we have not been persuaded that GEMA has made an error by utilising GARCH estimates in considering an appropriate beta estimate.

The Coronavirus (COVID-19) data issue

Appellants' initial submissions

5.505 Cadent, NGN and SGN submitted that inclusion of the Coronavirus (COVID-19) period in GEMA's analysis depressed the estimated beta.

a) Cadent told us that the period affected by Coronavirus (COVID-19) pandemic had a volatile and transitory negative impact on the relevant water company betas and that data from 1 March 2020 onwards should be excluded in deriving beta estimates.[667]

b) NGN and SGN submitted that GEMA failed to weight appropriately the data derived from the Coronavirus (COVID-19) pandemic period, and that GEMA's approach places undue weight on this period in the estimates.[668]

c) NGN and SGN also told us that it is notable that GEMA chose to discount evidence regarding European comparators on the basis that the betas appeared to be impacted by Coronavirus (COVID-19), but was unwilling to exclude Coronavirus (COVID-19) datapoints from its own estimates (given the apparent risks of 'cherry picking' data).[669,670]

d) WWU submitted that by using a cut-off date of 31 December 2020 instead of 31 December 2019 (ie including the Coronavirus (COVID-19) period), Oxera's revised estimate of the asset beta would have increased to 0.37 to 0.42.[671]

5.506 We also heard from NERA (on behalf of SPT) that while Coronavirus (COVID-19) pandemic may have affected some stocks, the evidence suggest that National Grid data is not unduly affected by Coronavirus (COVID-19).[672] NERA performed analysis of National Grid's beta both pre- and post-Coronavirus (COVID-19) pandemic, concluding that it does 'not see a substantive change in relation to COVID-19.'[673] Similarly, NERA told us that

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[667] Cadent NoA, paragraph 4.95(c).
[668] NGN NoA, paragraph 186(i) and SGN NoA, paragraph 208(i).
[669] NGN Reply, paragraph 45.
[670] SGN Reply, Table 2.
[671] *Hope 4 (WWU),* pages 18–19.
[672] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 103, lines 1–8.
[673] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 102, lines 11–18.

‘in relation to that core evidence’ used to set the beta ‘which is National Grid, we actually do not see that the National Grid current beta is very sensitive to the COVID-19 period. So, this is not the major issue here that we have identified.’[674]

GEMA’s initial submissions

5.507 GEMA submitted that it was not wrong to include data that included the COVID-19 periods because these periods were an example of systematic risk and therefore valuable to any estimation of equity beta.[675]

5.508 It told us that ‘although there has been no noticeable COVID-19 effect on the beta, there has been a very noticeable COVID-19 effect in the sense of the stability of the utilities compared to the FTSE 100 and the FTSE 250 indices. They have done what they say on the tin and we think that is valued by investors.’[676]

Interveners’ initial submissions

5.509 Citizens Advice told us that recent evidence highlighted the relative insensitivity of the energy and water sectors to general economic factors, namely the impact of Coronavirus (COVID-19), ‘which appears to have impacted the energy and water companies’ share price far less than UK equities as a whole.’[677]

Our provisional assessment

5.510 In coming to the assessment set out in our provisional determination on the inclusion of Coronavirus (COVID-19) era data, we referenced analysis undertaken in the CMA PR19 Redetermination. The CMA analysed SVT, UU and FTSE price data to assess the potential impact of Coronavirus (COVID-19), and observed that events in March 2020 did lead to a sharp move in the prices of the water company shares and the overall market index level.[678]

5.511 We noted, however, that not all stocks were substantially impacted by the Coronavirus (COVID-19) period, with more than one appellant suggesting that National Grid’s beta did not see a substantive change in relation to the pandemic.

[674] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 100, lines 4–8.
[675] GEMA Response A, paragraph 170.
[676] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 104, lines 2–6.
[677] Citizens Advice application, paragraph 120.
[678] CMA PR19 Redetermination, paragraph 9.468.

5.512 In our view, even if the Coronavirus (COVID-19) period impacts the betas of water companies, the impact of this on GEMA's point estimate will be reduced as a result of its greater weighting on National Grid's beta and a 10-year timeframe. More fundamentally, we considered the Coronavirus (COVID-19) impact to be predominantly an example of systematic risk and did not think it to be automatically appropriate to exclude data from this period. Therefore, our provisional conclusion was that GEMA's inclusion of data from the Coronavirus (COVID-19) period results is not an error.

Responses to the provisional determination

5.513 We did not receive any submissions focused on the Coronavirus (COVID-19) issue in response to the provisional determination.

Our final assessment

5.514 With no submissions made on the Coronavirus (COVID-19) issue, and with consideration of the beta estimate in the round, we maintain our conclusion (based on the reasoning as set out at paragraphs 5.510 to 5.512 above) that GEMA's inclusion of data from the COVID-19 period results is not an error.

The rolling average issue

Appellants' initial submissions

5.515 Three appellants submitted that GEMA should not have used rolling averages in its assessment of beta.

a) Cadent told us that GEMA's approach to the averaging of rolling beta estimates was flawed and introduced arbitrary weighting of the underlying price signals. It told us that average rolling beta estimates are 'conceptually no more relevant to an estimate of the current pricing of risk than a spot estimate' and should therefore not be used.[679]

b) NGN and SGN submitted that the incorporation of rolling averages was statistically unjustified and effectively introduces an unequal weighting scheme that places least weight on the most recent (and most early) observations.[680]

[679] Cadent NoA, paragraph 4.95.
[680] NGN NoA, paragraph 186 (ii) and SGN NoA, paragraph 208(v).

GEMA's initial submissions

5.516 GEMA submitted that it recognised that there may be problems with averaging OLS estimates, but that it had performed GARCH estimation in order to address this type of mathematical issue because it is frequently encountered during OLS estimation.[681]

Our provisional assessment

5.517 In making the assessment set out in our provisional determination, we acknowledged that rolling averages do place different weight on the underlying data points which can give rise to potential distortions in the figures. We also noted that GEMA's proposition that issues arising from rolling averages are solved through its use of GARCH estimation is limited by its concurrent argument that in determining its beta estimate for the FD, it relied on OLS estimates (see Figure 5-4).

5.518 In our assessment, we concluded that rolling averages are a standard technique in regulatory analysis. Most recently, rolling averages were used in determining the PR19 price control (which utilised some of the same underlying beta data, ie that of the water companies). While the appellants established the potential drawbacks of this approach, we continued to see the potential benefit of considering rolling data that can give some insight into how betas have changed over time. We therefore considered that rolling averages can be appropriate in practice in determining beta, and our provisional conclusion was that GEMA did not err in using rolling averages to determine its beta point estimates.

Responses to the provisional determination

5.519 We did not receive any submissions focused on the rolling average issue in response to the provisional determination.

Our final assessment

5.520 With no submissions made on the rolling average issue, and with consideration of the beta estimate in the round, we maintain our conclusion (based on our reasoning as set out at paragraphs 5.517 to 5.518 above) that rolling averages were appropriate when determining beta in RIIO-2, and that GEMA did not err.

[681] GEMA Response A, paragraph 171.

The debt issue

Appellants' initial submissions

5.521 Four appellants told us that GEMA utilised incorrect methodology in estimating unlevered betas, by relying on the market rather than the book value of debt.

a) SPT submitted that GEMA had incorrectly used the market value of debt to estimate un-levered betas.[682]

b) Cadent told us that GEMA's reliance on market values of debt is inconsistent with the established practice in UK regulation of allowing the efficient cost of embedded debt in the WACC allowance and is practically challenging given a large part of companies' debt is not listed. Therefore, Cadent suggested the book values of debt to be more appropriate.[683]

c) NGN and SGN submitted that the use of market values is inconsistent with the regulatory cost of debt allowance, which reflects historical yield at issuance and not current yields.[684] SGN also told us that leverage should be measured after deducting surplus cash to derive a beta estimate for the underlying operations.[685]

5.522 Cadent submitted that the use of net debt in the de-gearing/re-gearing formulae is preferable because cash balances in excess of that needed to manage day-to-day working capital requirements represent a low risk asset on the firm's balance sheet which would be reflected in the beta estimate under a gross debt approach. It told us that in order to capture the risk of the firm's underlying operations, leverage should therefore be measured as net debt – ie after deducting surplus cash – to derive a beta estimate for the underlying operations.[686]

GEMA's initial submissions

5.523 GEMA submitted that it did not reach any conclusion in the FD on whether the market value or the book value of net debt is to be preferred. It told us that even if the concern about use of market value of net debt is justified, it has no material impact on GEMA's estimate of unlevered beta, notional equity beta or

[682] SPT NoA, paragraph 47.
[683] Cadent NoA, paragraph 4.95(d).
[684] NGN NoA, paragraph 186(iv) and SGN NoA, paragraph 208(iii).
[685] SGN Reply, paragraph 44.
[686] Cadent Reply, paragraph 86(b).

allowed return on equity and the water companies are similar regardless of whether market value or book value of net debt is used for un-levering.[687]

5.524 GEMA submitted that the use of gross debt was considered justifiable in the CC's *Northern Ireland Electricity Limited* price determination [688] in which it stated that:

> With regard to the calculation of gearing for estimating the asset beta, we have used net debt in our calculations; that is long-term debt net of cash balances. We note that this may give lower measures of gearing (and hence higher asset betas) than if long term debt is used with no adjustment for cash balances. We regard either method as justifiable, although for certain companies one approach may or the other may be more appropriate depending on the requirement for working capital.[689]

5.525 However, GEMA noted that it did not present unlevered beta estimates based on the gross value of debt, but if it had done, the cost of equity would be reduced by approximately 0.8%.[690]

Our provisional assessment

5.526 In making the assessment set out in our provisional determination, we considered whether GEMA was incorrect to include beta estimates generated by using the market value of debt in its analysis.

5.527 We considered the evidence and arguments presented as to the impact of using market or book values of debt when calculating unlevered beta. We noted that GEMA discussed this issue at DD, flagging Indepen's analysis[691] of the potential problems when de-gearing at market values of equity but regearing at book values (specifically a potential under-reporting of 'observed' gearing leading to exaggerated estimated of notional equity beta). GEMA chose to measure EV-based gearing when estimating unlevered beta, but created estimates using data from both the book value and market value of debt. We noted that these issues were also discussed by Ofwat in PR19, when it chose to use an enterprise value gearing approach against a book value of debt. Ofwat noted that such an approach 'returned a materially higher

687 GEMA Response A, paragraph 172–174.
688 *McCloskey (GEMA),* paragraph 266.
689 Northern Ireland Electricity Limited price determination: Final determination, paragraph 13.178.
690 *McCloskey 1 (GEMA),* paragraph 238.
691 Indepen (2018), *Ofgem Beta Study – RIIO-2 – Main Report*, pages 31–35.

figure for re-levered notional equity beta (0.71) at draft determinations than the Indepen approach'.[692]

5.528 We noted that GEMA had stated that it had not reached any conclusion in the FD on whether the market value or the book value of net debt is to be preferred, and also included the more conservative book value of debt-based data in its analysis. In our view, using the market value of debt in this analysis goes some way to mitigate the potential inconsistency with an EV-based approach to the measure of equity used when de-gearing matched with the RAV/ Regulatory Capital Value (**RCV**)-based approach to measuring both debt and equity when re-gearing equity beta estimates. As a result, we concluded that GEMA was not wrong to include market value of debt-based data in its beta calculations.

5.529 In relation to Cadent's suggestion that net debt was the preferable metric, we noted that this was the approach used by GEMA, and that GEMA noted that a gross debt approach would have led to a materially lower estimate. As a result, there appeared to be no error in GEMA's approach to net versus gross debt when measuring beta.

5.530 As with so much of the debate about beta methodologies, we noted that we viewed the use of market or book value of debt when 'de-gearing' to sit squarely in the scope of regulatory judgement. As a result, and in combination with the consideration that the difference between the methodologies is not significant enough to impact whether or not GEMA was within its margin of appreciation, we provisionally concluded that GEMA did not make an error in including market value-based estimates alongside book value-based estimates.

Appellants' response to the provisional determination

5.531 SPT submitted that the provisional determination misunderstood the error with GEMA's application of the market value of debt adjustment when unlevering empirical equity betas. SPT referred to the points set out at paragraph 5.527 with regard to GEMA's consideration of Indepen's analysis of measuring equity using market or book values when unlevering betas. SPT told us that this is unrelated to GEMA's error of measuring debt using market values when unlevering betas, and that this was not proposed by Indepen in its report to GEMA. SPT also told us that the consideration of Ofwat's approach to PR19 as set out at paragraph 5.527 was unrelated to GEMA's error of measuring the value of debt using market value as Ofwat measured debt using book

[692] Ofwat (2019), *PR19 final determinations – Allowed return on capital technical appendix*, pages 59–60.

values in its enterprise value approach. Therefore, SPT submitted that GEMA's approach of using market value of debt to unlever betas for regulated companies has not been proposed by Indepen or adopted by Ofwat.[693]

5.532 SPT reiterated its argument that GEMA's approach is wrong because regulated companies receive allowances based on embedded debt costs, meaning that revenues are based on yields at which their debt was issued in the past, shielding them from any impact of market yield movements on the value of their debt.[694] Evidence submitted by NERA on behalf of SPT noted that:

a) In a normal context, the prior claim by debtholders on free cashflows is represented by the market value of debt, which increases as a proportion of total financing where interest rates decline. This increases risks to equity and equity betas as a result, while asset risk remains unchanged due to not being affected by the interest rate environment (rather reflects underlying business risks);

b) However, this does not apply in the context of a GB regulated network. Here, it noted that the prior claim by debtholders does not increase proportionately where debt interest costs decline because GEMA has continued to allow companies to recover historical debt costs (on average) as part of their allowed revenues. Thus, NERA submitted that a change in interest rates does not affect the cash flows to equity or equity risk of energy networks (all else equal), therefore equity betas remain unaffected by changes in interest rates.

c) As a result, NERA submitted that it is incorrect for GEMA to observe an increase in the market value of debt and, given an unchanged equity beta, derive from it an implied reduction in asset betas. It told us that neither equity nor asset betas of energy networks should be affected by the increase in the market value of debt and there is no need for GEMA to make any adjustments for the market value of debt when estimating betas.[695]

The debt issue – our final assessment

5.533 We acknowledge the submission from SPT regarding the Indepen and Ofwat analysis but note that while these examples are more closely aligned to the

[693] SPT Response to PD, paragraphs 78–81.
[694] SPT Response to PD, paragraph 81.
[695] NERA (SPT), 'Expert report', paragraphs 100–103.

consistency question in relation to equity, we consider that they remain useful insights for considering debt and our assessment above remains relevant.

5.534 GEMA's DD sets out that a similar consistency issue arises with debt 'in terms of inconsistent definition for actual gearing and notional gearing, given the difference between market values and book values.'[696] We consider that the analysis as set out by Indepen, Ofwat and Oxera as referred to by GEMA in the DD provides a useful demonstration of GEMA's consideration of the rationale behind using market or book values in degearing and regearing.

5.535 We do not agree with SPT's submission on embedded debt costs as set out at paragraph 5.532 and do not consider that we have misunderstood the proposed error with GEMA's application of the market value of debt adjustment when unlevering empirical equity betas. While debt investors' perception of risk might by affected by expectations that the regulator will increase cost of debt allowances above market rates in future, this does not change the market valuation of debt, and therefore the share of the market value of capital which is funded by debt, which we consider is relevant when defining gearing on a market value basis. We note that there are two ways of considering the difference between market and book values of debt:

a) The first view is that the market value premia should be excluded from beta analysis because the notional company would not have a consistent and substantial gap between the market value and the book value of debt. This gap should therefore be excluded from the analysis as it would not exist for the notional company; or

b) The second view is that market value premia should be included in the beta analysis as we are looking at actual betas and so it is inconsistent to use actual measurements of beta with some notional measure of gearing.

5.536 Given that we are calculating gearing, we do not regard these arguments as being only applicable to measuring the value of equity and not to calculating the value of debt and in this context consider that it is possible to utilise either the market or book value of debt. We note that:

a) Utilising the book value of equity and book value of debt could be regarded as too much of an approximation when considering the implication of 'actual' equity betas;

[696] GEMA DD – Finance Annex, paragraph 3.43.

b) Utilising the market value of equity and book value of debt may understate actual gearing because investors make investments at market value of both debt and equity; and therefore

c) Degearing at market values of debt and equity is a well-reasoned and sensible consideration.

5.537 In this context, we consider that GEMA did not make an error in utilising the market (as well as book) value of debt in determining its beta estimates.

5.538 In sum, based on our assessment set out in our provisional determination (reflected at paragraphs 5.526 to 5.530 above) and our assessment set out from paragraph 5.533 to 5.537 above, we are not persuaded that sufficient evidence or reasoning has been set out to demonstrate that the use of market or book value of debt is a clearly superior approach to determining a beta point estimate. Alongside this, we note that GEMA has analysed both market and the book values of debt in coming to its estimate of beta. Therefore, we conclude that GEMA has taken a balanced approach and did not make an error in including market value-based estimates alongside book value-based estimates.

Methodological errors – our overall assessment

5.539 There are different interpretations of the best way to analyse and use data in determining beta estimates, as recognised in our assessments in the paragraphs above. As noted above, where there are alternative options each having competing pros and cons, and none is clearly superior, it will be more difficult to persuade us that GEMA has erred. While we recognise the merits of some of the suggested alternative techniques, we have not been persuaded that GEMA made a calculation error or, more broadly, an error in methodology in calculating beta estimates. As a result, we conclude that GEMA has not made an error in estimating the beta of UK energy networks.

Debt beta error

5.540 Debt beta represents the exposure of bondholders to systematic risk.

Appellants' initial submissions

5.541 Two of the appellants submitted that the debt beta point estimate of 0.075 was based on an overestimated higher end of the range, and that there is no reliable evidence to support a debt beta range greater than 0.05.

5.542 SSEN-T submitted that GEMA overestimated the higher end of the debt beta range due to the high degree of uncertainty over the assumptions used in the spread decomposition approach and material mistakes contained within the underlying analysis.[697]

5.543 SSEN-T told us that GEMA's errors stem from GEMA's reliance on an inaccurate application of the 'decomposition approach' as per the model developed by Europe Economics (**EE**). Oxera, on behalf of SSEN-T and WWU submitted that:

a) The model's risk-free rate incorrectly relies on government bonds as a proxy for RFR. It noted that this causes the debt risk premium and hence the debt beta estimate from the decomposition approach to be overstated.

b) Expected loss is underestimated because of incorrect probability of default and loss on default estimates. Oxera submitted that the EE model estimated the annualised expected loss for a water company to be 4bps, comprised of a 20bps probability of default and 20% loss given default. Oxera told us that this is inconsistent with academic evidence and previous estimates of the expected loss used by regulators.

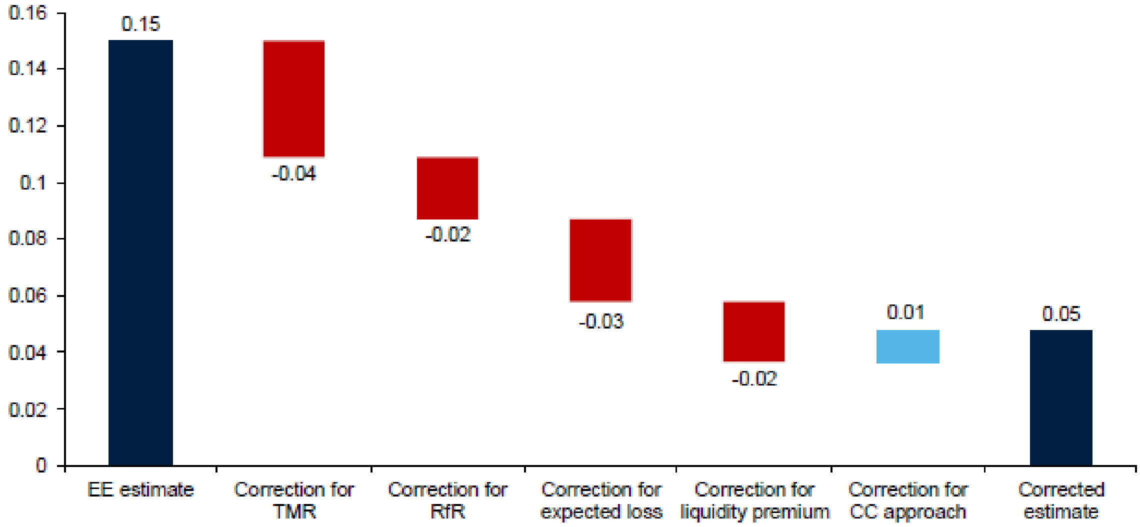
c) The liquidity premium is inconsistent with regulatory precedent; the CC last assumed a liquidity premium of 0.5% compared to EE's liquidity premium of 0.3%.

d) The formula GEMA relied for attributing observed credit spreads to systematic and idiosyncratic components is inconsistent with that used in regulatory precedent.[698]

5.544 Oxera presented evidence to demonstrate that correcting for the errors it identified in EE's decomposition approach reduces the debt beta from 0.15 to 0.05.

[697] SSEN-T NoA, paragraph 4.53.
[698] *Hope 1 (WWU),* paragraphs 7.36–7.40.

Figure 5-10: Oxera's submission on the impact on debt beta of correcting errors in EE's decomposition approach



Source: *Hope 1 (WWU),* Figure 7.2.

5.545 SSEN-T told us that there is no reliable evidence supporting a debt beta range greater than 0.05 and GEMA had made an error in assuming a debt beta of 0.075 for regulated utilities.[699]

5.546 WWU submitted that GEMA's debt beta point estimate was an error and the range was narrower and lower than the evidence submitted by WWU's adviser, Oxera.[700]

Our provisional assessment

5.547 In our provisional determination, we noted that GEMA did not respond to submissions regarding its debt beta decision in its response to the NoAs.

5.548 In considering whether GEMA was wrong to select an estimate of 0.075 as its debt beta, we noted that GEMA's FD recognised that there are difficulties in determining an exact level of debt beta. In coming to its final estimate, GEMA considered the arguments presented in the consultation period and the CMA PR19 Redetermination provisional range of 0.0 to 0.15, and decided it was reasonable to reduce its estimate of the debt beta from a midpoint of a 0.1 to 0.15 range to the midpoint of a 0.05 to 0.10 range.[701]

5.549 In the CMA PR19 Redetermination, the CMA determined that the debt beta is difficult to measure and that it has a relatively small effect on the overall

[699] SSEN-T NoA, paragraphs 4.66–4.70.
[700] WWU NoA, paragraph B4.11.
[701] GEMA FD Finance Annex, paragraphs 3.64–3.67.

WACC. The CMA agreed with CEPA's conclusion to its December 2019 report for the UKRN which argued that there is no one approach to estimating debt betas that dominates all others, as evidenced by the different methods used in studies and the different weights regulators have given to different evidence sources. The CMA concluded that this means that it is not possible to be prescriptive at a general level about what weight to attach to the different approaches – regulators have to exercise their judgement and their decisions will depend on the details of each case.[702]

5.550 The appellants took issue with GEMA's use of the 'decomposition approach'. In the CMA PR19 Redetermination, the CMA reviewed the decomposition approaches and concluded that while they have a wide range of uncertainty, they provide a compelling case that the regulatory model should include a positive debt beta.[703] The CMA also noted that different inputs to the decomposition approaches, particularly in terms of the RFR and the probability of default, could produce widely varying figures. The CMA concluded that it was appropriate to lower the upper bound of the debt beta range to 0.10.[704]

5.551 The CMA's approach in the PR19 Redetermination relates to a different regulatory framework and is not binding precedent nor the benchmark of the 'right' approach for either GEMA in its RIIO-2 decisions or the CMA in this appeal. However, we noted that the principles highlighted in relation to debt beta are informative in the consideration of debt beta in the context of energy networks, and we consider that GEMA was not wrong to apply the principles in this case.

5.552 In making our assessment, we noted that GEMA had used an estimate that is in line with the CMA's assessment of the debt beta appropriate for water companies, despite the appellants arguing that the water sector is inherently lower risk than the energy network sector. We also noted that GEMA reduced its estimate between DD and FD on the basis of consultation, and has used an estimate that is lower (to the appellants' advantage) than was used by Ofwat in PR19 (0.125)[705] and the CAA in relation to NATS (0.1%).[706]

5.553 As a result, we provisionally concluded that GEMA's estimate of the debt beta was not wrong. We provisionally concluded that GEMA had taken an

[702] CMA PR19 Redetermination, paragraphs 9.517–9.530.
[703] CMA PR19 Redetermination, paragraph 9.524.
[704] CMA PR19 Redetermination, paragraph 9.528.
[705] Ofwat (2019), PR19 final determinations: Allowed return on capital technical appendix, Table 5.1.
[706] CAA (2019), UK NATS CAA Decision Document: Appendices, paragraph E138.

appropriate approach and had used a balanced and appropriate estimate of the debt beta in the energy network sector.

Appellants' response to the provisional determination

5.554 SSEN-T and WWU submitted that the provisional determination failed to engage with its key concerns regarding GEMA's decision on debt beta. It told us that the high end of GEMA's debt beta range (0.15) is overestimated as a result of material methodological errors which include the high degree of uncertainty over the assumptions used in the spread decomposition approach and material mistakes contained in the underlying analysis.[707, 708]

5.555 SSEN-T and WWU told us that the provisional determination highlights that it considers there to be an inconsistency between appellants' arguments for a higher asset beta than water, whilst simultaneously arguing for a lower debt beta. SSEN-T and WWU submitted that this was flawed because:

a) Oxera maintains that there is no reliable evidence supporting a debt beta greater than 0.05 and that the 0.075 point estimate adopted for water companies in the CMA's PR19 Redetermination is still an overestimate;

b) A higher debt beta than water is not necessarily a consequence of a higher asset beta than water. The two measures should be considered separately. The debt beta is driven both by asset risk and financial risk.[709, 710]

5.556 SSEN-T and WWU submitted that the provisional determination did not engage in the detailed merits of the evidence it previously submitted.[711, 712]

Our final assessment

5.557 In setting out their responses to the provisional determination, SSEN-T and WWU have reiterated the same issues as those previously set out in their NoAs.

5.558 In addition, SSEN-T and WWU have suggested that the provisional determination failed to engage with SSEN-T and WWU's key concerns, did not engage in the detailed merits of the evidence, and that the provisional

707 SSEN-T Response to PD, paragraph 2.94.
708 WWU Response to PD, paragraph B1.3.
709 SSEN-T Response to PD, paragraph 2.96(b).
710 WWU Response to PD, paragraph B1.3.
711 SSEN-T Response to PD, paragraph 2.97.
712 WWU Response to PD, paragraph B1.3.

determination incorrectly identified an inconsistency between the appellants' arguments.

5.559 In relation to the detailed merits of the evidence, as noted at paragraph 5.550, in our provisional determination we did note the potential drawbacks of a decompositional approach as used by GEMA, particularly that different inputs in terms of the RFR and the probability of default could produce widely varying figures.

5.560 On the basis of Oxera analysis, SSEN-T and WWU have stated that that the high end of GEMA's debt beta range (0.15) is overestimated as a result of material methodological errors, that correcting for the 'errors' in GEMA's decompositional argument leads to a 'correct' debt beta estimate of 0.05, and that there is no reliable evidence supporting a debt beta greater than 0.05.

5.561 In relation to the high end of GEMA's range being overestimated, we note that, as stated at paragraph 5.548 on the basis of responses to its DD, GEMA reduced its estimate of the debt beta from the midpoint of a 0.10 to 0.15 range to the midpoint of a 0.05 to 0.10 range. As a result, we do not consider the top end of GEMA's draft (and subsequently amended) range being 0.15 as relevant to our assessment of an error asserted against GEMA's final selected range.

5.562 In relation to whether Oxera's estimate of 0.05 is correct and 0.075 is wrong, we note that much of the adjustment proposed by Oxera is the result of 'corrections' to the RFR and TMR figures used in the assessment. We have not found an error with either of GEMA's RFR or TMR estimates and therefore it is not clear that the 'corrections' proposed by Oxera are appropriate. Further, we note the view expressed by the CMA in its PR19 Redetermination, where it stated that 'the debt beta is difficult to measure and has a relatively small effect on the overall WACC. In our view, the choice of the debt beta should be set at a level which is consistent as far as possible with the overall framework for the WACC, without acting contrary to financial market evidence'.[713] That principle has equal applicability to the RIIO-2 price controls.

5.563 In making our assessment, we note the CMA's previous reference to the work of Schwert and Strebulaev, as highlighted in a CEPA paper,[714] that suggested that companies with an A credit rating would expect to have a debt beta of 0.05, while companies with a BBB credit rating would expect to have a debt

[713] CMA PR19 Redetermination, paragraph 9.517.
[714] CEPA (2019), Consideration for UK regulators setting the value of debt beta – Report for the UKRN, Table 2.3.

beta of 0.10. This assessment matches that in a 2016 Brattle Group report, which suggests that debt betas set out in Figure 5-11 below represent a good 'guide' to relevant debt betas while avoiding the complexity of estimating debt betas from first principles.[715] While we acknowledge that these are 'rule of thumb' type approaches to debt beta, they provide a useful cross-check given that a BBB+ rating (eg between an A and BBB rating) is the key reference point in our assessment of the financeability of the notionally structured energy networks (see from paragraph 5.1011). This evidence would suggest that GEMA's 0.075 was an appropriate estimate for this price control.

Figure 5-11: Brattle Group estimates of debt betas as a function of credit ratings

Table 2: Debt beta as a function of credit rating

Moody's rating From:	Moody's rating to:	S&P Rating From:	S&P Rating to:	Assumed debt beta
Aaa	Baa1	AAA	A-	0.05
Baa2	Baa3	BBB+	BBB-	0.1

Source: Brattle (2016)

5.564 In assessing whether GEMA's estimate of 0.075 was too high, we also note evidence from the estimates used by regulators in setting price controls for low-risk monopolies. This suggests that since 2016, regulators have used debt beta estimates ranging from 0.05 in the CMA's redetermination of the CAA's NATS price control to 0.125 in Ofwat's PR19 price control, with the most common estimate being 0.1. In its most recent PR19 Redetermination, the CMA concluded that a debt beta of 0.075 was reasonable on the balance of evidence. [716, 717, 718, 719] Since 2016, only the CMA's redetermination of the NATS price control has used an estimate of debt beta lower than the 0.075

[715] The Brattle Group (2016), Review of approaches to estimate a reasonable rate of return for investment in telcoms networks in regulatory proceedings and optiona for EU harmonization – A study prepared for the European Commission GB Commuinications Networks, Content & Technology – Final Report, Table 2.
[716] CEPA (2019), Consideration for UK regulators setting the value of debt beta – Report for the UKRN, Table 3.1.
[717] NATS, Final Report, paragraph 12.122.
[718] Ofwat (2019), PR19 final determinations – Allowed return on capital technical appendix, Table 1.1.
[719] CMA PR19 Redetermination, paragraph 9.529.

estimate used by GEMA.[720] Evidence from regulatory precedent does not suggest that GEMA's debt beta estimate of 0.075 was too high and so wrong.

5.565 We also disagree with the view that we incorrectly identified an inconsistency between the appellants' arguments for a higher asset beta than water whilst simultaneously arguing for a lower debt beta. While the appellants may consider that the estimated debt beta used in the recent water sector price control may be too high, we focus on SSEN-T and WWU's arguments that debt beta is driven both by asset risk and financial risk rather than asset risk alone. It remains the case that, in arguing that energy networks have higher underlying exposure to systematic risk[721] than water companies, the appellants have effectively claimed that asset risk is higher in energy networks than in water. Similarly, in advocating a notional structure for the energy sector that is higher than that used in the water sector,[722] the appellants support there being more financial risk in the notional energy network than the notional water company. Combined, these assessments would not support the view that debt beta at the notional structure is likely to be, ceteris paribus, lower than should be assumed for the water sector. However, while we continue to see inconsistencies in the appellants arguments on this matter, this line of reasoning is largely inconsequential.

5.566 In coming to our final assessment, it is our view that the accurate measurement of debt beta is an extremely difficult task, and we do not consider that a superior methodology has yet been established. As a result, we do not believe that the approach taken by Oxera and submitted in evidence by SSEN-T and WWU provides sufficient evidence that GEMA's debt beta estimate of 0.075 is too high and so wrong. We consider that both regulatory precedent and evidence in relation to credit ratings is supportive of debt beta estimates at or higher than the 0.075 used by GEMA. Further, we do not agree with the RFR and TMR 'corrections' proposed by Oxera as demonstrated by the fact that we have not found an error in GEMA's determination of these estimates. On balance, based on our assessment set out at paragraphs 5.547 to 5.553 and paragraphs 5.557 to 5.565 above, we conclude that GEMA's estimate represents an appropriate reflection of the balance of evidence, and as a result determine that GEMA's debt beta estimate of 0.075 is not wrong.

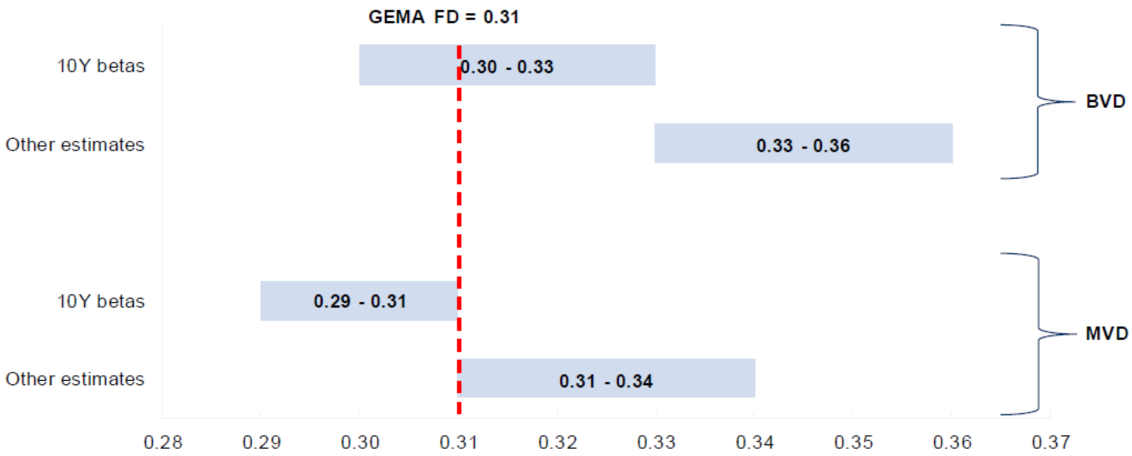
[720] Note that the particular circumstances of the NATS/CAA redetermination meant that evidence submitted received no further consideration following the publication of the provisional findings. As a result, conclusions reached in the provisional findings should not be considered as the definitive view of the CMA at the time. For further details see NATS, Final Report, Summary, paragraphs 9–15.
[721] See submissions set out at paragraphs 5.326–5.334 and 5.356–5.359 above.
[722] See submissions set out from paragraph 5.976 below.

Picking a beta point estimate

Appellants' submissions

5.567 SPT submitted evidence from its adviser, NERA, demonstrating that GEMA's FD estimate of 0.31 lies at the bottom of its own beta estimates for National Grid over all periods, including both the market value of debt and the book value of debt (0.29 to 0.36), and below National Grid evidence of the 10-year windows/averaging periods and MVD adjustment (0.33 to 0.36). It told us that the estimate also lies below cross checks based on European energy comparators. This is represented in Figure 5-12 below:

Figure 5-12: NERA's submission that GEMA's FD beta lies at the bottom of GEMA's own beta estimates for NG, showing GEMA has aimed down materially



Source: Figure 2.1 of NERA, "Observations on GEMA Responses to CMA on Finance Issues and Efficiency on Behalf of the Appellant".
Note: NERA notes that 10-year betas include betas estimated over 10-year windows and averaging periods. Other estimates include all other estimates based on shorter estimation windows and averaging periods as presented in GEMA's FD (Table 10 of RIIO-2 FD – Finance Annex).

GEMA's submissions

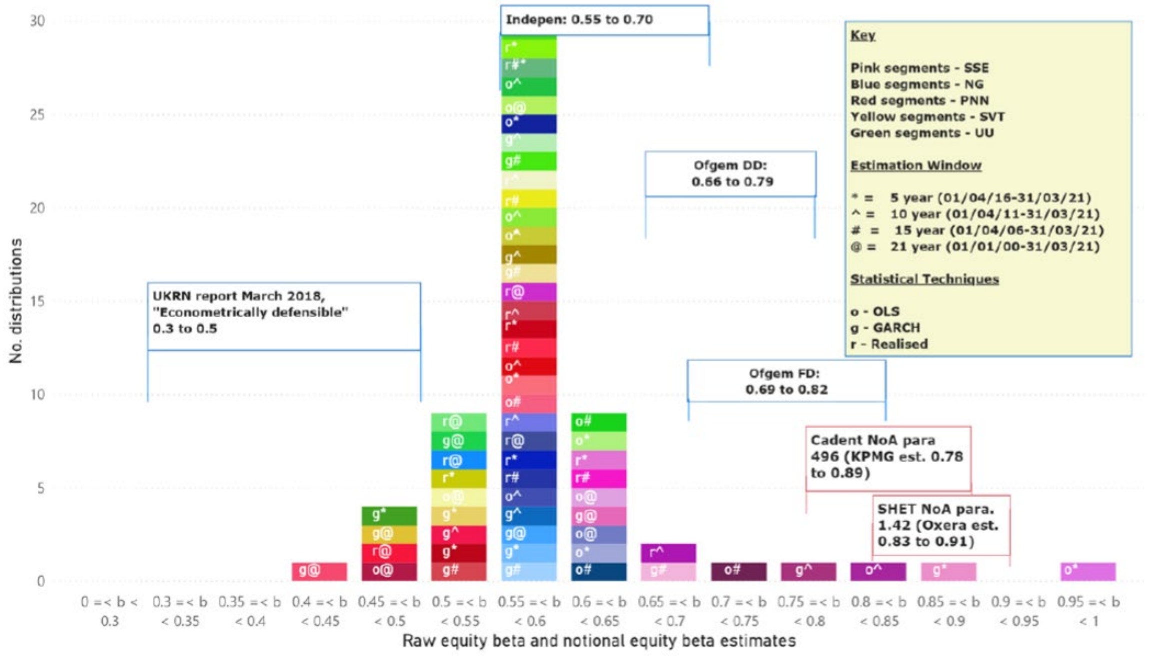
5.568 GEMA submitted alternative graphical representation of its estimate, focusing on its asset beta estimate in relation to the evidence base on which its estimate is drawn. GEMA argued that such slides show that GEMA's estimate of unlevered beta of 0.311 was a conservative reading of the evidence that it had considered in the round.[723]

5.569 GEMA also submitted a graphical representation of its equity beta estimate of 0.69 – 0.82, and how this compares to the raw equity betas in its sample

[723] GEMA Clarification Hearing Transcript, Parts 1 & 2, 21 May 2021, page 28, lines 12–24.

(using both GARCH and OLS techniques across 5, 10, 15 and 21 years of data). This is shown in Figure 5-13 below:

Figure 5-13: GEMA evidence of its equity beta estimate in the context of raw beta evidence.



Source: *McCloskey (GEMA)*, Figure 19.

Intervener submissions

5.570 Considering the beta estimate in the round, Citizens Advice told us that uncertainty mechanisms in RIIO-2 lower network companies' exposure to risk. It said that they shift risk onto consumers in two ways:

a) Firstly, costs will be added to bills to pay for reopeners and uncertainty, which makes consumer bills less predictable; and

b) Secondly, these costs are likely to have greater time urgency and so potentially less scrutiny.

5.571 Citizens Advice told us that this provides scope for broader adjustments to the price control to protect investors if required. It told us that it supported the increased use of uncertainty mechanisms but that it transfers risks previously borne by energy companies on to consumers, and that this therefore supports a lower equity beta.[724]

5.572 More specifically, Citizens Advice noted that long-run raw betas for regulated monopolies were estimated at Appendix G of the UKRN Report at 0.3 to 0.5.

[724] Citizens Advice Intervention Notice, paragraphs 122–123.

Citizens Advice noted that on the basis of these estimates, GEMA's asset betas would fall from 0.36 to 0.21 to 0.30, and notional equity betas from 0.71 to 0.33 to 0.55.[725]

Our provisional assessment

5.573 In line with the assessments described above, in our provisional determination, we indicated that we did not consider the appellants to have offered convincing evidence that GEMA had 'aimed-down' within its own range. As evident from GEMA's data table (see Figure 5-4), the 10-year range of National Grid unlevered betas is 0.29 to 0.33, making an estimate of 0.311 reasonable (subject to our assessments on National Grid, time horizons and market vs book debt described in the preceding paragraphs).

5.574 Taking this assessment more broadly, both GEMA and Citizens Advice presented evidence that suggested that the available market data and academic evidence could have supported a significantly lower estimate of equity beta. As a result, we saw no obvious error in GEMA's selection of a point estimate from within its beta range.

Appellants' response to the provisional determination

5.575 SPT submitted that the provisional determination's reference to GEMA's submissions on long-run betas suggest lower betas (as at paragraphs 5.573 to 5.574 above). It told us that this evidence is flawed, as GEMA's comparison of raw equity betas to its notional equity betas is meaningless due to differences in gearing.[726]

5.576 SSEN-T and WWU told us that uncertainty mechanisms in RIIO-2 have been introduced in response to the increase in uncertainty linked to the timing (as opposed to the scale) of investment required to deliver Net Zero. They submitted that these mechanisms do not transfer risks previously borne by companies to consumers, as claimed by Citizens Advice, but reduce the impact of new risks on companies. Therefore, SSEN-T and WWU said that uncertainty mechanisms cannot be used as a reason to reduce beta estimates.[727, 728]

5.577 SSEN-T and WWU also submitted that there are multiple issues associated with the evidence provided in the UKRN Report. They highlighted that the

[725] Citizens Advice Intervention Notice, paragraph 109.
[726] SPT Response to PD, paragraphs 82–83.
[727] SSEN-T Response to PD, paragraph 2.98(a).
[728] WWU Response to PD, paragraph B1.3.

report uses raw betas and is therefore inconsistent with notional gearing levels used in RIIO-2. Secondly, it told us that the evidence for regulated monopolies is specific to SVT and UU (disregarding National Grid). They told us that the UKRN evidence is based on multiple data frequencies (ie daily, weekly, monthly and quarterly) extending back to 2000, which contradicts the point raised in the provisional determination that we do not consider the inclusion of data back to privatisation to be appropriate for estimating beta in this scenario. SSEN-T and WWU submitted that this also contradicts the frequency of data used in the CMA PR19 Redetermination.[729, 730]

GEMA's response to the provisional determination

5.578 GEMA submitted that we may wish to consider its submissions that risk in RIIO-2 could be lower than in RIIO-1, lower than in PR19 and lower than National Grid historical values. It noted that the appellants have not addressed these forward-looking arguments.[731]

5.579 GEMA's submitted examples of where systematic risk may be lower than PR19 being:

a) Pension cost risk;

b) Operational gearing;

c) Return on Regulatory Equity (**RoRE**) ranges: incentives are now capped and subject to Return Adjustment Mechanisms, both of which limit downside risk;

d) UMs; and

e) Debt, equity and Real Price Effect (**RPE**) indexation: in terms of macroeconomic interest rates and GEMA's discretion.[732]

Point estimate – our final assessment

5.580 We acknowledge the submissions made by SSEN-T and WWU with regard to GEMA's point estimate, but we remain unpersuaded that GEMA has 'aimed-down' within its own range.

5.581 There are a number of choices that can be made in determining the beta estimate and ultimately it will always be a matter of judgement as to which is

[729] SSEN-T Response to PD, paragraph 2.98(b).
[730] WWU Response to PD, paragraph B1.3.
[731] GEMA Response to PD, paragraphs 26–28.
[732] *McCloskey (GEMA),* paragraph 290.

the most appropriate. While there are instances where GEMA might have chosen to include evidence that would point to a higher beta estimate, there is also evidence of instances where GEMA could have reasonably selected a lower point estimate. As is set out in each of the 'issues' sections above, we have not identified any elements of the beta analysis where GEMA selected an estimate for which there was a manifestly better alternative.

5.582 Therefore, taking the evidence on beta in the round, we continue to consider that the points set out at paragraphs 5.568 to 5.572 above provide useful context to the appropriateness of the point estimate selected by GEMA, and do not regard the submissions made by SSEN-T and WWU in response to the provisional determination to change our view that GEMA selected a point estimate based on a balanced and appropriate approach.

Beta – our conclusion

5.583 We have considered the evidence presented by appellants, GEMA and interveners in relation to estimating beta for the RIIO-2 price control. There is no single agreed way to estimate beta – in fact, the particular circumstances of each case make such an agreement largely impossible. The process is especially difficult where, as in the case of RIIO-2, there are limited listed 'pure-play' peers on which to base an estimate.

5.584 With regard to equity beta, on balance, we conclude that GEMA's decisions to include water companies and to exclude SSE, European comparators, and 'decomposed' National Grid data were appropriate exercises of regulatory judgement and falls within its margin of appreciation. We have considered the submissions made by appellants in their notices of appeal, during their hearings, and in response to the provisional determination. We recognise that different approaches can be taken in estimating beta. However, as set out in each of the relevant sections above, we did not find any evidence that using alternative comparator data sets (such as SSE, European and 'decomposed' National Grid data) would improve the measurement of beta.

5.585 The empirical evidence demonstrates that energy networks are likely higher risk than water companies and in turn we would expect a higher beta for energy companies as compared to water. This is the case, with the regulated notional equity beta for energy companies set at 0.76 which is higher than that the 0.71 notional equity beta set for water companies.[733]

[733] Both figures assume 60% notional gearing.

5.586 With regard to methodological decisions, we conclude that there are different means by which to calculate a beta estimate which may each be considered appropriate in the relevant context – and we have found no errors in GEMA's approach. With regard to Coronavirus (COVID-19) data, we conclude that GEMA was not wrong to have taken the view that COVID-19 represents a systematic event that is useful input into the analysis. In addition, we do not see sufficient evidence to prove the efficacy of focusing on specific 'structural breaks' in the data.

5.587 We agree with GEMA that it is not clear that Net Zero and related risks to energy networks represent beta (undiversifiable) risk for large global investors in a range of sectors and asset types. We do not consider evidence submitted with regard to energy networks in Italy and Spain to be sufficiently strong to demonstrate that Net Zero results in a systematic risk differential between electricity and gas networks in the UK. We consider that investors have the ability to diversify risks associated with Net Zero, and that in turn assets which may be negatively impacted by Net Zero risk require an increase to the beta. As a result, we conclude that beta is not the right place to consider any specific risks in gas networks.

5.588 We note that GEMA's chosen estimate is in line with the 10-year National Grid beta. We have considered evidence presented by the appellants on the appropriate timeframe for determining beta. We recognise that there are potential pros and cons to each of 2-, 5- and 10-year timeframes. However, we do not consider that there is a requirement to place equal weight on each timeframe and conclude that we have not received sufficiently strong evidence to indicate that a 10-year led approach leads to an inappropriate estimate of the appropriate beta for the energy networks.

5.589 With regard to debt beta, we have considered the submissions made and concluded that they are not sufficiently strong to suggest that GEMA's debt beta estimate was an error.

5.590 Considering these points in the round, we conclude that GEMA was not wrong in determining the beta estimates as part of the RIIO-2 price controls.

In the round

Introduction

5.591 This section covers the errors alleged by the appellants relating to the combination of GEMA's metric-level estimates into its overall CAPM-based estimate of the appropriate costs of equity for RIIO-2, as well as alleged errors relating to GEMA's use of cross-checks in order to decide whether its CAPM-based estimate was suitable for use in this price control.

Background to the alleged error

5.592 As previously discussed, regulators regularly use the CAPM to estimate the allowed return on equity. This requires the estimation of the individual metrics used in the CAPM – the RFR, the TMR and the beta – in order to complete this calculation. However, GEMA's responsibility is to 'have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed'. As a result, in terms of the return on equity investment, GEMA's task is to set an appropriate total or 'in the round' cost of equity – with the estimation of the individual metrics a tool available to accomplish this task. GEMA must consider whether its CAPM-based ('Step-1' in GEMA's terminology) estimate of the cost of equity is appropriate 'in the round' in order to meet the finance duty imposed by section 4AA(2) of GA86 and section 3A(2) of EA89.

The RIIO-2 Decision

5.593 GEMA's approach to setting the allowed return on equity in RIIO-2 included an estimate of the allowed return suggested by CAPM-based analysis (Step-1) and a judgement-based assessment of this estimate based on cross-checks (Step-2).

5.594 At DD stage, GEMA chose to reduce its midpoint CAPM-based estimate of 4.3% by 0.1% as a result of several cross-checks.[734] These were:

a) A Modigliani-Miller[735] cost of equity inference (WACC cross-check).

b) Market Asset Ratio (**MAR**)-implied cost of equity.

[734] GEMA FD Finance Annex, paragraph 3.99.
[735] Economic theory from Franco Modigliani and Merton Miller which states that that, in the absence market frictions, the value of a firm is unaffected by how that firm is financed.

c) Unadjusted investor bids for Offshore Transmission Ownerships (**OFTOs**).

d) Unadjusted investment managers' cost of equity estimates (via TMR).

e) Unadjusted infrastructure fund implied equity internal rates of return (**IRRs**).

f) A CAPM using investment managers' TMR estimates and the low end of NGET's proposed equity beta.

5.595 At the FD stage, GEMA acknowledged that stakeholders had made representations that its market cross-checks were not as strong as believed and that using a lower value was not a justified use of regulatory discretion. GEMA decided to narrow the CAPM-implied range (from 3.85%-5.24% to 3.8%-5.0%), using more discretion to adjust the high end than the low end.

5.596 The Step-2 range of 3.8%-5.0% had a mid-point of 4.4%. However, GEMA decided to assess the cost of equity at the original Step-1 range midpoint of 4.55% which was 0.15% higher than the mid-point following the Step-2 adjustments.[736] This figure was also higher than the 4.3% midpoint of the Step-1 range used in GEMA's DD.[737]

The alleged errors

5.597 All the appellants told us that GEMA had made an error in its 'in the round' or overall cost of equity allowance and that as a result GEMA had set a cost of equity allowance that was too low. There were three main subcomponents to this alleged error:

a) First, that by picking individual metric components at the low end of their respective ranges in 'Step-1', GEMA had created a cumulative error where the combination of lower than required RFR, TMR and beta estimates led to an overall cost of equity allowance that was too low.

b) Second, that GEMA had used a series of erroneous, inappropriate or skewed cross-checks at 'Step-2' in order to justify its 'Step-1' estimate.

c) Third, the appellants referenced the recent CMA PR19 Redetermination as evidence that the allowed return had been set too low.

[736] GEMA FD Finance Annex, paragraph 3.121.
[737] GEMA FD Finance Annex, Table 11.

5.598 In the paragraphs below we summarise the evidence that has been presented to us, set out our provisional assessment and then consider the parties' responses to our provisional determination before providing our final conclusion of whether GEMA's in the round approach was wrong.

The alleged cumulative impact of low metric-level estimates

Appellants' submissions

5.599 The appellants told us that GEMA had underestimated the individual CAPM metrics used in its Step-1 process and as a result had estimated an overall or 'in the round' cost of equity allowance that was lower than required. For example:

a) Cadent submitted that GEMA made material errors in estimating each of the three CAPM parameters due to selective and unbalanced use of the available market evidence and an approach inconsistent with financial theory and relevant regulatory precedent. Cadent submitted that, as a result, GEMA had materially underestimated the allowed cost of equity range that forms the starting point for the baseline allowed cost of equity in RIIO-2.[738]

b) NGET/NGG told us that in setting the cost of equity for RIIO-T2 GEMA made erroneous methodological choices – failing to take proper account of evidence that would support a higher cost of equity. NGET/NGG submitted that GEMA had made unbalanced judgements, leading it to set a materially lower cost of equity than is justified on a proper account of all of the available evidence. NGET/NGG submitted that GEMA had failed to have proper regard to the cumulative effect of its choices or to explain why it considered the cost of equity to be sufficient overall.[739]

c) NGN submitted that throughout its cost of equity assessment and for every parameter, GEMA had chosen ranges of estimates that were consistently and systematically at the lower end or below those suggested by the proper approaches to estimation. NGN submitted that GEMA's approach had led to a choice of a point estimate that was lower than the evidence and academic and regulatory methodology could support.[740]

[738] Cadent NoA, paragraph 1.4(c(i)).
[739] NGET NoA, paragraphs 3.388–3.398, NGG NoA, paragraphs 3.388–3.398.
[740] NGN NoA, paragraphs 144–145.

d) SGN submitted that GEMA had consistently picked point estimates that were below the permissible range, and that these errors, individually and cumulatively, had caused GEMA to underestimate the cost of equity.[741]

e) SSEN-T submitted that in arriving at its overall 'Step-1' cost of equity figure, GEMA had made errors individually and cumulatively that resulted in a significant underestimation of the cost of equity element of the WACC.[742]

f) SPT submitted that when considering CAPM evidence, GEMA had failed to have adequate regard to the sustainability objectives and/or made a series of errors of assessment. SPT submitted that as a result, SPT had been allowed an insufficient sum to incentivise the necessary investments that will be required during RIIO-T2 and in future price control periods.[743]

g) WWU submitted that it had identified underlying flaws in GEMA's cost of equity analysis and reliance on data, and that the effect of these decisions was to significantly impair WWU's equity financeability and contributed to a weakening of its debt financeability.[744]

5.600 Various appellants presented graphical evidence that suggested that GEMA had picked at or towards the low end of the range for every CAPM metric.[745]

GEMA's submissions

5.601 GEMA submitted that its approach was grounded in economic and finance theory and regulatory precedent. GEMA submitted that it did not, however, contend that there was any 'perfect' evidence or basis on which to estimate CAPM, and that there was significant space for reasonable disagreement in selecting and giving weight to the available evidence. GEMA submitted that it had, at all times, exercised its regulatory judgement in a way that was consistent with, and fulfilled, its statutory duties.[746]

5.602 GEMA submitted that it did not accept any of the appellants' contentions that it had erred in its decision in estimating the cost of equity at 4.55%. GEMA submitted that many of the appellants' arguments were raised prior to FDs and were carefully considered by GEMA. GEMA submitted that it took confidence from the cross-checks it applied, which if anything supported a

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741 SGN NoA, paragraph 146.
742 SSEN-T NoA, paragraph 1.33.
743 SPT NoA, paragraphs 8–9.
744 WWU NoA, paragraphs B1.8–B1.9.
745 For example, see Exhibit 2 submitted by NGET/NGG for their main hearing on 29 June 2021 or slides 17–19 from NGN slide-deck submitted by NGN for its clarification hearing on 13 May 2021.
746 GEMA Response A, paragraph 60.

lower figure than 4.55%. GEMA submitted that in order to guard against the risk of estimating the cost of equity/Regulatory Expected Return (**RER**) too low, with the consequent risk for investment and consumers, GEMA had taken a cautious approach.[747]

5.603 GEMA argued that the UKRN Report had established that the true WACC could never be known, and that as a result GEMA's view for Step-1 (CAPM) should be difficult to be found 'wrong'. GEMA argued that the greater the WACC uncertainty, the more discretion the CMA should afford GEMA, noting that the CAPM has been in existence for six decades without any firm agreement on how it should be deployed in practice.[748]

5.604 GEMA presented alternative graphic representations of its estimates, using a similar format to that presented by several of the appellants. GEMA's graphic suggested that GEMA's CAPM metric estimates sat central to higher in the range of possible estimates.[749]

Interveners' submissions

Citizens Advice

5.605 Citizens Advice submitted that it believed that the regulator's determination met its statutory duty, was based on thorough market evidence, and considered the interests of existing and future consumers, while having regard to the companies' being able to finance their activities. Citizens Advice submitted that while accepting GEMA's decision was within the bounds of regulatory judgement, Citizens Advice considered that GEMA's determination of the cost of equity was still too high, on the basis of reasonable evidence. Citizens Advice submitted that it was therefore generous to the companies, while not sufficiently fair to the interests of existing and future consumers.[750]

5.606 Citizens Advice submitted that consumers would be materially affected by the scope of potential amendments requested by network companies on these appeal grounds. Citizens Advice estimated that the companies are asking for up to £1.5 billion over 5 years – before additional opportunity for further returns that will arise from the sizeable uncertainty mechanisms and reopeners.[751]

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[747] GEMA Response A, paragraph 61.
[748] *Wilde 1 (GEMA),* paragraph 29.1.
[749] GEMA slides for Equity Opening Statement at its Main Hearing on 9 July 2021, slide 3.
[750] Citizens Advice Intervention Notice, paragraph 11.
[751] Citizens Advice Intervention Notice, paragraph 18.

5.607 Citizens Advice also said that any unjustified returns for network companies arising from RIIO-2 added unfair cost to consumers' bills and Citizens Advice believed that unjustified returns would be detrimental to Net Zero delivery. Citizens Advice submitted that unjustified levels of returns could distort investment in innovation – that if network companies could achieve high levels of returns without needing to innovate this reduced the incentive to do so. Citizens Advice submitted that additional returns would also directly affect the affordability of the delivery of Net Zero, which could affect customer trust.[752]

BGT

5.608 BGT submitted that the appellants did not mention the myriad of decisions in their favour which, in aggregate had led to the Decision being skewed in their favour and included settlements that were generous to the appellants, which went beyond what represented a 'fair bet'.[753] With regard to the cost of capital BGT specifically noted that GEMA had taken actions akin to aiming up in relation to the debt beta and the application of its Step-2 cross-checks.[754]

The alleged cumulative impact of low metric-level estimates - our provisional assessment

5.609 In making our provisional assessment, we noted that it is rational to expect that those who earn returns on equity in the sector are, all other things being equal, incentivised to argue in favour of estimation methodologies that lead to higher CAPM metrics, and that when these metrics are combined, overall returns should sit higher within a 'reasonable' range. Customers and their representatives are potentially incentivised to keep bills as low as possible, although this incentive is mitigated by the need to secure high-quality service into the future.

5.610 In our provisional determination, we undertook a detailed assessment of the evidence presented in relation to the CAPM metrics used by GEMA in the RIIO-2 price control. While the CMA reached somewhat different conclusions on the appropriate level of the elements of the cost of equity in its recent CMA PR19 Redetermination, for reasons explained in chapter 3, paragraphs 3.87 and 3.88 of our provisional determination, we found that that did not mean that GEMA's decisions on the elements of the cost of equity were wrong. This is an area where there is a need for the exercise of regulatory judgement.

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[752] Citizens Advice Intervention Notice, paragraphs 19–22.
[753] *Edwards (BGT)*, paragraph 21.
[754] *Edwards (BGT)*, paragraph 28. For further detail on BGT's comments on aiming up, see paragraphs 5.838–5.839.

5.611 We considered that each of GEMA's estimates was based on appropriate evidence and appropriate methodological approaches. Thus, while the CMA may have reached a different conclusion in the CMA PR19 Redetermination, we were not bound by that decision and it was not for us to substitute our own decision for that of GEMA simply on the basis that we would have taken a different view of the matter were we the energy regulator. We considered that the estimates that GEMA made represented an appropriate exercise of regulatory judgement and fell within its margin of appreciation. As such, we considered it appropriate to apply restraint and not substitute our assessment for GEMA's as the appellants had not persuaded us that GEMA's assessment was wrong.

5.612 In making an associated assessment of whether the combining of these metrics led to an overall allowance that was wrong, we acknowledged that, in theory, a combination of 'low' but individually justifiable metric-level estimates had the potential lead to an overall cost of equity that was unreasonably low. However, we noted GEMA's evidence that suggested its estimates were drawn from closer to a central point within the band of justifiable evidence. We also noted the submissions provided by Citizens Advice on behalf of energy consumers, which stated that GEMA could have justifiably picked lower estimates of each of RFR, TMR and beta within this price control.

5.613 As a result, we did not believe that the appellants had presented sufficient evidence to prove that GEMA's metric level assessments were unjustifiably low, or that the combination of these estimates led to an overall 'Step-1' estimate of the cost of equity that was wrong (subject to the cross-checking process discussed in the paragraphs below). In making an 'in the round' assessment of whether GEMA's cost of equity allowance was too low, we also did not consider there to be evidence that GEMA's practical application of the CAPM methodology led to an erroneous result. GEMA followed the standard CAPM methodology that is used extensively by regulators and financial professionals. As a result, we provisionally determined that there was no error in GEMA's 'Step-1' CAPM-based estimate of the cost of equity at 4.55%.

The alleged cumulative impact errors – Response to the provisional determination

Appellants' submissions

5.614 The appellants disagreed with the assessment in the provisional determination that GEMA's CAPM-based estimates were justifiable in isolation and in combination into an overall 'Step-1' estimate of the cost of equity – repeating their view that GEMA had implemented a systematic downward bias in the assessment of each CAPM parameter and therefore combined all biases into a wrong estimate of the cost of equity. For example:

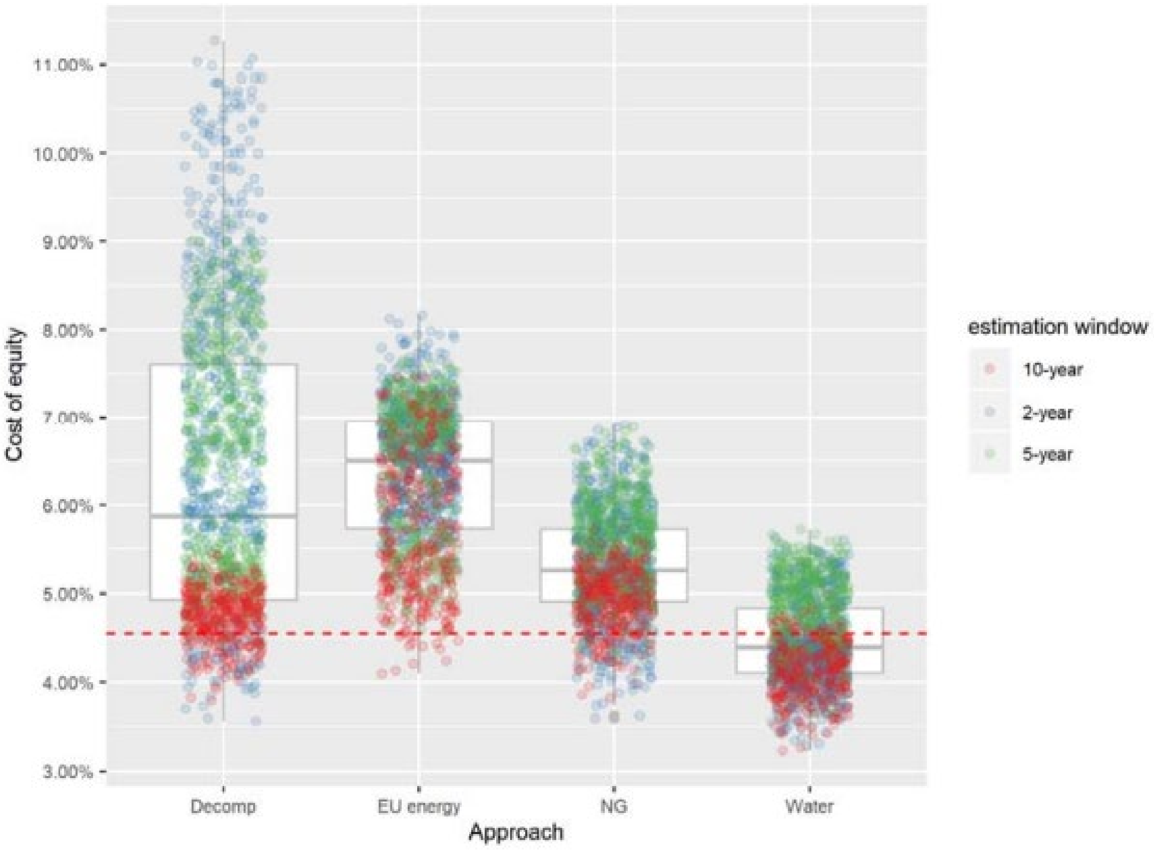
a) Appellants' joint submission reiterated the view that there is a cumulative effect of the errors committed by GEMA on each of the individual parameters, such that it is also important to consider the materiality of the overall downwards pressure on the cost of equity to which GEMA applies its cross-checks.[755]

b) Cadent, NGN and SGN provided analysis from KPMG (shown in

c) Figure 5-14) that they said demonstrated the range of estimates for the cost of equity that would result from the application of the CAPM to all combinations of all estimates for RFR, TMR and beta the CMA considered in the provisional determination to be either broadly equivalent or superior to GEMA's approach. This analysis provided four scenarios based on the betas of water companies, National Grid, European energy companies and decomposed National Grid beta data – with all but the scenario using water company beta suggesting that GEMA's allowance for the cost of equity was materially below the 25th percentile of associated cost of estimates. The appellants stated that the result of this scenario analysis suggested a median cost of equity estimate of 5.3%, 75bps higher than GEMA's 4.55% allowance. The appellants stated that this analysis demonstrated that GEMA's assessment of the cost of equity was downwardly biased, being beneath a significant majority of estimates that would have resulted had GEMA given regard to broadly equivalent or superior approaches.[756] [757] [758]

[755] Appellants Joint Response to PD on Ground A, page 7.
[756] Cadent Response to PD, paragraphs 11.62–11.67.
[757] NGN Response to PD, paragraphs 86–89.
[758] SGN Response to PD, paragraphs 77–79.

Figure 5-14: KPMG analysis of cost of equity estimates derived from the application of the CAPM to all combinations of all appropriate parameter estimates, grouped by beta comparator and corresponding estimation windows



Source: KPMG analysis as submitted in SGN Response to provisional determination, Figure 1.

d) On the basis of this analysis, Cadent, NGN and SGN submitted that in order to be convinced that GEMA's cost of equity is not wrong, the CMA would have to conclude that water and gas networks face the same level of systematic risk, and that it is correct to base the estimate of GDN beta solely on water company data - excluding fully the evidence from National Grid. The appellants stated that these conclusions would not be consistent with either GEMA's or the provisional determination's views, which acknowledge that water and energy networks have different systematic risk exposure. The appellants stated that where National Grid or other beta comparators are considered relevant for the assessment, it is clear that GEMA's cost of equity is downward biased. [759] [760] [761]

e) NGET/NGG submitted that the CMA's scrutiny of GEMA's FD had been extremely limited in the course of the appeals. NGET/NGG stated that not

[759] Cadent Response to PD, paragraphs 11.62–11.67.
[760] NGN Response to PD, paragraphs 86–89.
[761] SGN Response to PD, paragraphs 77–79.

all evidence is equally valid, and the appealing parties had already pointed out the flaws in the alternative approaches proposed by GEMA and Citizens Advice. NGET/NGG stated that subjecting the evidence provided by GEMA (and other parties such as Citizens Advice) to proper scrutiny clearly showed that GEMA's estimates are not 'drawn from closer to a central point', but consistently reflect the lower end of the data which was available to GEMA, and that lower values for RFR, TMR and beta would not be credible.[762]

f) SPT reiterated that it was not within GEMA's 'regulatory discretion' or 'margin of appreciation' to repeatedly disregard relevant evidence that would increase the top end of the range and point estimate for each component of the cost of equity. However, it argued that was precisely what GEMA had done.[763]

Intervener submissions

5.615 Citizens Advice stated that it was pleased that the CMA had recognised evidence that GEMA's determination of the cost of equity could be higher than required.[764]

5.616 BGT reiterated its view that, even without 'aiming up', the baseline cost of equity was unnecessarily generous to the appellants – as GEMA had been generous to the appellants when deriving the range from which the point estimate was drawn (Step-1), and by not adjusting it downwards (as suggested by the cross-checks (Step-2). BGT drew our attention to the CMA's recognition of GEMA's generosity and its own acknowledgement that the baseline cost of equity could be higher than strictly required.[765]

The alleged cumulative impact errors – our final assessment

5.617 Citizens Advice and BGT are of the view that GEMA's 4.55% cost of equity allowance remains too high 'in the round', while the appellants have reiterated that they view the CAPM metrics, and thus the total figure of 4.55%, to be downward biased. In making this assessment, the appellants have made a number of arguments – some of which repeat the arguments made in the NoAs, namely that:

762 NGET/NGG Response to PD, pages 36–37.
763 SPT Response to PD, paragraph 91.
764 Citizens Advice Response to PD, paragraph 1.
765 BGT Response to PD, paragraphs 1.1–1.2.

a) there is a cumulative effect of using 'downward biased' CAPM metrics that leads to an overall cost of equity that is too low;

b) for GEMA's allowance to be 'not wrong', one would have to assume that systematic risk exposure is the same in the water and energy networks (despite evidence to the contrary); and

c) GEMA has relied on less relevant evidence in order to position its estimate as closer to the midpoint, and that it was inappropriate to afford GEMA a 'margin of appreciation' to disregard evidence that would support a higher figure. This argument was supported by new 'outcome skew' analysis from KPMG, which suggested that the CMA had incorrectly or insufficiently interrogated whether GEMA had based its estimate on an appropriate and balanced reading of the available evidence.

5.618 In relation to the alleged cumulative effect of using 'downward biased' CAPM metrics, our view remains in line with that expressed in our provisional determination. Based on the analysis of the individual parameters above, we disagree with the appellants' assessment that GEMA's metric-level estimates were downward biased. As noted in our provisional determination, we will further test for overall cost of equity sufficiency when we consider cross-checks at paragraph 5.723 below.

5.619 In respect of Cadent, NGN and SGN's argument that KPMG's analysis shows that GEMA's cost of equity can only be justified on the basis of a water sector level of beta, we disagree with both the methodological approach that underpins this analysis, as well as the associated conclusions.

5.620 For example, we do not accept the contention that GEMA's beta estimate can only be justified with reference to water companies. GEMA's estimate of notional beta of 0.76 is higher than both:

a) the level implied by GEMA's analysis of listed water company betas; and

b) the 0.71 notional water beta used by Ofwat in PR19[766] and the CMA in the CMA PR19 Redetermination.[767]

5.621 The appellants may argue that this does not adjust for RFR and TMR estimates that the appellants consider to be 'too low'. However, we have already concluded that GEMA's estimates of these metrics are not wrong.[768]

[766] Ofwat (2019), PR19 final determinations – Allowed return on capital technical appendix, Table 1.1.
[767] CMA PR19 Redetermination, Table 9-37. Note - both at 60% gearing.
[768] See paragraph 5.184 for RFR and paragraph 5.292 for TMR

5.622 We also disagree with the calibration of KPMG's analysis, that in our view uses upward biased data inputs in order to frame GEMA's cost of equity estimate as downward biased. For example, in relation to the beta assumptions that underpin this analysis:

a) We have already concluded (see paragraphs 5.399 to 5.402 and paragraph 5.407) that it is unclear that decomposing the National Grid beta would give a more accurate assessment of the systematic risk faced by the UK energy networks. In addition, we note the volatility in the estimate of a decomposed beta and that there are some periods in which the decomposed beta would give a lower figure than National Grid overall beta. Despite this, the KPMG analysis above uses an estimate of the decomposed National Grid unlevered beta that is significantly higher than the estimate of the National Grid unlevered beta.[769] Using an estimate of the decomposed National Grid unlevered beta that was closer to the National Grid unlevered beta would lead to lower median estimates of the cost of equity in KPMG's analysis.

b) We have already concluded (see paragraph 5.394) that the exclusion of European comparators was not wrong. However, even if we were persuaded that such comparators should be included, we would not necessarily agree that the correct inputs should be based on 'the sample that Cadent considers to best reflect the risk exposure faced by UK GDNs (Enagás, Terna, Snam, Red Electrica)'.[770] As noted at paragraph 5.374b), GEMA provided evidence that an alternative sample of European comparators would have implied an unlevered beta that was lower than the 0.311 estimate used in RIIO-2. Using GEMA's alternative sample of European comparators would lead to lower median estimates of the cost of equity in KPMG's analysis.

c) KPMG's analysis is based on using both 'pre' and 'post' Coronavirus (COVID-19) beta data. At paragraph 5.512 we have been clear that we consider Coronavirus (COVID-19)-era data to represent a systematic event that is useful input into the analysis. Using data that includes the Coronavirus (COVID-19) period as we have suggested would lead to lower median estimates of the cost of equity in KPMG's analysis.[771]

[769] On the basis of the supporting excel files provided by KPMG, the average unlevered National Grid beta (across all measurement approaches) is 0.34, while the average unlevered decomposed beta (across all measurement approaches) is 0.39.
[770] Cadent Response to PD, footnote 203.
[771] On the basis of the supporting excel files provided by KPMG, the average 'post-covid' estimate of unlevered beta (across all measurement approaches) is 0.35, while the average 'pre-covid' estimate of unlevered beta across all measurement approaches) is 0.36.

d) KPMG’s analysis is based on using only the book value of debt in the de-gearing process, when at paragraph 5.538 we have concluded that using both the book and market value of debt approach is not wrong. Using both methodologies would lead to lower median estimates of the cost of equity in KPMG’s analysis.

5.623 More broadly, we disagree with the application of KPMG’s methodology. Not all potential inputs into the estimation of the RFR or TMR have equal merit or are necessarily appropriate in combination. As a result, there is little to be concluded from the subsequent skew in outcomes suggested in this data.

5.624 In respect of the balance of evidence considered by GEMA, we reiterate that this has been considered in relation to each CAPM metric (discussed extensively in the sub-sections above) and we have concluded that GEMA’s estimates were not wrong on the basis of the available evidence. We have not afforded GEMA any margin of appreciation to ignore relevant evidence, and we reiterate that evidence from GEMA and Citizens Advice suggests that lower estimates could also have been justified.

5.625 As at the provisional determination stage, it is our final conclusion that the appellants have not presented sufficient evidence to demonstrate that GEMA’s metric level assessments are unjustifiably low, or that the combination of these estimates leads to an overall ‘Step-1’ estimate of the cost of equity that is wrong (subject to the cross-checking process discussed in the paragraphs below). In making an ‘in the round’ assessment of whether GEMA’s cost of equity allowance is too low, we note that GEMA has followed the standard CAPM methodology that is used extensively by regulators and financial professionals and, as set out in each of the RFR, TMR and beta sections above, has not erred in its assessment of the evidence for each element of the cost of equity. As a result, we determine that there is no error in GEMA’s ‘Step-1’ CAPM-based estimate of the cost of equity at 4.55%.

5.626 As we have concluded that GEMA’s CAPM-based estimates were substantively justifiable taking account of the merits of the evidence both in isolation and in combination into an overall ‘Step-1’ estimate of the cost of equity, we now turn to evidence presented in relation to cross-checks of this estimate and assess the appellants’ claims that these (or alternative) cross-checks indicate that GEMA’s CAPM-based estimate of the cost of equity was too low ‘in the round’.

Alleged cross-check errors

Appellants' submissions

5.627 The appellants told us that GEMA's use of cross-checks was inappropriate, included errors and provided a skewed body of evidence in order to justify its Step-1, CAPM based estimate of the cost of equity. For example:

a) Cadent submitted that KPMG (its advisers) had concluded that each of GEMA's cross-checks were demonstrably inappropriate for providing reliable evidence in setting/cross-checking the allowed cost of equity in a RIIO-2 context.[772]

b) NGET/NGG submitted that GEMA's decision on cross-checks was wrong because it was based on an unjustifiably selective approach to the evidence, in which it had repeatedly placed weight on cross-checks that stakeholders have shown to be flawed and failed to give due consideration to the valid alternative cross-checks that stakeholders proposed. NGET/NGG submitted that GEMA also wrongly elevated cross-checks to the status of 'primary evidence' in using them to determine its cost of equity range, which is contrary to well-established regulatory practice.[773]

c) NGN submitted that GEMA's cross-checks were ineffective as they do not reflect the risks of gas networks. NGN submitted that GEMA's cross-checks include OFTOs' IRRs, MARs, infrastructure fund discount rates and investment manager forecasts – but that none of these cross-checks reflect the risk profile of a GDN.[774]

d) SGN submitted that GEMA's cross-checks had not been appropriately selected to reflect the risk of the UK energy (and particularly, gas) networks and thus materially understated the required return, giving GEMA false confidence that its equity returns had been set at the right level.[775]

e) SSEN-T submitted that GEMA's approach to cross-checking was flawed and could not justify its decision on the cost of equity allowance. SSEN-T

[772] Cadent NoA, paragraph 4.101.
[773] NGET NoA, paragraph 3.228; NGG NoA, paragraph 3.228.
[774] NGN NoA, paragraph 213.
[775] SGN NoA, paragraph 275.

submitted that GEMA had made a number of errors in its cross-checks, each of which resulted in its decision in this respect being wrong.[776]

f) SPT submitted that a number of the comparators (cross-checks) used by GEMA were either inappropriate or, at best, could be afforded very little weight.[777]

g) WWU submitted a cost of equity report by its economic advisers, Oxera, which noted that there were errors in GEMA's calculation of the cross-checks, as well as the poor suitability of these cross-checks for energy networks in RIIO-2.[778]

5.628 The appellants also provided specific criticisms of the individual cross-checks used by GEMA. We will address these in turn.

Modigliani-Miller cross-check

5.629 Several appellants told us that GEMA's Modigliani-Miller cross-check was not appropriate. For example:

a) Cadent submitted that GEMA's application of this cross-check was not fit for purpose as a result of GEMA's approach to gearing assumptions and a failure to take account of the impact of gearing on debt beta.[779]

b) NGET/NGG submitted that it was clear that the Modigliani-Miller gearing irrelevance proposition would not apply in respect of GEMA's proposed cost of equity, and that GEMA's attempt to force the Modigliani-Miller gearing irrelevance proposition to apply delivered meaningless results. NGET/NGG submitted that the Modigliani-Miller cost of equity inference cross-check was wrong in that it wrongly purports to lend support to the lower end of GEMA's CAPM range, and that GEMA was therefore wrong to have used this as a cross-check of the CAPM estimate of the cost of equity.[780]

c) NGN and SGN submitted a cost of equity report from KPMG, which noted that GEMA's application of the Modigliani-Miller cross-check was not fit for purpose as a result of flexing the gearing assumption while holding other assumptions constant, failing to model the impact of gearing on debt beta,

[776] SSEN-T NoA, paragraph 4.106.
[777] SPT NoA, paragraph 48.
[778] Oxera (WWU) 'Cost of Equity Report', paragraph A1.3.
[779] Cadent NoA, paragraph 4.102(e).
[780] NGET NoA, paragraphs 3.255–3.256, NGG NoA, paragraphs 3.255–3.256.

the use of a distorted (low) RFR and the use of embedded debt costs within the exercise.[781]

d) SSEN-T submitted that GEMA's cross-check using the cost of equity implied from the Modigliani-Miller theory suffers from material flaws as it misinterprets academic literature and applies assumptions inconsistent with the theory. SSEN-T submitted that when corrected for these errors, the parameters used in GEMA's cross-check violates the Modigliani-Miller theory and therefore cannot support GEMA's cost of equity estimate.[782]

e) WWU submitted a cost of equity report by its advisers, Oxera, which noted that GEMA's analysis was incorrect and that its parameter estimates result in a cost of equity that is inconsistent with the Modigliani-Miller theory. In particular, Oxera noted that GEMA had:

(i) applied the incorrect cost of debt by relying on historical evidence instead of a forward-looking cost of debt that is assumed by the Modigliani-Miller theory;

(ii) applied the incorrect RFR by relying on spot yields on UK gilts as a benchmark; and

(iii) applied the incorrect TMR and debt beta.[783]

MAR cross-check

5.630 The appellants told us that GEMA's MAR cross-check was not appropriate. For example:

a) Cadent submitted that GEMA's approach had ignored the wide range of factors that impact MAR tests and their use in respect of the relevant comparison companies, which resulted in them not being credible or robust evidence in respect of the cost of equity for regulatory control setting purposes generally, including for RIIO-2.[784]

b) NGET/NGG submitted that GEMA was wrong to infer that a MAR > 1 implied that the allowed return on equity is higher than the true cost of equity, for the reasons set out in the UKRN Report.[785] NGET/NGG submitted that market valuations incorporate a lot of 'noise' and elements

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781 KPMG (NGN and SGN) report, 'Estimating Cost of Equity for RIIO-GD2', paragraph 11.3.38.
782 SSEN-T NoA, paragraph 4.106(b).
783 Oxera (WWU), 'Cost of Equity Report,' paragraph A1.7.
784 Cadent NoA, paragraph 4.102 (b).
785 UKRN Report, Section 6.

that are not enduring and/or not explainable, and may simply reflect short-term changes in market sentiment, general market momentum and liquidity conditions. NGET/NGG submitted that the reliability of MARs as a cross-check is further questioned by the need to value non-regulated businesses and/or regulated businesses in other jurisdictions that may be owned by the listed entities. NGET/NGG also submitted that the CMA PR19 Redetermination had been 'cautious about using market prices to determine the point estimate for the cost of capital', and that it was 'highly speculative' for GEMA to suggest that an implied cost of equity can be calculated by assuming MAR equals 1 while assuming certain levels of outperformance.[786]

c) NGN and SGN submitted a cost of equity report from KPMG, which stated that GEMA could not rely on its MAR analysis to corroborate its cost of equity estimate. KPMG noted that MAR premia could reflect a wide range of factors and that the CMA had recognised that there are a number of reasons why investors may value assets at levels greater than that implied by the RAV. KPMG stated that as a result, even with detailed share price decomposition, the degree of uncertainty in the drivers of MAR premia was too high for the results to provide anything more than a cursory cross-check at best. KPMG also submitted that public trading of listed utilities and private transactions represent two very different markets, with different dynamics and drivers of resulting valuations – for example, MARs from private transactions reflect the highest premium that one investor is willing to pay for an asset, not an 'average' price reflecting views from across the market, as would be the case in continuous trading of liquid assets.[787]

d) SSEN-T submitted that GEMA had incorrectly concluded that the MARs of two listed water and two listed energy firms supported the cost of equity range in Ofwat's PR19 price control and GEMA's own cost of equity range, as it failed to account for factors not related to the price control that were more than sufficient to explain the share prices and MARs of these firms.[788]

e) SPT submitted a cost of equity report from its economic advisers, NERA, which noted that, in practice, the market value of a regulated network will be affected by many factors other than the allowed return, including the value of non-regulated businesses, out- or underperformance, and market sentiment (eg related to take-over rumours). NERA noted that if the MAR

[786] NGET NoA, paragraphs 3.282–3.284; NGG NoA, paragraphs 3.282–3.284.
[787] KPMG (NGN and SGN), 'Estimating Cost of Equity for RIIO-GD2', paragraphs 11.3.19–11.3.28.
[788] SSEN-T NoA, paragraph 4.106(c).

value was greater than 1, this could be for reasons other than the allowed rate of return being set too high.[789]

f) WWU submitted a cost of equity report by Oxera, which stated that GEMA's MAR analysis does not capture all factors relevant to market valuations, and that Oxera's analysis indicated that that the observed MARs could be driven by factors not related to Ofwat's allowed return. Oxera also note that GEMA's use of MARs to suggest the CAPM-estimated cost of equity was 'aimed up' was not in line with recommendations from the UKRN Report. Oxera also submitted that a higher expected return in future price controls could help to explain the currently observed market premia and that GEMA's analysis for the listed energy companies suffered from estimation issues.[790]

5.631 In the joint hearing on the cost of equity, Oxera, on behalf of the appellants, told us that a lack of insight into the assumptions used by investors meant that there was no premium to asset value that would allow a regulator to conclude that an allowed return on equity had been set too high.[791] KPMG, on behalf of the appellants, told us that there were five sets of issues that needed to be accounted for when considering the link between MARs and a required return on equity. These were:

a) Transaction specific factors such as associated transaction relating to non-regulated businesses;

b) Private value factors such as synergies;

c) Distortions as a result of private transactions not being a liquid market;

d) Company-specific factors such as operational outperformance; and

e) All other business assumptions, such as growth factors and market performance.[792]

OFTO cross-check

5.632 The appellants told us that GEMA's OFTO cross-check was not appropriate. For example:

a) Cadent submitted that OFTOs have a very materially different risk exposure from RIIO-regulated energy network infrastructure. Cadent

[789] NERA (SPT), 'Expert report', Section 5.2.
[790] Oxera (WWU), 'Cost of Equity Report', paragraphs A1.13–A1.23.
[791] Cost of Equity Joint Hearing, 21 June 2021, page 129, line 24–page 120, line 2.
[792] Cost of Equity Joint Hearing, 21 June 2021, page 130, line 13–page 131, line 18.

submitted that OFTOs are instead assets with no construction risk and significantly greater cashflow visibility achieved through a project finance structure with a wide range of de-risking contractual mechanisms which do not apply to RIIO networks.[793]

b) NGET/NGG submitted that as a bid return, this estimate could include elements of the bidder's valuation that are unrelated to the cost of equity. NGET/NGG submitted that GEMA recognised that OFTO gearing levels are higher than RIIO-2 notional gearing levels, and that the risk profile of OFTOs was lower than regulated utilities – and that GEMA assumes these will roughly cancel each other out without substantiating this assumption. NGET/NGG submitted that the unverifiable nature of the data and the lack of direct comparability to energy networks meant that this cross-check should not be used to constrain the estimates derived from using longer-term methodology and data at Step-1, and that GEMA should not have used it to infer the upper bound of its cost of equity range of 5.0%.[794]

c) NGN and SGN submitted a cost of equity report from KPMG, which stated that OFTOs were inappropriate benchmarks for the RIIO regulated networks because the risk exposure of a RIIO regulated energy network is significantly different from a project financed OFTO. For example, KPMG stated that it was critical to recognise that while project finance structures such as OFTOs might be able to achieve a low cost of capital, this could only be secured through additional mechanisms associated with risk transfers and project de-risking.[795]

d) SSEN-T submitted that GEMA had erroneously used OFTO returns as a cross-check to benchmark its cost of equity estimate for onshore energy networks because it was a fundamentally different asset class with different risk profiles, financing parameters, tax structures and other data uncertainties that had the effect of erroneously lowering the allowed cost of equity.[796]

e) SPT submitted a cost of equity report from NERA, which stated that OFTO IRRs were an unreliable estimator for cost of equity for transmission owners. NERA noted that bidders for OFTO projects bid and are evaluated based on their proposed revenue stream over the entire OFTO licence period, and that even where equity IRRs targeted by

[793] Cadent NoA, paragraph 4.102(a).
[794] NGET NoA, paragraphs 3.285–3.286; NGG NoA, paragraphs 3.285–3.286.
[795] KPMG (NGN and SGN), 'Estimating the Cost of Equity for RIIO-GD2', paragraphs 11.3.1–11.3.18.
[796] SSEN-T NoA, paragraph 4.106(e).

investors for OFTO projects were stated in the bidding documents, the equity IRR was likely to understate the expected return given potential cost outperformance, tax, and financing outperformance over the operational life. NERA stated that, in addition, the risk profile of the OFTO operational phase (under these late competition models) was much lower than the risks faced by an onshore transmission owner, as the OFTO does not face the risks associated with delivering large capital investment programmes.[797]

f) WWU submitted a cost of equity report by Oxera, which stated that the data used by GEMA is confidential and not open to public scrutiny, making it inappropriate for use in a regulatory process. In addition, Oxera noted that OFTO projects are operational assets with a very different risk profile compared to the onshore energy networks regulated by RIIO-2.[798]

Investment manager forecast cross-check

5.633 The appellants told us that GEMA's investment manager forecast cross-check was not appropriate. For example:

a) Cadent submitted that the investment manager forecasts in GEMA's cross-check were calculated on an inconsistent basis, may not be based on complete/up to date data and have ceilings imposed on them by the Financial Conduct Authority.[799]

b) NGET/NGG submitted that there were several conceptual weaknesses that limit the usefulness of investment managers' TMR forecasts as a cross-check for TMR. NGET/NGG submitted that the evidence that GEMA relied on was subjective stated preference, rather than revealed preference, so was prone to various biases, and should be regarded as no more accurate than survey evidence, about which regulators have traditionally been sceptical. NGET/NGG submitted that the evidence is likely to be downward-biased, as these estimates are used by investment managers to provide prudent estimates of future returns to existing or prospective clients, and they therefore reflect the regulatory framework and the danger of overpromising on future returns or mis-selling. NGET/NGG submitted that GEMA's dataset was incomplete and downward biased as GEMA's dataset cut off at December 2019, but a

[797] NERA (SPT), 'Expert report', Section 5.4.
[798] Oxera (WWU), 'Cost of Equity Report', paragraphs A 1.33–A1.39.
[799] Cadent NoA, paragraph 4.102(d).

number of investment managers included in GEMA's dataset have published more recent forecasts which point towards higher values.[800]

c) NGN and SGN submitted a cost of equity report from KPMG, which stated that investment manager forecasts were likely to suffer from material drawbacks including that the assumptions on which the forecasts are compiled may not be comparable to that required when setting the regulatory allowed return (**RAR**) for energy networks, forecasts may incorporate different sources of data that are not wholly suitable in a regulatory context, investment managers are exposed to incentives that may bias published forecasts away from their true beliefs and the sample of forecasts relied upon by GEMA was based on the views of only a subset of the investors that are active in the marketplace, which may not be sufficiently representative of the market as a whole.[801]

d) SSEN-T submitted that GEMA had placed inappropriate weight on the TMR forecasts produced by investment managers as a cross-check for its cost of equity estimate, and had failed to exclude outlier data, which in combination has the effect of erroneously lowering the allowed cost of equity.[802]

e) SPT submitted a cost of equity report from NERA, which stated that:

(i) Survey evidence on market returns is unreliable to inform investors' expected returns given issues around respondents' understanding of the question being asked;

(ii) GEMA has accepted that the investor managers' forecasts of market returns are based on geometric returns, but the required uplift to derive arithmetic averages required for setting the price control cost is uncertain; and

(iii) the outcome of this cross-check is sensitive to the sample of data used by GEMA.[803]

f) WWU submitted a cost of equity report by Oxera, which stated that there is a large variance in the forecasts, both across different investment managers and over time, and that this instability of estimates does not provide a reliable average return. Oxera also noted that nearly the entirety of the decline in GEMA's estimated TMR between the SSMD and the DD

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800 NGET NoA, paragraphs 3.288–3.289; NGG NoA, paragraphs 3.288–3.289.
801 KPMG (NGN and SGN) 'Estimating the Cost of Equity for RIIO-GD2', paragraph 11.3.36.
802 SSEN-T NoA, paragraph 4.106(f).
803 NERA (SPT), 'Expert report', section 5.5.

was due to a decrease in the investment horizon for Schroders, from 30 to 10 years. In addition, GEMA's new estimates from Schroders were based on US rather than UK data. Oxera also stated that TMR estimates produced by investment managers have the primary purpose of providing 'prudent estimates' of future returns to their clients, and that this is mainly a function of the regulatory framework, which states the maximum rates of return that financial services companies must use in their calculations when providing retail customers with projections of future benefits. In other words, it creates a ceiling on what can be projected. In addition, Oxera noted that while GEMA agreed in principle with the need to uplift these estimates to account for the use of geometric averaging, it used an uplift of 1% in line with a J.P. Morgan publication, which Oxera stated was inconsistent with the estimate implied by the DMS (2020) data of 1.87%.[804]

Infrastructure fund implied equity IRR cross-check

5.634 The appellants told us that GEMA's infrastructure fund implied equity IRR cross-check was not appropriate. For example:

a) Cadent submitted that the investments of the infrastructure funds used by GEMA did not, for a number of reasons, have a risk equivalent to that of RIIO networks (eg they include holdings of Public Private Partnership /Private Finance Initiative and renewables investments), and, further, GEMA had not risk-adjusted the IRRs to account for this.[805]

b) NGET/NGG submitted that GEMA should not have used the infrastructure funds cross-check to inform the Step-2 range because this involves deploying non-comparable and unreliable data. This error is then compounded by GEMA applying conceptually wrong manipulations to the data. NGET/NGG submitted that:

(i) GEMA did not provide verifiable sources for the discount rates it used, and it was not clear that all of the underlying data related to the discount rate that fund managers use to discount cash flow in order to inform the valuation of the assets in their portfolios;

(ii) descriptions in public accounts indicate that the funds on which GEMA's analysis was based hold a mixture of equity and debt

[804] Oxera (WWU), 'Cost of Equity Report', paragraphs A 1.40–A1.49.
[805] Cadent NoA, paragraph 4.102(c).

instruments and that these funds did not exclusively hold regulated utilities; and

(iii) GEMA had assumed that fund managers would consider expected outperformance of assets as a reduction to the discount rate in the valuation calculations, but this was contrary to standard corporate finance practice - where any perceived 'outperformance' should be accounted for in valuations as extra cashflows rather than a reduction to the discount rate.[806]

c) NGN and SGN submitted a cost of equity report from KPMG, which stated that GEMA's IRRs were not risk-adjusted - which critically reduced comparability, a number of comparators presented by GEMA did not hold investments in UK utilities, and that where certain funds' investments faced greater revenue or volume risks than energy networks, these risks were likely to be mitigated by 'hedging'. KPMG submitted that these factors together meant that the evidence from return data of infrastructure funds used by GEMA to benchmark its allowed return on equity offered limited or no comparability with the return required by investors on an investment in network utilities.[807]

d) SSEN-T submitted that GEMA erroneously used the discount rates of thirteen infrastructure funds as a cross-check for its CAPM-derived cost of equity because those funds have fundamentally different and lower risk profiles than regulated energy networks. SSEN-T submitted that GEMA was wrong to assume that any premia over those funds are solely attributable to an overestimation of the cost of equity, and further cross-checks conducted by its economic advisers, Oxera, using observable data on these funds produce unreasonable and volatile results that render them inappropriate as a cross-check.[808]

e) SPT submitted a cost of equity report from NERA, which stated that GEMA implicitly assumes that any Net Asset Value (**NAV**) premium or discount reflects a difference in the market view of the discount rate that should be applied to these funds and the assumed fund discount rate. However, this is not a safe assumption - the discount/premium can also reflect differences around other assumptions used to form the NAV. NERA also submitted that GEMA had not adjusted the IRRs for any difference in business or financial risk (ie leverage) that impairs the comparability of these discount rates or equity IRRs to energy networks.

[806] NGET NoA, paragraphs 3.257–3.265; NGG NoA, paragraphs 3.257–3.265.
[807] KPMG (NGN and SGN) Report 'Estimating the Cost of Equity for RIIO-GD2', paragraphs 11.3.29–11.3.34.
[808] SSEN-T NoA, paragraph 4.106(d).

In addition, NERA noted that the funds that GEMA uses are invested in a diversified set of activities and geographies, mostly unrelated to GB energy networks, such as transport, health, public private partnerships, and accommodation in North America, Australia, the EU, Asia as well as the UK. Accordingly, the funds' IRRs do not provide reliable evidence to assist in determining the cost of equity of transmission owners.[809]

f) WWU submitted a cost of equity report by Oxera, which stated that the asset classes and the risk of the diversified portfolios differ significantly to those of a pure-play energy network business. As a result, infrastructure funds' discount rates were not an appropriate benchmark for the cost of equity in RIIO-2. Oxera also stated that GEMA had assumed that any premium above the net asset value meant that the fund was overestimating its own cost of capital - however, Oxera submitted that there were multiple explanations for a market premium that do not rely on the overestimation of cost of capital. Oxera submitted that as that each fund is publicly traded, their cost of equity, beta, and RFR can be observed. This allowed Oxera to estimate the implied TMR for each fund as a cross-check on the reasonableness of this data. Oxera submitted that the average implied real TMR of 18.0%, with high variation, which was so high as to be unreasonable. Oxera submitted that the implied TMR and lack of consistency suggest that this data is unreliable for the type of cross-check attempted by GEMA.[810]

Submissions on superior alternatives

5.635 Several appellants told us that there were superior cross-checks available, and that if GEMA had used these it would have concluded that a higher estimate of the cost of equity was appropriate. For example:

a) Cadent submitted that the IRR of appropriately selected investment funds and an asset risk premium (**ARP**) – debt risk premium (**DRP**) check could be used to provide valid cross-checks. Cadent submitted that these 'valid' cross-checks supported a higher cost of equity allowance.[811]

b) NGET/NGG submitted that GEMA failed to take proper account of other cross-checks without offering any sound justification for excluding them. NGET/NGG submitted that cross-checks proposed by other stakeholders support a markedly higher upper bound for the cost of equity than the other cross-checks that GEMA had selected and suggested estimates

809 NERA (SPT), Expert report, section 5.3.
810 Oxera (WWU) Cost of Equity Report, paragraphs A 1.24–A1.32.
811 Cadent NoA, paragraph 4.104.

comfortably above the upper bound from GEMA's Step-1 assessment in the FD of 5.24%. NGET/NGG submitted that by failing to take proper account of the full set of relevant cross-checks, GEMA was left with a censored subset of the possible cross-checks that leads to a downwards-biased assessment of the plausible range. NGET/NGG submitted that GEMA should have considered a DGM check, should have had regard to the long-term profitability of benchmarks and should have had regard to and applied an ARP-DRP cross-check.[812]

c) NGN and SGN submitted a cost of equity report from KPMG, which stated that GEMA had failed to take into account evidence from other cross-checks that support a higher cost of equity, such as fund IRRs based on investors in UK energy companies whose portfolios and investment strategies more closely reflect the underlying risk exposure of energy networks or Oxera's analysis based on the relationship between the ARP and DRP.[813]

d) SPT submitted that GEMA had 'not properly informed itself of the ARP-DRP cross-check data'.[814]

e) SSEN-T submitted that GEMA had failed to properly take into account directly observable market evidence including the asset risk premium versus debt risk premium (ARP-DRP) cross-check, which demonstrated that GEMA's cost of equity estimate was materially lower than market evidence justified.[815] With respect to GEMA's critique on circularity within this cross-check, SSEN-T stated that the ARP-DRP framework places relatively little weight on regulatory precedents and that it was therefore inappropriate for GEMA to attribute the significant gap between the ARP-DRP implied by the FD and those implied by the energy comparators to the selection of regulatory precedents. SSEN-T submitted that the ARP-DRP analysis demonstrates that GEMA's cost of equity remained significantly lower than market evidence justified, which was consistent with the errors Oxera had found in the building blocks for GEMA's cost of equity.[816]

f) WWU submitted a cost of equity report by Oxera, which stated that its ARP−DRP differential cross-check was superior to the cross-checks proposed by GEMA, and can be employed to obtain conservative estimates of the allowed WACC and assess financeability in a way that is

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[812] NGET NoA, paragraphs 3.226–3.281; NGG NoA, paragraphs 3.226–3.281.
[813] KPMG (NGN and SGN) Report 'Estimating Cost of Equity for RIIO-2', paragraph 11.4.1–11.4.10.
[814] SPT Closing Statement, paragraph 14.
[815] SSEN-T NoA, paragraph 4.106(a).
[816] SSEN-T Closing Statement, paragraphs 2.16–2.19.

neutral with respect to the treatment of inflation. Oxera submitted that the ARP−DRP differential implied by the FD allowed return on equity falls significantly below contemporaneous market evidence over the 6-month period prior to the publication date. Specifically, GEMA's midpoint allowance for the FD falls at the 15th percentile of the empirical distribution of market evidence for the six months preceding the publication date of the FD.[817]

Submissions on the impact of GEMA's cross-checks

5.636 The appellants also told us that despite the fact that GEMA had decided not to alter its central estimate of the cost of equity as the result of its cross-checks, the specific cross-checks undertaken had nevertheless had a significant impact on GEMA's confidence that its estimate was appropriate. For example:

a) Cadent submitted that GEMA's Response suggested that GEMA attached considerable importance to its cross-checks in respect of justifying its cost of equity decision, and that GEMA's cross-checks were, therefore, clearly material to the cost of equity decision which GEMA reached and its selection of cross-checks, including in relation to asset type and risk profile, accordingly could not be beyond scrutiny. With respect to the focus on MARs, and the premium paid for WPD in particular, Cadent submitted that analysis by KPMG had shown that it was possible to develop a MAR that explains the premium paid using reasonable assumptions that do not depend on assuming a lower actual cost of equity or on assuming expected outperformance by the sector as a whole.[818]

b) NGET/NGG submitted that despite GEMA stating that the cross-checks did not have a material effect on its decision, and therefore could not give rise to a material error, GEMA also noted that lowering the top of the cost of equity range was 'fundamentally important' and that the cross-checks gave GEMA confidence that its cost of equity was not too low and that GEMA had even acted conservatively (in favour of network companies).[819]

c) NGN submitted that it was difficult to square GEMA's claim that it had a high degree of confidence that its cost of equity estimate was not too low with its statements in numerous other places in its Response that estimating the cost of equity was subject to significant uncertainty with numerous different possible approaches. NGN submitted that GEMA

[817] Oxera (WWU), 'Cost of Equity Report', paragraphs A 1.52–A1.67.
[818] Cadent Reply, paragraphs 92–101.
[819] NGET/NGG Joint Reply, paragraphs 3.20–3.25.

appealed to its cross-checks to support this assertion, but GEMA failed to recognise the deficiencies in these cross-checks, and had disregarded other cross-checks that supported a higher cost of equity.[820]

d) SGN submitted that while GEMA had a 'high degree of confidence' that 4.55% is unlikely to be an underestimate of the 'true' cost of equity, based on market-based cross-checks, noting the indexation of the allowed return of equity – this confidence was misplaced. SGN submitted that GEMA appeared to base its conclusions on its selected cross-checks, but that cross-checks are inherently imperfect comparators. SGN submitted that while potentially helpful to determine whether a given cost of equity estimate lies within the extremes of relevant possibilities, they are not precise enough to derive a point estimate.[821]

e) SSEN-T submitted that GEMA simultaneously sought to attach importance to the cross-checks as a means of reducing the cost of equity range, while at the same time suggesting in its Response that the cross-checks were not material. SSEN-T submitted that since GEMA's Response confirmed that it had clearly placed reliance on its cross-checks to support its inadequate cost of equity estimates it cannot resist scrutiny of its decision on the basis that the cross-checks are not material or significant.[822]

f) SPT submitted that GEMA asserted it had high 'confidence' that it had not underestimated the true cost of equity, and that the basis for this confidence was stated to be its analysis at 'Stage 2', namely its cross-checks. SPT submitted that GEMA's confidence was 'clearly unwarranted'.[823]

g) WWU, in addition to reiterations of previously articulated concerns regarding GEMA's cross-checks, submitted that GEMA had made an error in claiming that the WPD transaction MAR provided firm evidence of the 'joint hypothesis' that either the cost of equity had been overestimated or that investors expected material sector-wide outperformance.[824]

GEMA's submissions

5.637 GEMA submitted that there is inherent uncertainty in estimating CAPM parameters that are not directly observable; therefore it decided early on in

[820] NGN Reply, paragraph 62.
[821] SGN Reply, paragraphs 56–64.
[822] SSEN-T Reply, paragraphs 3.27–3.29.
[823] SPT Reply, paragraphs 24–25.
[824] WWU Reply, paragraphs B6.1–B7.4.

the RIIO-2 process that cross-checks would be a valuable supplement to its CAPM work.[825] GEMA stated that the greater the WACC uncertainty, the more value cross-checks should add, lowering the risk of consumer or investor harm from the risk of misestimation.[826] GEMA submitted that there had been broad support among stakeholders throughout the consultation process for the use of cross-checks to check the CAPM, and provided evidence of how cross-checks had been used and considered through the process.[827]

5.638 GEMA submitted that cross-checks are not a substitute for the calculation of CAPM at Step-1 in GEMA's methodology – rather they are intended to provide a 'sense-check' that the implied cost of equity calculated in Step-1 is in approximately the right range. GEMA submitted that as cross-checks are not intended to be and are never used as primary evidence for the CAPM implied cost of equity, it follows that the measures used for cross-checking may involve different types of asset, which in turn are exposed to different risk profiles and gearing levels – but that such differences do not necessarily deprive the cross-check of any useful value.[828]

5.639 GEMA submitted that no cross-check supported a cost of equity above 5% CPIH-real, and the strongest evidence supported the lower end of the range, with the result that GEMA decided to narrow the range from 3.85% - 5.24% to 3.8% - 5%. This resulted in a mid-point of 4.40%. However, GEMA then increased the implied cost of equity by 0.15%, resulting in a figure of 4.55%. As a result, even if the alleged cross-check errors had any substance, they would not be material and GEMA's decision on the cost of equity remains robust.[829]

5.640 In relation to the approach in the CMA PR19 Redetermination, GEMA noted the CMA's working paper which stated that 'On balance, we remain cautious about using market prices to determine the point estimate for the cost of capital, particularly within the kind of range (maximum 0.2% differential in WACC) that we considered in PFs'.[830] GEMA told us that the case GEMA had made through RIIO-2 for using a full range of cross-checks allowed it to have greater confidence in them than the CMA was able to conclude in that instance.[831]

[825] *Wilde 1 (GEMA),* paragraph 50.
[826] *Wilde 1 (GEMA),* paragraph 29.2.
[827] *McCloskey 1 (GEMA),* paragraphs 15–25.
[828] GEMA Response A, paragraphs 178–181.
[829] GEMA Response A, paragraphs 178–181.
[830] CMA (2021), 'Water Redeterminations 2020 – Choosing a point estimate for the Cost of Capital – Working Paper', paragraph 91.
[831] *Wilde 1 (GEMA),* paragraph 57.

5.641 GEMA also told us that it rejected the appellants' claims and complaints with regard to each of the cross-checks used.

5.642 We summarise each response in turn in the paragraphs below.

Modigliani-Miller cross-check

5.643 At DD, GEMA found that its combined assumptions for risk-free and TMR, common approaches to re-gearing asset betas had the effect of increasing the overall WACC estimate. GEMA noted that the result held, even when using high estimates of debt beta, after accounting for the impact of tax, and when using various re-gearing formulae options. GEMA stated that the overall effect could imply that the cost of capital is approximately 10bps higher for each five percentage point increase in gearing.[832]

5.644 In response to the appellants, GEMA submitted that four appellants raised no objection at all to the cross-check, and that among those who did challenge it, the common theme was to contend that GEMA's approach to gearing (on beta, WACC and Allowed Return on Capital (**AROC**)) is wrong and that this results in an inconsistency with Modigliani-Miller theory. In response, GEMA submitted that:

a) in accepting that the WACC/AROC varies with gearing, GEMA expressly recognised that its model contrasts with the Modigliani-Miller theory. However, this approach to applying Modigliani-Miller theory in the regulatory context, and the approach to gearing, is nevertheless well-established. GEMA submitted that in past cases[833] the CMA has articulated concerns about Modigliani-Miller theory being violated, but it has done so because of the potential for regulators to over-estimate the cost of equity for regulated companies. GEMA submitted that it follows that Modigliani-Miller theory is a useful and meaningful cross-check, which has been used by the CMA in multiple regulatory appeals. GEMA also submitted that its re-gearing of beta from 50% to 60% is in accordance with common practice, notwithstanding that it results in a breach of Modigliani-Miller theory and a risk of over-remuneration (to the benefit of the appellants).[834]

b) GEMA's approach to gearing derives support from work undertaken by Oxera, one of the advisers to the appellants. GEMA submitted that Oxera's report uses alternative values for RFR, TMR and the cost of debt

[832] GEMA DD – Finance Annex, paragraph 3.70.
[833] GEMA referenced *Bristol Water* (2010), *Heathrow Airport Ltd and Gatwick Airport Ltd* (2007), *NATS* and CMA PR19 Provisional Findings.
[834] GEMA Response A, paragraphs 195–200.

(namely, spot rates rather than embedded debt) but ultimately the conclusion is the same: the WACC does not remain constant across gearing levels and, furthermore, Oxera concludes that there is an increase in the WACC/AROC (of 7bps for National Grid) between observed and notional gearing.[835]

c) the Modigliani-Miller cross-check is of particular relevance and utility in the present context given that it applies directly to, and is built upon, data from listed energy network companies. GEMA submitted that it uses data about the risk profiles of the relevant energy network companies rather than requiring major assumptions to be made about risk. GEMA submitted that the fewer the assumptions made about risk, the more objective the evidence that the cross-check is capable of providing.[836]

d) while the appellants object to the Modigliani-Miller cross-check failing to capture risk adequately, GEMA's view is that it was unnecessary for it to make any adjustments in this regard. GEMA submitted that the relevant risk has been captured because the Modigliani-Miller cross-check is applied directly using the publicly traded network companies (including National Grid) alongside different debt beta estimates. GEMA submitted that the fact that the appellants take issue with the debt beta repeats arguments in relation to Step-1 of GEMA's CAPM methodology, and does not address any flaw in the utility or relevance of the evidence used in the Modigliani-Miller cross-check itself.[837]

Market-to-asset ratio cross-check

5.645 GEMA submitted that it agreed that MARs are not perfect because of the need to make assumptions on behalf of the purchasing investor. GEMA submitted that MAR evidence does not necessarily require analytical assumptions to be made, and as such can provide a powerful directional cross-check. GEMA submitted that in its most simple form, a sustained MAR above 1.0 indicates that investors expect returns to exceed their costs – and that no analysis is necessary to obtain a simple directional indication. GEMA submitted that its conclusion was that 'MARs for the UK utility stocks is a strong piece of evidence', and that nothing in the appellants' arguments establishes that GEMA was wrong to take the view it did.[838]

[835] GEMA Response A, paragraph 201.
[836] GEMA Response A, paragraph 202.
[837] GEMA Response A, paragraphs 203–204.
[838] GEMA Response A, paragraphs 205–217.

5.646 GEMA submitted that assets of utility companies are sold at a premium, and that premium is significant – and that this point was illustrated by National Grid's recent announcement to purchase WPD. GEMA submitted that National Grid's own analysis confirms the purchase of WPD reflects a 61% premium, ie WPD was purchased for approximately 161% of its RAV. GEMA submitted that whatever uncertainties exist in MAR data, they undoubtedly support GEMA's view that there is strong evidence showing that assets of utility companies are sold at a premium, and that the premium is significant.[839]

5.647 GEMA noted that the WPD purchase was announced after the allowed cost of capital in GEMA's RIIO-2 FD had been announced. GEMA stated that had the information relating to the WPD purchase been available to it, GEMA would have given considerable weight to this evidence in supporting the decision to set the cost of equity at 4.55% and the RAR at 4.3%.[840]

5.648 GEMA drew the CMA's attention to the fact that the MAR values being discussed were typically quoted in reference to premiums to Enterprise Value (**EV**), and that on the assumption that there would be little to no premium paid on debt within the capital structure, such EV premiums suggested materially higher premiums were being paid on the equity values of the target companies.[841] GEMA noted, for example, that in the case of transaction involving Pennon purchasing Bristol Water plc (**Bristol Water**) at 1.4x RAV – this equated to paying twice the regulatory equity.[842] In addition, GEMA highlighted that there was a direct relationship between MARs, the cost of equity and expected outperformance, and that, for any given MAR level, a higher assumed cost of equity must also require an assumed higher expectation of outperformance.[843]

OFTO-implied equity IRRs

5.649 GEMA submitted that it recognised that returns on investor bids could reflect elements other than the cost of equity – but that, in practice, and drawing on its experience as the regulator responsible for managing the competitive tender process, GEMA considered that elements such as tax structures, expected outperformance, and revenues after the contracted period, are unlikely to have a material impact. GEMA submitted that in light of its

[839] GEMA Response A, paragraphs 205–217.
[840] GEMA Response A, paragraphs 205–217.
[841] Cost of Equity/Outperformance Wedge Overflow Joint Hearing, 28 June 2021, page 30, lines 14–21.
[842] Cost of Equity Joint Hearing, 21 June 2021, page 156, lines 10–12.
[843] GEMA 'Main Hearing Equity Opening Statement' slides for its Main Hearing on 9 July 2021, slide 4.

experience of the tendering process, its view that returns on OFTO bids could provide it with useful evidence was a reasonable regulatory judgement.[844]

5.650 GEMA submitted that it observed that there are differences in risk and cites the generally accepted proposition that higher levels of leverage increase expected equity returns, and draws a reasonable inference that the former will be counteracted by the latter to a certain extent. GEMA submitted that the appellants had not sought to provide any evidence that suggests GEMA was wrong to draw that inference.[845]

5.651 With regard to the non-public nature of the data, GEMA submitted that it had consulted on this issue, sharing an appropriate level of information with network companies and other stakeholders, while having regard to the need to protect sensitive information received in the tendering process. With regard to time horizon, GEMA submitted that it considered that, since OFTO investments are long-horizon in nature and therefore not dissimilar to RIIO-2 investments and the values derived from OFTO data have been stable for almost five years, that this data could be used consistently with its overall approach.[846]

Infrastructure fund cross-check

5.652 GEMA submitted that the discount rates that it used in this cross-check are all from published fund accounts, which are subject to common accounting rules including International Financial Reporting Standards Number 10. GEMA submitted that the appellants (specifically NGET/NGG) had not shown that GEMA's approach was materially affected by differences in the basis of the fund discount rates. GEMA submitted that any differences between the concepts used by individual funds would have no material impact on GEMA's interpretation of this cross-check.[847]

5.653 GEMA submitted that it had provided verifiable sources for the discount rates it used. GEMA noted that in its SSMD, an annex was provided giving additional detail on the infrastructure fund discount rates used in the cross-check. GEMA submitted that the discount rates used were all from verifiable public sources, and that Cadent's own adviser (KPMG) had provided a review of the discount rates used, as shown in GEMA's SSMD.[848]

[844] GEMA Response A, paragraphs 218–224.
[845] GEMA Response A, paragraphs 218–224.
[846] GEMA Response A, paragraphs 218–224.
[847] GEMA Response A, paragraphs 225–231.
[848] GEMA Response A, paragraphs 225–231.

5.654 GEMA submitted that the existence of risk differences between energy network companies and infrastructure funds does not necessarily mean that systematic risk will be materially different. GEMA also submitted that it was a reasonable and lawful use of GEMA's regulatory discretion to make use of discount data from infrastructure funds. GEMA submitted that it had noted the different asset and risk characteristics of these funds, but identified discount rates and the premium to NAV as potentially useful sources of data for cross-checking its cost of equity figure, in particular that the combined value of the funds is approximately £20 billion as at 31 March 2020, signalling strong investor appetite for infrastructure investments.[849]

Investment manager TMR cross-check

5.655 GEMA submitted that the appellants accept that utility may be derived from this cross-check, but that they 'simply favour its selective use'. GEMA submitted that there is no basis for GEMA to exercise its regulatory judgement in such a selective way either as a matter of economic or finance theory, or given its obligations to balance the interests of all consumers fairly.[850]

5.656 With regard to specific criticisms, GEMA submitted that:

a) it was 'alive' to the fact that this is, primarily, a TMR cross-check and that it had conducted two distinct cross-checks, one for TMR and one for cost of equity. GEMA submitted that in the cost of equity check it had it used an equity beta of 0.9 so as to remain independent of its own beta (using values in line with the appellants' submissions) and TMR estimates.

b) it had addressed the network companies' concerns about the reliability of investment manager data during consultation, finding them not to be 'supported by tangible evidence'.

c) the December 2019 data cut off would not have had any material impact. GEMA also submitted that excluding Schroders did not materially impact the result of the cross-check.

d) GEMA recognised expressly that investment manager forecasts suffer from the drawback that estimates can quickly change, but did not view this as fatal to the cross-check supporting a reasonable inference of 5% at the high end of the cost of equity range. GEMA also submitted that adopting this cross-check was not inconsistent with GEMA's approach to calculating the cost of capital with a 'long-horizon approach', that

[849] GEMA Response A, paragraphs 225–231.
[850] GEMA Response A, paragraphs 233–234.

investment managers' TMR forecasts data is used as a cross-check, and not primary evidence and that, in any case, both are long horizon of 10-20 years.[851]

5.657 GEMA also submitted in relation to the cross-checks that it had chosen not to use in its determination. GEMA submitted that:

a) The DDM and DGM suggested by the appellants had been considered, but were dismissed by GEMA as they are highly subjective.

b) With regard to evidence of companies' long-term profitability, the use of data on past profitability defeats the purpose of a price control. GEMA submitted that it would embed out- or under-performance into baseline returns risking a double count – and that no reasonable regulator would take such an approach.

c) With regard to the ARP-DRP cross-check, GEMA did consider this possibility at SSMD, DD and FD. GEMA submitted that it remains unclear to GEMA the extent to which ARP-DRP would produce a materially different implied cost of equity. GEMA submitted that its concern with this cross-check is that it relies upon figures generated from regulatory precedent. GEMA submitted that it was reasonable for a regulator setting price controls for today and the next five years not to rely exclusively on regulatory precedent from ten years earlier, and that the decision to exclude ARP-DRP evidence as a cross-check was a question of regulatory judgement.[852]

5.658 With regard to the materiality and role of cross-checks, GEMA submitted that to the extent that any cross-check errors are established, they were not material, and that its decision was therefore not 'wrong' under either the EA or GA. GEMA submitted that this is because:

a) Cross-checks do not constitute primary evidence and GEMA has not treated them as such, and as a result of this methodological limitation there was no room for cross-checks to have a material effect on a decision so as to render it wrong; and

b) GEMA's cross-check evidence led it to reduce the upper boundary of the range for cost of equity from 5.24% to 5%. GEMA submitted that this 0.24% reduction was in large part set off by GEMA raising the cost of equity by 0.15% above the mid-point of the cross-check range, and that

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[851] GEMA Response A, paragraphs 232–238.
[852] GEMA Response A, paragraphs 239–243.

any weight GEMA gave to the cross-checks in adjusting the upper end of the range was in practice rendered immaterial by the 0.15% uplift.[853]

Interveners' submissions

Citizens Advice

5.659 Citizens Advice submitted that the recent proposed purchase price for WPD by National Grid implied a premium of at least 60% to RAV. Citizen Advice submitted that such a premium was in full knowledge that GEMA had said that the financial methodology for the next electricity distribution price control, after RIIO-2, would be similar to the other RIIO-2 settlements being appealed here.[854]

5.660 Citizens Advice submitted that this is clear evidence that there is a continued strong appetite for regulated assets of this type, and that such a large purchase premium for one of the energy network companies itself strongly confirms that the cost of equity has been set too high by GEMA.[855]

BGT

5.661 BGT told us the cross-checks used by GEMA were consulted on, with the industry responding to GEMA's proposals. BGT told us that it 'certainly was in favour of the cross-checks that were proposed'. BGT also noted that GEMA's approach to interrogating the CAPM parameters with cross-checks was a 'step in the right direction'.[856]

Third party submissions

Ofwat

5.662 Ofwat submitted that it considered cross-checks should be used to inform the judgement on the overall cost of equity, including taking account of evidence from transactions and the traded value of regulated companies (after adjusting for expected cost, service and financing performance). Ofwat submitted that setting an allowed return significantly above the level that the market indicates as reasonable for the period of the price control would be inconsistent with a regulator's application of its duty to protect the interests of consumers.[857]

[853] GEMA Response A, paragraphs 244–250.
[854] Citizen Advice Intervention Notice, paragraph 12.
[855] Citizen Advice Intervention Notice, paragraph 12.
[856] BGT Hearing Transcript, 7 July 2021, page 24, line 16–page 25, line 5.
[857] Ofwat response to the CMA request under Rule 14.4(e), paragraph 13.

Alleged cross-check errors – our provisional assessment

5.663 In making our assessment of cross-checks, we considered:

a) whether GEMA's use of its stated cross-checks was appropriate in isolation; and

b) whether fuller consideration of alternative cross-checks would have led GEMA to a materially different conclusion.

Was GEMA's selection of cross-checks appropriate?

5.664 GEMA presented evidence, summarised in

5.665 Table 5-4, that it had considered the following cross-checks at DD (presented with the corresponding CPIH-real estimate of the implied cost of equity):

Table 5-4: GEMA's Cross-Checks with Implied Required Returns to Equity

Cross-Check	*Implied CPIH-Real Required Return to Equity*
Modigliani-Miller	3.2% to 4.1%
MAR	≤ 4.2%
Unadjusted OFTO	4.9%
Unadjusted Investment Managers TMR	5.0%
Unadjusted Infrastructure Fund	4.2%
CAPM with 0.9 equity beta an investment manager TMR	4.3%

Source: GEMA DD – Finance Annex, Table 24

5.666 In its FD, GEMA noted that equity returns above 5% were not supported by any of the six cross-checks, while the bottom end of its CAPM-based range was better supported, with three approaches suggesting required returns at or below 4.2%. GEMA stated that this indicated a 'Step-2' range of 3.8%-5.0%, but, unlike the approach taken in the DD, GEMA decided to maintain the cost of equity estimate as the midpoint of the Step-1 range, 4.55% rather than move to the midpoint of its Step-2 range, 4.40%.[858]

5.667 In assessing whether GEMA's chosen cross-checks were appropriate, we first observed that GEMA's cross-checks included two approaches that suggested a higher cost of equity. While not conclusive proof that GEMA's cross-check range was as balanced as possible, the presence of checks that sit above and below GEMA's Step-1 estimates go some way to mitigate the appellants' concerns that GEMA had deployed a materially skewed body of evidence in

[858] GEMA FD Finance Annex, paragraph 3.121.

its cross-check process. In the paragraphs below, we considered in broad terms the efficacy of the checks used by GEMA.

5.668 In line with the opinion expressed by GEMA, we did not think that any single cross-check could accurately define whether an estimate of the cost of equity is indisputably right or wrong. The required cost of equity for the price control is unknowable and may vary significantly between individual investors or types of investor. A regulator must do its best to assess, with the information available, whether in its judgement its estimated cost of equity allowance is likely to be suitable over the period of the price control.

5.669 As such, we did not believe that a forensic assessment of the pros and cons of each cross-check used by GEMA was appropriate or necessary. While obviously undesirable, we were not convinced that technical deficiencies in any individual cross-check would, on its own, constitute a material error on the part of GEMA. More important to the setting of an appropriate cost of equity allowance is that GEMA did not unduly rely on one or a small number of specific methodologies to the exclusion of other reasonable approaches and/or place undue weight upon methodologies that were clearly unsound. In the following paragraphs we make some limited comments about our assessment of the validity of the cross-checks used, before making an 'in the round' assessment of GEMA's approach.

- *Modigliani-Miller cross-check*

5.670 In relation to the Modigliani-Miller cross-check, GEMA correctly observed that the issue of WACC strictly rising with gearing had been noted by the CMA in previous cases, including in *NATS*[859] and the CMA PR19 Redetermination.[860] The appellants contested GEMA's use of this check, including the assumptions used for debt beta and the model's incompatibility with the regulatory concept of embedded debt.

5.671 While we noted the appellants' challenges to the way GEMA calculated the implied range for the cost of equity from the Modigliani-Miller cross-check, we also noted that they had not provided sufficiently persuasive evidence against GEMA's starting position that this cross-check would suggest that the data could support a number below 4.55%. Specifically, we noted that the cross-check is likely to work best when an effective 'new debt' cost is used to represent all debt (in an attempt to price equity and debt on a more consistent 'current' basis). However, as noted by GEMA, SSEN-T and WWU economic

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[859] *NATS* – Final Report, Appendix D.
[860] CMA PR19 Final Determination, paragraph 9.1214.

advisers, Oxera, had presented analysis of this cross-check adjusted for exactly this issue. Oxera's analysis used its preferred 'current' cost of all debt, as well as its preferred metrics for the RFR, the debt beta and the TMR. Even with the free use of Oxera's preferred metrics, the output presented in Table A1.2 of the Oxera cost of equity report suggested that WACC does rise with gearing at every company measured. Oxera's data did suggest lower upward pressure on WACC as the result of regearing, ranging from 2bps to 13bps depending on the company and timeframe of measurement.[861]

5.672 As a result, we provisionally assessed that the parties to this appeal may legitimately disagree about the best calibration of the Modigliani-Miller test, and the resultant implied overestimation of a re-geared CAPM estimate. However, the implication of the evidence presented to us appears common ground – that regearing does put upward pressure on the implied required return on equity in a way that is inconsistent with the Modigliani-Miller theorem. As a result, we provisionally found that GEMA's use of this cross-check was reasonable and provided useful evidence suggesting that GEMA's re-geared CAPM-based estimate of 4.55% for the notional company is at least high enough, and that some lower number than this could be justified by applying the actual gearing of the companies used in the beta assessment, which would be more consistent with the Modigliani-Miller theorem.

- *MARs cross-check*

5.673 MARs received significant attention during this appeal process as the result of recent asset purchases by publicly listed UK utilities involving the payment of significant premiums over RAV, namely National Grid's purchase of WPD in the energy sector and Pennon's purchase of Bristol Water in the water sector.

5.674 The appellants argued that the purchase price of entire assets or companies is subject to a wide range of assumptions and influencing factors, including the funding costs of the acquirer, the expected operational and financial outperformance, the potential for synergies and, ultimately the potential for buyers to overpay in competitive bidding processes – often termed the 'winner's curse'. The appellants pointed to the premiums of listed utility companies such as National Grid, Severn Trent and United Utilities, noting that listed MAR premiums have at times been negative, had generally been significantly lower than those seen in individual transactions, and could readily be explained by factors such as expected growth and/or financial and operational outperformance.

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[861] Oxera (WWU), 'Cost of Equity Report', paragraphs A1.6–A1.12.

5.675 In our assessment, we acknowledged the appellants' arguments about the large range of factors that can influence MARs (see KPMG comments at paragraph 5.631).

5.676 KPMG also gave additional criteria to consider when assessing private transactions, including:

a) That private transactions may not represent a continuous, efficient or liquid market with perfect competition;

b) That MARs from private transactions reflect the highest premium that one investor is willing to pay;

c) That MARs from private transactions represent private not common views of the future;

d) Potential differences between hurdle rates and allowed rates of return are not the only driver of value, and the potential for the 'winner's curse';

e) Additional sources of value may have different risk profiles and may boost valuations; and

f) Price dynamics in public markets typically reflect marginal transactions on small investments in a selective, non-representative group of listed utilities.[862]

5.677 More specifically in relation to National Grid's purchase of WPD at a MAR of 1.61, NGET/NGG submitted a report from its economic advisers, Frontier Economics, that attempted to provide a rationalisation for such a premium other than the allowed return being too high. Frontier Economics' report stated that:

a) Adjustments based on the premium received in the associated sale of the Rhode Island asset lessened the MAR on the WPD purchase to 1.40; and

b) Adjustments based on selling NGG at a 20% premium to RAV lessen the MAR on the WPD purchase to 1.25.[863]

Frontier Economics then applied possible scenarios, including:

[862] KPMG (NGN and SGN) report, 'Estimating Cost of Equity for RIIO-GD2', paragraph 11.3.27.
[863] Frontier Economics (NGET/NGG) Report 'Reply to GEMA Response to RIIO-2 Appeals', paragraph 9.6.2.

(i) Adjustments based on the assumption that the current appeal will allow investors to earn a cost of equity between 4.8% and 5.6% (rather than the 4.3% in GEMA's RIIO-2 FD);

(ii) 2.0% to 2.5% outperformance by WPD 'going forward'; and

(iii) Real RAV growth of 2.5%.[864]

5.678 As a result, Frontier Economics inferred a very wide range of possible underlying 'true' cost of equity values, ranging from 4.20% to 5.94%, and noted that it considered that this demonstrated the difficulty of trying to infer cost of equity from transaction premia.[865]

5.679 In contrast, GEMA told us that it considered high MAR premiums as strong evidence that the allowed returns in the sector were not too low, and pointed to the fact that the implied premiums to equity from such transactions were significantly larger than suggested by reporting of the EV premiums alone. We also noted that Citizens Advice took a stronger view on this issue, suggesting that such high MARs were evidence that GEMA's cost of equity allowance was too high.

5.680 GEMA submitted evidence suggesting that in order to justify a MAR premium of 'approximately 60%',[866] investors would have to assume (based on an allowed return on equity of 4.3%) expected outperformance of 2% 'into perpetuity' and real RAV growth of 2.5% - which would imply the real asset base doubling by 2050 – and have an actual real cost of equity of 4.0%. GEMA noted that these assumptions were at the higher end of credible ranges, and that if these assumptions were reduced, this would imply an actual real cost of equity lower than 4.0%.[867] GEMA also offered a theoretical 'losing bid' set of assumptions based on a MAR of 1.4 times, suggesting that this would involve expected outperformance of 1.5%, real growth of 2.5% and an actual real cost of equity of 4.15%.[868,869]

5.681 In making our assessment of the MARs cross-check, we agreed that it is difficult to use MARs to accurately infer small adjustments to a CAPM-based

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[864] Frontier Economics (NGET/NGG) Report 'Reply to GEMA Response to RIIO-2 Appeals', paragraph 9.6.3–9.6.5.
[865] Frontier Economics (NGET/NGG) Report 'Reply to GEMA Response to RIIO-2 Appeals', paragraph 9.6.6–9.6.9.
[866] Versus the 61% premium quoted by GEMA in relation to the National Grid– WPD transaction at paragraph 5.646.
[867] *McCloskey 1 (GEMA),* paragraphs 77–79.
[868] *McCloskey 1 (GEMA),* paragraphs 80.
[869] GEMA also provided 3 industry articles which GEMA suggested demonstrated 'the strength and diversity of interest among both financial investors and trade buyers for WPD' and that 'Since each consortium was prepared to pay at least £8bn for WPD, GEMA considers this strongly supports Mr Wilde's statement at the clarification hearing that over £30bn of capital (including the winning bidder) was mobilised for the WPD transaction'.

estimate of the cost of equity. Additionally, we noted that MARs at publicly listed companies do tend to be lower than those seen in recent asset purchases. However, we disagreed with the argument that the large range of influencing factors mean that MARs cannot be used to make any inferences about the broad appetite for equity investment at the allowed returns recently offered in regulated utility sectors.

5.682 Taking the recent transactions involving Bristol Water and WPD as an example, we noted that only some of KPMG's 'complicating' factors should reasonably apply. For industrial buyers operating in the same regulated sector, as is the case in both of these transactions, it would seem irrational to assume a significantly different 'view of the world' in order to justify a higher premium. In these cases, past outperformance levels of the purchased companies have varied, there are no sizeable unregulated activities to complicate the analysis and we saw no reason why expectations of allowances in future controls should justify a materially different view of the value of the assets. Specifically, with regard to expectations of growth, we noted that this should only create positive value if allowed returns are higher than required returns. As a result, KPMG's explanation of premiums (when applied to these examples) appeared to rest on various versions of 'private values' associated with synergies, scarce assets or overpayment (the 'winner's curse'). Of these, synergies appeared to be the most relevant consideration. However, in an asset heavy utility where the bulk of costs relate to operating activities we would not expect such savings to be, in isolation, material enough to justify the large premiums that have been paid. It was our opinion that a buyer's expression of private values could reasonably be interpreted as including a view on whether the regulator's allowed return is sufficient. Put an alternative way, we would have to give weight to a significant amount of 'other' justifications to conclude that the purchasers in these transactions had made no assumptions about either expected outperformance or the sufficiency of the allowed return on equity.

5.683 Turning to the Frontier Economics' analysis of the potential explanations of the premium paid for WPD, we again disagreed with the view that a regulator cannot infer anything from a significant MAR premium. On the basis of Frontier Economics' analysis, in order to conclude that the premium paid does not reflect allowed return that are already too high (and/or that there is no assumed outperformance), we must assume (in combination) that another (linked) transaction occurs at 2 times of regulated assets, that National Grid's gas assets are sold at a 20% premium,[870] that companies achieve significant real asset growth and that investors are already factoring in a materially higher allowed return on equity as a result of this appeal.

5.684 More broadly, the appellants had argued that RIIO-2 presented a 'tough' package in the round - specifically that they faced difficult ongoing efficiency challenges and that the scope for outperformance had been significantly reduced in RIIO-2 relative to previous price controls.[871] We noted, however, that the two most recent large premium transactions had occurred after the announcement of the respective price control regimes (RIIO-2 in the case of National Grid buying WPD and the CMA PR19 Redetermination in the case of Pennon buying Bristol Water). This made it even more difficult to accept the appellants' assessment that large MAR premiums can be justified by assumptions other than higher than required allowed returns or lengthy and consistent expected outperformance.

5.685 In our view, GEMA's assessment appeared significantly more likely to be consistent with the evidence. While there would be the potential for both synergies and overpayment in private M&A transactions, the bulk of 'justifiable' premium would seem to be explained by a combination of assumptions about expected outperformance and differences between allowed and required returns on equity. This would seem to match with a reasonably consistent pattern of listed company premiums (although at significantly lower levels than those seen in the recent large 'whole asset' transactions). GEMA's assessment that significant MAR premiums provide supportive cross-check evidence that the allowed return is not too low seemed to match the available evidence.

5.686 We disagreed with the appellants that little to no inference could be taken from MAR premiums, and concluded that GEMA was not wrong to use MAR evidence as a cross-check to its cost of equity estimate. We also agreed with GEMA's assessment that the MAR evidence available suggests that GEMA's allowed return on equity is not too low.

- *OFTO, investment manager and infrastructure fund cross-checks*

5.687 The appellants raised questions about the nature and usefulness of GEMA's remaining cross-checks (including the final 'hybrid' cross-check). A common theme to the concerns about these cross-checks was variations on 'basis

[870] Note: While National Grid has announced its intention to dispose of a majority stake in its UK gas transmissions and metering business, at the time of writing there is no available evidence on the pricing of this disposal. For further details, see the National Grid website here.
[871] See paragraphs 6.27–6.29.

risk'; in other words, that these cross-checks are based on different risk and reward assumptions than are applicable to energy networks, or that there are outside influences on these cross-checks (such as the regulatory influence on investment manager forecasts) that mean they cannot be compared to energy network returns on a comparable basis. The appellants also raised concerns about the private or opaque nature of the data in some of these cross-checks, which may invalidate their use.

5.688 GEMA had defended its use of these cross-checks, while admitting that risk and reward profiles are unavoidably not identical to those faced in by the energy networks.

5.689 We broadly agreed with the appellants that risks and data issues may limit the use of some of these cross-checks. In the case of OFTOs, we agreed with the appellants that the OFTO regime is different to that faced by the energy networks. Conversely, we agreed with GEMA that (on the basis that there are no perfect cross-checks) it is potentially useful to assess the returns required in different parts of the same sector – as long as it is accepted that the interpretation of this check must be broad. On balance, we concluded that OFTOs returns could be expected to provide useful cross-check evidence, and noted that the implied returns of 4.9% from this cross-check forms part of the body of evidence that would support a cost of equity higher than GEMA's 4.55% estimate. In the case of investment manager forecasts and infrastructure fund discount rates, it would seem to be rational to check that a CAPM-based estimate is sensible in comparison to market-derived investor expectations, again as long as the results of this check form part of a broader body of evidence.

5.690 We also noted that, even if our concerns were sufficient to completely disregard GEMA's evidence from these specific checks, this would appear to remove the two cross-checks which supported a number higher than GEMA's CAPM-based estimate (OFTOs and investment manager forecasts), while leaving the low end of GEMA's the cross-check range unchanged. As a result, we provisionally concluded that the appellants had not provided sufficient evidence that GEMA's inclusion of these cross-checks led to or inappropriately supported GEMA's CAPM-based estimate of 4.55%.

5.691 In summary, we provisionally concluded that the appellants had not provided evidence that the cross-checks used by GEMA were outside its margin of appreciation. We next considered whether the inclusion of other cross-checks was required, and whether this would have led to a different assessment of whether GEMA's 4.55% estimate was wrong.

Would fuller consideration of alternative cross-checks have led GEMA to a materially different conclusion?

5.692 We were not convinced that the appellants' suggestions for alternative cross-checks provided convincing additional evidence to support their case that GEMA set the cost of equity too low for three main reasons:

a) First, we received no sufficiently persuasive evidence that the suggested alternative cross-checks provide a materially more accurate picture of the cost of equity. We viewed all cross-checks as supporting evidence rather than primary data and acknowledged that each approach has pros and cons. It was our opinion that none of the cross-checks suggested by the appellants was sufficiently strong to be granted superior status in this process. With specific reference to Oxera's ARP-DRP cross-check, our position was consistent with that expressed in the CMA PR19 Redetermination[872] and broadly in line with the view expressed by GEMA in paragraph 5.657c), that the assumptions required to estimate the ARP to DRP differential mean that it provides one useful perspective and is a check that may have suggested a higher cost of equity was justifiable. However, while the inclusion of the result from this test would add weight to evidence for a cost of equity above GEMA's estimate, it would not override the cross-check evidence that suggests that an acceptable cost of equity could sit below GEMA's estimate. We did not consider that the ARP-DRP cross-checks have been proven to be superior or to provide sufficiently persuasive insight that would negate other CAPM and cross-check evidence.

b) Second, none of the suggested alternative cross-checks had been consistently used by other regulators such that GEMA's failure to include them would be considered an inappropriate omission.

c) Third, even if we were to conclude that GEMA should have included all cross-checks that have been suggested by the appellants, and to assume that all of those cross-checks suggested a cost of equity that was higher than 4.55%, our broad acceptance of the suitability of the Modigliani-Miller and MARs cross-checks (which suggest that an appropriate cost of equity could be lower than GEMA's estimate of 4.55%) meant that GEMA would still have been well within its margin of appreciation to conclude that 4.55% was supported by the wider range of cross-checks.

[872] CMA PR19 Redetermination, paragraph 9.1386.

5.693 As a result, we provisionally concluded that the appellants had not provided convincing evidence that the consideration of alternative cross-checks would have led GEMA to a materially different conclusion. Combined with the assessment in paragraph 5.691, we provisionally determined that GEMA did not err in its use of cross-checks when setting its cost of equity allowance.

Alleged cross-check errors - Response to the provisional determination

Appellant submissions

5.694 The appellants disagreed with the CMA's provisional conclusions relating to GEMA's use of cross-checks, stating that the CMA had carried out a superficial assessment of whether GEMA adopted a balanced approach to the cross-checks. The appellants stated that they had presented evidence to the CMA that showed the cross-checks used by GEMA were unreliable, and that it was clear from the presentation of GEMA's cross-checks by the CMA that these errors and omissions have not been corrected for. The appellants submitted that the CMA's assessment of the cross-checks conducted by GEMA also failed to have proper regard to and give appropriate weight to the appellants' fundamental challenge, which is that they were selectively chosen and all designed to produce a lower result.[873]

5.695 Some appellants told us that it was wrong to rely on market cross-checks to dismiss the 'in the round' error. For example, SSEN-T told us that the CMA had only superficially assessed whether GEMA had adopted a balanced approach to cross-checks, and that it was clear that the presentation of GEMA's cross-checks by the CMA were unadjusted for the errors and omissions identified by the appellants.[874] Cadent told us that cross-checks were inherently imperfect and that GEMA's checks resulted in a wide range of cost of equity estimates, particularly when combined with other cross-checks such as the ARP-DRP. Cadent submitted that it was therefore not possible to conclude that the cost of equity was not wrong in the round purely on the basis of cross-checks.[875]

5.696 In the following paragraphs, we collate the appellants' views on the individual cross-checks.

[873] Appellants Joint Response to PD on Ground A, pages 7–8.
[874] SSEN-T Response to PD, paragraph 2.123. See also WWU Response to PD, paragraph B1.3.
[875] Cadent Response to PD, paragraphs 11.68–11.70.

- *Modigliani-Miller cross-check*

5.697 Several appellants submitted that they disagreed with the provisional determination assessment of the Modigliani-Miller cross-check, suggesting that the CMA's interpretation was either incorrect or incomplete. For example:

a) Cadent, NGN and SGN submitted that, contrary to the CMA's view, the most logical (or at the very least an equally reasonable) conclusion to be drawn, when an upward sloping WACC accompanies a change in gearing, is that there has been a miscalibration of the input parameters. In support, Cadent, SGN and NGN submitted evidence of the combination of CAPM parameters that would allow a WACC that was invariant to gearing, and suggested that this illustrated that an alternative conclusion to the provisional determination that may be drawn is that GEMA's input parameters are mis-calibrated.[876] [877] [878] NGN submitted that, as a result, this cross-check could not be used to provide support for a specific cost of equity point estimate, and certainly not to support GEMA's cross-check point estimate of 4.2%.[879]

b) NGET/NGG submitted that the CMA had failed to reflect appropriately the analysis presented by Oxera in its expert report, and that the Modigliani-Miller cross-check should not be considered a cross-check of the CAPM-estimated cost of equity at the assumed notional gearing at all. NGET/NGG submitted that to the extent that the CAPM parameters were themselves underestimated, this cross-check is necessarily flawed as it is self-referential.[880]

c) SPT repeated that GEMA's check was circular, and that material errors in the CAPM parameters meant that the Modigliani-Miller cross-check was of 'no evidential value'.[881]

d) SSEN-T submitted that although the Modigliani-Miller model predicts that WACC should not change with gearing, calibrating the model will always involve some measurement error. SSEN-T stated that empirical implementation of this cross-check will almost always suggest some upward or downward pressure on WACC as a result of gearing, and that

[876] Cadent Response to PD, paragraphs 11.77–11.82.
[877] NGN Response to PD, paragraphs 93–96.
[878] SGN Response to PD, paragraphs 86–88.
[879] NGN Response to PD, paragraph 96.
[880] NGET/NGG Response to PD, page 41.
[881] SPT Response to PD, paragraph 93.

the CMA cannot conclude that ‘GEMA’s re-geared CAPM-based estimate of 4.55% for the notional company is at least high enough.’ [882,883]

- *MAR cross-check*

5.698 The appellants told us that they disagreed with the CMA’s interpretation of MAR data and the provisional determination conclusion that the MAR evidence available suggests that GEMA’s allowed return on equity was not too low. For example:

a) Cadent told us that transaction premia reflect assumptions on areas such as synergies and operational outperformance, and that these assumptions are not riskless or granted by the regime. Cadent noted that the fact that a number of transactions have taken place following the conclusion of price controls was not unusual, and that transactions normally take place at this point in the regulatory cycle as there is greater visibility of the medium prospects of the company to inform a valuation.[884]

b) NGET/NGG told us that limited weight should be placed on MAR evidence given the difficulties in interpreting such evidence.[885]

c) NGN noted that MARs of less than 1 were unlikely to be observed for several reasons, including:

(i) The presence of non-regulated or affiliate businesses;

(ii) There cannot be diseconomies of scale or negative synergies in same sector transactions; and

(iii) The assumptions of underperformance or a higher cost of equity that would justify a MAR lower than 1 would likely prevent any such deal from occurring.

NGN stated that, as a result, a pattern of MARs in excess of 1 is not therefore informative of the price control being too generous and reiterated that MARs do not reliably indicate whether the cost of equity has been set appropriately for a particular regulated sector.[886]

d) SGN told us that private transactions by their very nature are likely to be even less informative than the MARs on listed stocks. SGN submitted that

[882]See paragraph 5.672 for our provisional conclusion on this matter.
[883] SSEN-T Response to PD, paragraph 2.121 (b). See also WWU Response to PD, paragraph B1.3.
[884] Cadent Response to PD, paragraphs 11.72–11.73
[885] NGET/NGG Response to PD, page 44.
[886] NGN Response to PD, paragraph 97–99.

the fact that the MARs around these transactions have varied significantly (eg 1.4x for Bristol Water and <1.1x for Southern Water) underlined how there are company and transaction specific issues driving the valuations rather than a blanket assumption across the entire sector.[887]

e) SPT submitted that the most relevant evidence to examine are MARs for listed companies, as they provided a continuous, liquid and market-wide view of premia. SPT stated that the fact that premia for listed companies are that much lower provides compelling evidence that recent transactions are substantively affected by factors unrelated to the cost of equity.[888]

f) SSEN-T told us that SSE Group's disposal of their stake in SGN had several commercial factors that materially affected the valuation and that there was no evidence that the valuation of SGN by a purchaser can be used to infer the appropriate level of cost of equity in a price control. SSEN-T stated that it was inappropriate to rely on such uncertain evidence when there is sufficient robust and superior economic evidence that can be relied upon when making decisions on the level of the cost of equity.[889]

- *OFTO, investment manager and infrastructure fund cross-checks*

5.699 Two appellants also disagreed with the provisional determination assessment of OFTO, investment manager and infrastructure cross-checks.

5.700 NGET/NGG submitted that:

a) In relation to infrastructure fund discount rates, NGET/NGG stated that at SSMD, GEMA's cross-check supported a cost of equity estimate of 5.4%, but that for its DD and FD, GEMA chose to substantially expand the set of infrastructure funds used in this cross-check by including a wider set of funds which are less comparable to energy networks - which produced a cost of equity estimate of 4.2%. NGET/NGG submitted that GEMA had provided no explanation as to why its chosen additional funds – which, for example, invest in solar and wind farm projects – were more relevant than other funds proposed by appealing parties which actually have exposure to energy networks. NGET/NGG submitted that the value included in Table 5-4 of the provisional determination for the unadjusted infrastructure fund cross-check was therefore based on GEMA's approach of moving

[887] SGN Response to PD, paragraph 89.
[888] SPT Response to PD, paragraph 96.
[889] SSEN-T Response to PD, paragraph 2.121(c). See also WWU Response to PD, paragraph B1.3.

from relevant, verified data sources to unverified, less relevant, and manipulated values, the effect of which was to change the cross-check from a cost of equity value of 5.4% to 4.2%. Therefore, this cross-check should as a minimum use the earlier figure of 5.4% (real) instead.[890]

b) In relation to investment manager forecasts, NGET/NGG stated that the CMA's PR19 Final Redetermination observed that some practitioner forecasts from the period after March 2020 pointed to significantly higher TMR forecasts (c.6% relative to RPI, therefore c.7% relative to CPI) than the earlier TMR forecasts which GEMA had used (all of which dated from December 2019 or earlier), but that none of these higher values from 2020 were considered by GEMA. NGET/NGG submitted that was a further example of GEMA's selective approach to the evidence, as between SSMD and DD/FD GEMA updated its investment manager forecasts to include values from 2019 in order to show a lower average value, but ignored more recent and higher values from 2020.[891]

c) SSEN-T reiterated that the OFTO-related calculations by GEMA are likely to materially underestimate the expected rates of return revealed by the competitive process of OFTO bids, as they include a zero-terminal value. SSEN-T stated that correcting for this suggests a cost of equity higher than the 4.9% GEMA reports for OFTOs, which it uses to inform the top end of its cross-check range. SSEN-T stated that this was an example of a cross-check that lacked robustness, and when corrected was likely to indicate that OFTO investors expect to earn materially higher returns than the RIIO-2 Cost of Equity.[892]

- *ARP-DRP*

5.701 Several appellants told us that the provisional determination had taken insufficient account of the insight provided by the alternative ARP-DPR cross-check. For example:

a) NGET/NGG submitted that the provisional determination recognised that the ARP-DRP provides one useful perspective and is a check that may have suggested a higher cost of equity was justifiable. However, the provisional determination then provisionally found that the use of the ARP-DRP cross-check would not have been proven to be superior or to provide compelling insight that would negate other CAPM and cross-check evidence. SSEN-T stated that this was not a justifiable reason for

[890] NGET/NGG Response to PD, page 42.
[891] NGET/NGG Response to PD, page 43.
[892] SSEN-T Response to PD, paragraph 2.121(d). See also WWU Response to PD, paragraph B1.3.

GEMA to have adopted a selective approach and excluded the cross-check entirely.[893]

b) SGN noted that the inclusion of the ARP-DRP test with its median estimate of 6.3% would have extended GEMA's cross-check range from 180bps to 310bps.[894]

c) SPT submitted that the CMA had concluded that the ARP-DRP cross-check provides one useful perspective that would support a higher cost of equity than GEMA's FD, and that as a result GEMA was not entitled to discount alternative cross-checks, rather it must take into account all relevant evidence.[895]

d) SSEN-T submitted that the CMA has not adequately considered the robustness of the ARP/DRP cross-check relative to cross-checks advocated by GEMA, nor does the provisional determination explain why it could be appropriate to dismiss the ARP/DRP cross-check entirely (as GEMA did). SSEN-T submitted that Oxera had demonstrated that the ARP/DRP cross-check has strong theoretical underpinning comparable in theoretical foundations to the CAPM, and that it brings additional data from the debt market to bear on the question of the appropriate level of the cost of equity within the CAPM framework. SSEN-T submitted that the CMA had failed to give appropriate weight to the finding that the ARP/DRP differential implied by GEMA's cost of equity determination falls at the 15th percentile of the empirical distribution of market evidence.[896]

- *Financeability as a cross-check*

5.702 Several appellants disagreed with the CMA's provisional determination conclusion as to GEMA's use of financeability as a cross-check on the cost of equity. For example:

a) Cadent submitted that a robust financeability assessment was the essential criterion for cross-checking the cost of equity, as 'financeability' is a necessary but not a sufficient condition for setting the cost of equity. Cadent submitted that such a cross-check demonstrated that the WACC was not high enough to support financeability and that the situation was no different in substance than at the CMA PR19 Redetermination. Cadent stated that projected credit metrics for the notional energy network

893 NGET/NGG Response to PD, paragraph 3.32.
894 SGN Response to PD, paragraph 103(ii).
895 SPT Response to PD, paragraph 100.
896 SSEN-T Response to PD, paragraph 2.121(a). See also WWU Response to PD, paragraph B1.3.

company based on ‘an objective specification of the notional structure’ failed financeability tests with Moody’s AICR and S&P’s FFO/Net Debt ‘clearly below Baa1/BBB+ thresholds’.[897]

b) Cadent also submitted that the use of GEMA’s Step-2 cross-checks did not represent a sufficient condition to secure equity financeability as it is not possible to determine whether a regulated business is able to finance its activities without considering:

(i) its financial position and capital structure;

(ii) projected cashflows and credit metrics; and

(iii) financial headroom available for management of risk.

Cadent stated that a number of these criteria and tests depend directly on the level at which the cost of equity is set and that, as a result, financeability tests represent the necessary condition for setting the cost of equity. Cadent stated that it was an error to assume that financeability tests do not add to the selection of a point estimate for the cost of equity, or that the introduction of new cross-checks can obviate the need to assess whether the cost of equity has been set such that the notional company as a whole can finance its activities.[898]

c) NGN and SGN submitted that GEMA’s application of the financeability cross-check arbitrarily and incorrectly changes the definition of a notional company, and in doing so, masks downward bias of GEMA’s cost of equity point estimate. The appellants submitted that the use of cross-checks on the cost of equity should not negate the importance of financeability as a meaningful cross-check. The appellants stated that market-based cross-checks are inherently incapable of highlighting a material error in the CAPM cost of equity given the very wide range of estimates that they could be seen as being consistent with. The appellants submitted that the cross-checks introduced by GEMA cannot replace the financeability test and that the CMA had, in effect, removed a key cross-check - undermining the predictability and stability of the regime, and increasing regulatory risk for investors.[899] [900]

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[897] Cadent Response to PD, paragraphs 11.84–11.86.
[898] Cadent Response to PD, paragraphs 11.87.
[899] NGN Response to PD, paragraphs 102–103.
[900] SGN Response to PD, paragraphs 91–93.

GEMA and Intervener submissions

5.703 GEMA submitted that it welcomed the important acknowledgement by the CMA that it was presented with evidence ‘that suggests that GEMA’s cost of equity estimate of 4.55% may in fact be higher than required’ based on Modigliani-Miller and MAR cross-checks.[901]

5.704 Citizens Advice submitted that further ‘real-world’ evidence, in the form of recent MAR premiums for WPD, SGN, and Bristol Water had become apparent during the course of the appeals. Citizens Advice stated that these premiums demonstrated that investors continued to pay a large premium for utilities in Great Britain - over and above their RAVs - because they are seen as attractive investments with the prospect of significant financial outperformance. Citizens Advice also stated that there had been a billion-pound investment in Southern Water even when it is demonstrably underperforming and has received record fines. Citizens Advice submitted that it was therefore becoming even less plausible that the financial premiums achieved across an expanding array of regulated companies over an extended period were significantly dependent on just the particular companies involved.[902]

Alleged cross-check errors – our final assessment

5.705 Citizen’s Advice considers that recent high MAR premiums are particularly compelling ‘real world’ evidence that supports the CMA’s view that it is unlikely that such premiums are the result of company-specific factors alone, while the appellants continue to disagree with both GEMA’s use of cross-checks and the CMA’s assessment of GEMA’s checks, calling for more analysis on the correct weight to be applied to each check and for the explicit inclusion of alternative checks such as Oxera’s ARP-DRP exercise.

5.706 In terms of the specific issues raised in response to the provisional determination, we note that the appellants continue to argue that a range of unknowable investor assumptions and company specific factors lead to the MAR premiums that have been paid for regulated assets, including the high premiums paid in the recent transactions involving energy network and water companies. The appellants argue that this makes MARs effectively unusable as a cross-check on the sufficiency of the cost of equity. While we agree with the points raised that a) listed premiums tend to be lower than control-based premiums, b) discounted deals are unlikely to make it to market and c) there are a wide range of assumptions that go in to bid prices, we disagree that this

[901] GEMA Response to PD, paragraphs 29–30.
[902] Citizens Advice Response to PD, paragraphs 4–5.

makes MAR evidence irrelevant. By the appellants' own logic, we would expect a cost of equity allowance that was materially too low to lead to a 'buyers strike' – with no deals evident in the relevant sectors, rather than the series of transactions conducted at significant premiums that has been observed.

5.707 Alternatively, the assumed synergies and 'other' benefits within each of these recent transactions would have needed to be unrealistically high to outweigh cost of equity allowances that were materially too low. This scenario seems particularly unlikely given the 'in sector' nature of recent transactions, where the buyers can be classed as particularly well informed. Our view remains that none of the complicating factors put forward by the appellants conflicts with the CMA's provisional determination assessment 'that the MAR evidence available suggests that GEMA's allowed return on equity is not too low'.[903]

5.708 The appellants have also argued that an alternative calibration of the Modigliani-Miller cross-check using alternative CAPM metrics would also yield a result that complies with the theory that WACC should not rise with gearing, and that as a result the test cannot be used to determine whether the cost of equity is too low. While we agree with the appellants' argument in principle, they have mischaracterised our assessment.

5.709 It is correct that other CAPM metrics could lead to a Modigliani-Miller theorem 'compliant' result. However, this does not suggest that such metrics are appropriate for this price control (the appellants agree with this). However, on the basis (and as we have already determined) that GEMA's individual CAPM metrics are not wrong, the Modigliani-Miller cross-check demonstrates that the process of regearing unlevered beta data is likely to lead to a higher WACC than using raw betas and actual gearing (even once embedded debt is taken into account). The simple implication of this, as expressed in the provisional determination, is that GEMA's process of de-regearing beta likely leads to upward pressure on the cost of equity that is inconsistent with the Modigliani-Miller theorem but advantageous to the appellants.

5.710 In relation to the infrastructure fund discount rates check, GEMA's decision to include the discount rate on funds that also invest in solar and wind farm projects does not appear to be in and of itself an error. If anything, we would expect such projects to have related but higher net risk than those at the energy networks – leading to higher implied costs of equity. In addition, it is not clear that only funds that invest in energy networks would be suitable as a

[903] See paragraph 5.686 for our provisional conclusion on this matter

cross-check – as GEMA may legitimately be keen to assess investor appetite in different elements of its sector.

5.711 In relation to not updating investment manager forecasts for 2020 data, NGET/ NGG is correct that the CMA PR19 Redetermination noted the existence of some updated forecasts. However, at paragraph 9.378 (c) of this Redetermination, the CMA observed that the updated figures from Invesco and JP Morgan related to a mix of large cap and small cap estimates, and that an equally weighted average of the updated estimates suggested a TMR around 6% in RPI-real terms. However, in footnote 2498 of the CMA PR19 Redetermination, the CMA noted that:

> when weighting the large and small cap evidence, we would expect the large cap figures to receive a significantly greater weighting than small caps in line with their greater share of overall market capitalisation. For example, as of the end of January 2021, the FTSE 100 accounted for approximately 79% of the total UK market capitalisation, while the FTSE Small Cap accounted for approximately 13% of the total UK market capitalisation.[904]

On this basis, an estimate which weighed large cap returns more heavily would suggest a figure below 6% (RPI-real).

5.712 Further, and for completeness, in its PR19 Redetermination, the CMA also stated that Ofwat had noted some investment manager forecasts were substantially lower than those used in PR19 – specifically that that Franklin Templeton expected UK equities to achieve an annualised 5.8% nominal return over the next 7 years, and Blackrock predict an annualised nominal return of for UK equities of 5.5% over the next 15 years.[905] GEMA included an estimate of 5.7% from Blackrock, but no estimate from Franklin Templeton.[906] The estimates the GEMA did use can be seen in Figure 5-15.

Figure 5-15: GEMA's May 2020 update of Investment Manager forecasts in comparison to May 2019

Author	*Date*	*Scope*	*Horizon*	*Nominal*	*Date*	*Scope*	*Horizon*	*Nominal*	*Change*
Schroders	Jan-19	UK	30	8.90%	Dec-19	UK	10	4.90%	-4.00%
Blackrock	Dec-18	EU	10	8.50%	Dec-19	UK	10	5.70%	-2.80%
Old Mutual	Dec-18	UK	L/term	7.99%	Dec-19	UK	L/term	7.52%	-0.47%
Nutmeg	Dep-17	UK	10+	7.80%	Not updated			7.80%	NA
FCA	Sep-17	UK	10-15	7.60%	Not updated			7.60%	NA
Aon Hewitt	Jun-18	UK	10	7.40%	Sep-19	UK	10	7.70%	0.30%
Redacted Author	Nov-18	UK	10	7.19%	Not updated			7.19%	NA
Aberdeen	Dec-17	UK	10	6.90%	Dec-19	UK	10	8.60%	1.70%
JP Morgan	Sep-18	UK	L/term	6.57%	Sep-19	UK	L/term	6.90%	0.33%
Willis TW	Dec-18	UK	10	5.24%	Not updated			5.24%	NA

[904] CMA PR19 Redetermination, paragraph 9.378(c) including fn 2498.
[905] CMA PR19 Redetermination, paragraph 9.375(b) including fn 2493.
[906] RIIO-2 Draft Determinations – Finance Annex, Table 23.

Vanguard	Nov-18	UK	10	5.00%	Dec-19	UK	10	5.00%	NA
Mean				**7.19%**				**6.74%**	**-0.45%**
Mean (excluding WTW and Vanguard)				**7.65%**				**7.10%**	**-0.55%**

Source: RIIO-2 Draft Determinations – Finance Annex, Table 23.

5.713 Overall, this does not suggest that GEMA took a selective approach to the investment manager forecast evidence, or that, had GEMA included further data points, these would have given a materially different overall picture of expected returns (as some point higher and others lower).

5.714 Taken in the round, we do not consider there to be sufficient evidence that GEMA's took an approach to updating its investment manager forecast evidence that was selective or skewed in the way implied by NGET/NGG.

5.715 In relation to OFTOs, the appellants have reiterated that GEMA's analysis fails to include all associated returns in the implied cost of equity. SSEN-T suggested that this is the result of GEMA failing to acknowledge that, in Oxera's opinion, the winning OFTO bidder is likely to anticipate a scenario where the OFTO continues to generate revenue beyond the contracted revenue term. Oxera may ultimately be correct, but we do not consider that failure to make such an adjustment is an error. As noted in the provisional determination, we have assessed OFTO bids as a useful cross-check as long as it is accepted that the interpretation of this check must be broad. The appellants have not demonstrated that incorporating predictions as to the undisclosed future assumptions of bidders would make this a more useful cross-check.

5.716 In relation to financeability as a cross-check, the evidence submitted by the appellants in response to the provisional determination is based on their own interpretation of the correct notional structure, not the notional structure used by GEMA and assessed as not wrong by the CMA.[907] It is our view that GEMA's cross-check evidence does support the view that the cost of equity was 'financeable'. Our overall assessment of the financeability of the price control is detailed comprehensively from paragraph 5.941.

5.717 In relation to the appellants' preferred ARP-DRP cross-check, while we accept that ARP-DRP might ultimately gain more general acceptance as a relevant cross-check within regulatory price control processes, the approach and its acceptance is inadequately developed at this stage to be sufficiently convincing evidence that GEMA's CAPM-based estimate is wrong. While the theoretical principles behind ARP-DRP may be valid, the data available on

[907] See paragraph 5.1006–5.1010 for our discussion of the notional structure used in GEMA's financeability assessment.

market returns on assets suffers from many of the same limitations as the standard CAPM approach. In our view, given that the calibration put to us of the ARP-DRP analysis is based on values from regulators' decisions, it is also reliant on subjective assumptions, and we are not persuaded that it can justify a much higher cost of equity than measures which may also require assumptions but which are more targeted at measuring returns for UK energy networks.

5.718 In coming to our overall assessment of GEMA's use of cross-checks, we highlight three key points:

a) The CAPM is an imperfect and imprecise tool – but that it is broadly regarded as the best model on which to base an estimate of the cost of equity for a regulatory price control.

b) No cross-checks, be it those used by GEMA or the alternatives suggested by the appellants, are perfect. Neither is it always possible or desirable to accurately rank and/or weight potential cross-checks, as effectiveness can depend on the situation to which they are applied.

c) We consider that the most appropriate role for cross-checks is to use them to assess whether a CAPM-based estimate appears materially miscalibrated versus current market-based data. If any cross-check was disproportionately effective at identifying the 'correct' cost of equity, it would presumably replace the CAPM as the primary method of calculating the cost of equity and would no longer be considered a cross-check.

5.719 The appellants argued that a correctly calibrated (set of) cross-check(s) would demonstrate that GEMA's estimate of cost of equity is too low. We disagree with this view. In relation to the cross-checks used by GEMA:

a) We agree with GEMA's interpretation of the MARs and Modigliani-Miller cross-checks – both of which suggest that a reasonable cost of equity allowance might sit below GEMA's CAPM-generated estimate;

b) We agree with GEMA that the OFTOs data can provide some insight as a cross-check and we are not persuaded that GEMA's interpretation of this evidence is skewed or incomplete on the basis of disregarding potential income outside of the contracted period;

c) We note both the relatively broad range of estimates and volatility of the investment manager forecasts, and do not consider to evidence to be sufficient to demonstrate that GEMA's 5% (CPIH-real) cross-check figure was wrong; and *d)* We note that while the investment fund IRRs evidence may have drawn from funds investing in a range of sectors, it is not clear that the inclusion of a broader range of sectors is likely to have reduced as opposed to increased the required return estimates (ie is not particularly likely to lead to under-estimates of cost of equity).

5.720 In relation to the cross-checks suggested by the appellants:

a) We have concluded that we do not consider the ARP-DRP cross-check to provide superior insight into the correct cost of capital. We also note that the outputs of the ARP-DRP test are inherently dependent on the assumed inputs, and that these are not universally accepted. Finally, we note that the 6.3% midpoint of the ARP-DRP cross-check appears to be an outlier relative to the other cross-check data that we have considered and concluded as useful.

b) On the potential for inclusion of DGM models as suggested by NGET/NGG, we note in our discussion of TMR data at paragraph 5.286 that there is significant uncertainty regarding the calibration of DGMs given their sensitivity to input assumptions and that we are not persuaded as to the likely accuracy/relevance of some of the common input assumptions used. As a result, we agree with GEMA that such cross-checks are largely subjective and are not sufficiently effective as to be a required input into the estimation or calibration of the cost of equity.

5.721 In assessing the materiality of the impact on GEMA's approach, we note that if we were to add the appellants preferred APR-DRP estimate to the cross-check range in isolation (eg without the application of any judgement) it would raise the midpoint of the cross-checks from 4.4% to 5.1%. However, if we wanted to account for the skew in the estimates, it may be more practical to consider the median cross-check value, which is 4.3% with or without the inclusion of the ARP-DRP data.[908]

5.722 On balance, we do not consider that the ARP-DRP cross-check is sufficiently strong that it was required to be included in the cross-check exercise, and we are not suitably convinced that its inclusion would have been sufficient to prove that GEMA's 4.55% CAPM-based cost of equity was wrong.

5.723 On the basis of the assessment above, and consistent with the views expressed in the provisional determination at paragraphs 5.691 and 5.693, we agree with GEMA's use of cross-checks and the support they offer to GEMA's CAPM-based cost of equity estimate. In coming to this conclusion, we reflect

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[908] When measured to one decimal place and using 3.8% as the value for the Modigliani-Miller test.

on our assessment at paragraph 5.718, where we note that the CAPM is an imprecise model and that there are no perfect cross checks. It is our view that increasingly granular interrogation of the inputs to the CAPM, individually and in combination, does not necessarily lead to a more effective estimate of a required level of return that is ultimately unknowable. It is also our view that while regulators should use robust evidence in the process of estimating the cost of equity, the ultimate requirement should be to ensure that the overall cost of equity allowance is sufficient to attract investors and allow companies to finance their activities. Market-based cross-checks can help with this process. In this case, the appellants have not demonstrated that the cross-checks used by GEMA were wrong nor have they proven that their preferred alternative cross-checks demonstrate that GEMA's cost of equity allowance was too low.

Alleged errors relating to inconsistency with the CMA PR19 Redetermination

Appellants' submissions

5.724 Several appellants told us that the recent CMA PR19 Redetermination provided evidence that GEMA's allowed return on capital was too low 'in the round'. For example:

a) Cadent submitted that the CMA's findings in the CMA PR19 Redetermination support Cadent's appeal that GEMA has set the allowed cost of equity at a level that is significantly too low. The cost of equity allowed by the CMA for water was 4.73%, which is materially higher than both GEMA's assessment of the cost of equity for Cadent of 4.55% despite the lower risks faced by the water companies.[909]

b) NGET/NGG submitted that the CMA's determination of the cost of equity in the CMA PR19 Redetermination supported a finding that GEMA erred when setting the cost of equity. NGET/NGG submitted that the CMA's methodology and conclusions on common market parameters demonstrated that GEMA had failed to have regard to relevant evidence and relied on flawed assumptions, assertions and interpretations. NGET/NGG submitted that even if GEMA's sector specific beta range were combined with the CMA's determined ranges for market-level TMR and RFR, the resulting cost of equity range would be significantly higher than the cost of equity determined by GEMA – and that this very clear

[909] Cadent PR19 submission, paragraph 24.

difference in cost of equity ranges demonstrated that GEMA's overall cost of equity was too low.[910]

c) NGET/NGG also submitted that if the cost of equity in GEMA's RIIO-T2 Decision was not uplifted, it would mean that the CMA had permitted two materially different and conflicting outcomes on common market parameters for regulated utilities (PR19 and RIIO-2) in the same year. NGET/NGG stated that this would create a dangerous precedent for future price controls and significantly undermine investor confidence in the energy sector and in the broader UK utility regulatory regime.[911]

d) NGN submitted that it was 'striking' that the CMA's cost of equity estimate in the CMA PR19 Redetermination was higher than GEMA's estimate, notwithstanding that it is 'common ground' that there is higher risk in the energy sector (as borne out by the higher beta used by GEMA). NGN submitted that, given this greater systematic risk associated with energy networks (and specifically gas distribution), the CMA PR19 Redetermination was strongly supportive of the appellant's submission that GEMA erred by setting an allowed return on equity that is too low.[912]

e) SGN submitted that the CMA's cost of equity estimate in the CMA PR19 Redetermination was higher than GEMA's estimate, notwithstanding the higher risk in the energy sector.[913]

f) SSEN-T submitted that the CMA PR19 Redetermination demonstrated that GEMA's decision on cost of equity was untenable in the light of the CMA's findings, which increased the extent to which GEMA's cost of equity estimate diverges from the figure that it should have arrived at.[914]

5.725 In addition, several appellants submitted that the CMA's assessment of cross-checks provided support to the view that GEMA's cross-checks were inappropriate or skewed to give a low result. For example:

a) Cadent submitted a report by KPMG, which noted that the CMA remained cautious about using market prices to determine the point estimate for the cost of equity or overall cost of capital, particularly in determining the suitability of a relatively minor adjustment. KPMG also submitted that the CMA considered that caution is warranted when interpreting broker forecasts of the cost of equity in relation to utility companies. It highlights

910 NGET/NGG joint PR19 submission, paragraph 2.6 and 2.39.
911 NGET/NGG Closing Statement, paragraph 1.4.
912 NGN PR19 submission, paragraph 7.
913 SGN PR19 submission, paragraph 6.
914 SSEN-T PR19 submission, paragraph 1.5.

that such estimates may be no more accurate than its own and can be tailored to the needs of specific investors. In addition, KPMG submitted that the CMA considered financeability to provide a relevant cross-check on the choice of the cost of equity and had disagreed with Ofwat's submission that the need to maintain credit metrics can never be part of the WACC assessment.[915]

b) NGET/NGG submitted that the CMA's decision to set the cost of equity exclusively by reference to the CAPM, and not to make adjustments based on cross-checks, contradicts GEMA's approach in the FD of adjusting the cost of equity range downwards based on cross-checks evidence. On the specific cross-checks used, NGET/NGG submitted that the CMA had:

(i) confirmed that evidence from MARs must be reviewed with caution;

(ii) acknowledged the weaknesses in broker forecast evidence; and

(iii) confirmed that Oxera's ARP-DRP work was 'conceptually sensible'.

In addition, NGET/NGG stated that the CMA's comments lent support to the appellants' submissions that GEMA should have carried out a financeability cross-check on the cost of equity.[916]

c) SSEN-T submitted that the CMA had:

(i) warned that investment management forecasts could be interpreted with caution;

(ii) commented that the ARP-DRP cross-check was 'conceptually sensible' and underpinned by a logical principle that, for a regulated business with capped returns, the cost of equity used in the WACC should be assumed to remain sufficiently above the current cost of debt; and

(iii) not considered any of the parties' MAR analysis to represent sufficient evidence to determine whether the CMA or Ofwat's cost of capital is more appropriate for the entire water sector.

However, SSEN-T also submitted that it disagreed with the CMA's assessment that ARP-DRP should not be taken into account as a cross-

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[915] KPGM (Cadent), 'Review, commentary and read across from CMA PR19 Final Determinations to RIIO2 Cost of Equity Appeals', paragraphs 7.2.1–7.2.5.
[916] NGET/NGG joint PR19 submission, paragraphs 2.40–2.54.

check on the basis that the assumptions used are different from those of the CMA.[917]

d) SPT submitted a report by NERA, which noted that the CMA PR19 Redetermination identifies that the MAR evidence does not provide a robust basis to conclude on the appropriate allowed return for water networks.[918]

5.726 Several appellants disagreed with GEMA (and Ofwat's) recommendation to compare the RIIO-2 cost of equity to the 'wholesale' figure from water – leading to a 20bps downward adjustment. For example:

a) Cadent submitted that Ofwat's argument that the appropriate comparator to RIIO-2 is the wholesale cost of equity after deduction of the Retail Margin Adjustment (**RMA**) was unsound. Cadent stated that the RMA arises due to separation of price controls for wholesale and retail activities, with the wholesale margin set based on the cost of capital and retail allowed revenues set using a 'cost-plus' approach. In order to avoid an increase in total allowed revenues purely as a result of the separation of price controls, the CMA reduced total allowed revenues by the difference between the allowed retail margin (in £ million) and retail capital employed multiplied by the appointee WACC. Cadent stated that the RMA is not intended as an accurate quantification of the systematic risk differential between a water retailer and wholesaler and cannot therefore be used to infer a wholesale-only cost of equity.[919]

b) NGN submitted that GEMA was incorrect to interpret the CMA's RMA as a quantification of the systematic risk differential between a water retailer and wholesaler and cannot therefore be used to infer a wholesale water beta and wholesale-only cost of equity. NGN submitted that the CMA's adjustment was simply to avoid increasing revenues due to the notional separation of wholesale and retail price controls. This is consistent with the CMA's presentation of the RMA as an adjustment to total revenues in £ million, rather than adjusting the WACC, and with the CMA making no reference to systematic risk differences.[920]

c) SGN submitted that GEMA's statements on the comparison to PR19 were misleading and based upon a mischaracterisation of the RMA, which is to avoid increasing total revenues due to the notional separation of the

[917] SSEN-T PR19 submission, paragraph 1.9.
[918] SPT PR19 submission, paragraph 36.
[919] Cadent Closing Statement, paragraph 5.1 footnote 43.
[920] NGN Closing Statement, paragraph 16.

wholesale and retail charge controls, and not an accurate quantification of the systematic risk differential between water wholesalers and retailers.[921]

GEMA's submissions

5.727 GEMA submitted that the approach taken in the CMA PR19 Redetermination provided support for GEMA's approach to cross-checks and that three points were of specific relevance:

a) GEMA submitted that the CMA clearly envisaged using cross-check data to determine the point estimate for the cost of capital. GEMA submitted that it had used its cross-check data more conservatively than this, relying on it only to alter the upper and lower ends of the range of allowed equity returns.

b) GEMA submitted that the CMA's approach to MAR data was also instructive – and that while observing a need for caution, the CMA had considered an adjustment of 10 to 20bps (on WACC) to be 'relatively minor'. GEMA submitted that it, and several of the appellants' advisers, likewise considered MAR data to be helpful when used carefully.

c) GEMA submitted that the CMA's approach to broker forecasts echoes that of GEMA in RIIO-2.[922]

5.728 GEMA discussed the comparison with the water sector more broadly, and told us that netting off the effect of retail activities for which there is no equivalent in the energy sector – then without aiming up, RIIO-2's cost of equity allowance was actually 27bps higher than the cost of equity awarded to the water networks in the CMA PR19 Redetermination. GEMA stated that even if aiming up was included, the cost of equity in RIIO-2 remained higher for energy, albeit only by a couple of basis points.[923]

- *Wright and Mason report*

5.729 Wright and Mason, in a report commissioned by GEMA, submitted their assessment of GEMA's allowed return in light of company responses to the PR19 and RIIO-2 determinations.

5.730 The authors submitted that the differences between the CMA's Final Determination for the PR19 Redetermination and GEMA in estimating the cost of equity were in fact small – and that on a comparable basis the CMA PR19

[921] SGN Closing Statement, paragraph 23 footnote 31.
[922] GEMA PR19 Response on Finance, paragraphs 21–22.
[923] GEMA Clarification Hearing Parts 1 & 2, 21 May 2021, page 35, lines 4–8.

Redetermination estimate would be of the order of 30bps higher than GEMA's. The authors argued that this difference was well within the (very wide) margin of uncertainty.

5.731 The authors noted that in terms of the overall return on equity, there were strong arguments that, if anything, GEMA has erred on the side of generosity in its estimates. The authors were of the opinion that the market concurred with their assessment, and noted that even if the CMA did not accept these counter-arguments, they at least helped to illustrate the wide range of estimates that can be regarded as reasonable.[924] To illustrate their view, the authors noted that implied equity MARs of around 2 are still being reported, and that these 'simply cannot be reconciled' with GEMA's estimate of the cost of equity of 4.55%, combined with only a modest degree of outperformance. In the authors' view, 'markets clearly think the gap is bigger'.[925]

5.732 Wright and Mason argued that GEMA had taken the 'right' approach to the RFR, inflation, documenting past outperformance and was 'mostly' right in its approach to beta estimation. Wright and Mason argued that GEMA had been too generous in elements of beta estimation (through the upward impact on the cost of equity through regearing of raw beta data) and TMR (through reliance of historical averages which were higher than 'expected returns in most global markets'). Adjusting for only the latter issue by using a TMR of 5.0% led to a potential cost of equity estimate of 3.41%, 1.14% lower than GEMA's estimate.[926]

Third party evidence

- *Ofwat*

5.733 Ofwat submitted that, should we seek to draw comparisons with the water sector, it was important the CMA recognised the allowed return set for water (both by Ofwat and the CMA in its recent water references decision) included a return for both retail and wholesale activities. Ofwat summitted that it is the allowed return on water wholesale activities that is the appropriate point of comparison to energy.

5.734 Ofwat submitted that in the CMA PR19 Redetermination, the wholesale allowed return was 3.12%. The cost of equity input to the CMA's financial

[924] Wright and Mason (GEMA), 'Is Ofgem's allowed return on equity unreasonable? An independent assessment in light of company responses to the PR19 and RIIO-2 determinations', paragraphs 1.1–1.4.
[925] Wright and Mason (GEMA), 'Is Ofgem's allowed return on equity unreasonable? An independent assessment in light of company responses to the PR19 and RIIO-2 determinations', paragraph 3.20.
[926] Wright and Mason (GEMA), 'Is Ofgem's allowed return on equity unreasonable? An independent assessment in light of company responses to the PR19 and RIIO-2 determinations', paragraphs 4.4–4.46.

model for the wholesale controls was 6.62% (nominal), 4.53% (CPIH real) and includes the effect of a 25bps aiming up to the cost of equity.[927]

Alleged errors relating to inconsistency with the CMA PR19 Redetermination - our provisional assessment

5.735 In coming to our provisional assessment of whether the CMA PR19 Redetermination supports the view that GEMA's cost of equity allowance is wrong, we noted that while past regulatory decisions can be useful, GEMA is subject to a different statutory regime and statutory duties – not the approaches taken or estimates provided by any other regulator (or the CMA).[928]

5.736 Even if we were to use the CMA PR19 Redetermination as a 'sense check' of whether GEMA's RIIO-2 cost of equity allowance was too low, we do not consider the appellants to have provided evidence that would support their view. Calculations based on the CMA PR19 Redetermination metric ranges would suggest the CMA considered an acceptable cost of equity range estimated at 3.70% to 5.27% (CPIH). GEMA's 4.55% cost of equity allowance is thus not only within this range, but above the midpoint of 4.48%.

5.737 In its choice of beta estimate, GEMA accepted that there is empirical evidence of higher betas in the energy sector by comparison to the water sector. We provisionally determined that GEMA's beta estimate was not wrong (see paragraph 5.590). However, in our view, we had not been presented with evidence that proved that the level of systematic risk is sufficiently higher such that the required cost of equity in the energy sector must sit at the top of or (as suggested by some appellants) outside of the calculated range for the water sector. We viewed the difference between GEMA's estimate for RIIO-2 and the CMA's estimate for PR19 to be well within GEMA's margin of appreciation.

5.738 In terms of the approach to cross-checks, we did not consider that we had received any evidence that the use of cross-checks in the CMA PR19 Redetermination had a material impact on our assessment of whether GEMA's cost of equity allowance or approach to cross-checks was wrong in RIIO-2. GEMA and the CMA appeared to have taken a broadly similar, cautious approach to the interpretation of market data and investor forecasts. We will consider financeability checks more specifically from paragraph 5.941.

5.739 In relation to Ofwat's evidence arguing in favour of comparison to the CMA PR19 Redetermination wholesale rather than appointee cost of equity, we

[927] Ofwat response to the CMA request under Rule 14.4(e), paragraph 14.
[928] See paragraphs 3.87–3.88 in the Legal Framework chapter.

were not convinced that the correct approach was clear cut. While we acknowledged that energy networks are wholesale operations and do not include retail operations, the overall appointee returns in the water sector reflect the returns available to the monopoly provider – exactly as is being estimated in the case of the energy networks. On balance, we did not consider it a material issue as the difference between the approaches was small and not sufficient to suggest that the comparison between GEMA's 4.55% cost of equity and the findings in the CMA PR19 Redetermination are outside of GEMA's margin of appreciation.

Alleged errors relating to inconsistency with the CMA PR19 Redetermination – Response to the provisional determination

5.740 In response to the provisional determination, the appellants submitted that the provisional determination inappropriately disregarded the evidence and assessment set out in the CMA's own recent PR19 Redetermination, creating uncertainty for regulators and regulated alike and increasing regulatory risk for investors. The appellants stated that, should the approach in the provisional determination remain unchanged, UK regulated industries would be left with two different and inconsistent decisions on common components of cost of equity and aiming up principles from the CMA. The appellants stated that the disconnect with the CMA PR19 Redetermination created damaging signals at an important juncture for securing investment in energy networks, and that the provisional determination ignored the fact that water companies (who face lower risk than energy companies) have a higher cost of equity allowance than the appellants, despite the energy networks facing more challenging Net Zero related expenditure programmes.[929]

5.741 The appellants also told us that a comparison between GEMA's 4.55% cost of equity and the 4.48% PR19 midpoint was not like for like and could not serve as a conceptually correct sense check without required adjustments to control for the higher systematic risks of the energy sector. For example NGET/NGG told us that 4.55% was materially lower than the 5.09% cost of equity that would be derived by including GEMA's RIIO-T2 assessment of beta for energy along with the generic market parameters and aiming up principles considered appropriate by the CMA for PR19 following an extensive and rigorous review process which only concluded earlier this year, after the current appeal process had commenced.[930]

[929] Appellants' Joint Response to PD on Ground A, page 4.
[930] NGET/NGG Response to PD, pages 37-38.

5.742 SGN further submitted that the disconnect with PR19 was both relevant and material, and noted that a recent Moody's report on the provisional determination further highlighted this disconnect with PR19 on the allowed returns (comparing the CMA's 4.73% for water with GEMA's 4.55%) but also across the charge control package, concluding that regulatory allowances for GD2 are tougher than for the PR19 appellants in several areas.[931]

Alleged errors relating to inconsistency with the CMA PR19 Redetermination – Our final assessment

5.743 The non-binding nature of the CMA PR19 Redetermination is covered comprehensively in our introduction to this section at paragraph 5.5. The appellants' post-provisional determination submissions focus on either repeating arguments that the correct comparison is between GEMA's 4.55% and the 5.09% that would result from the CMA's PR19 estimates of RFR and TMR, combined with GEMA's estimate of the energy network beta or stating the alleged pitfalls of the CMA creating 'regulatory risk for investors'. Nothing in the appellants' post-provisional determination submissions changes our view and as such we maintain our provisional conclusions referred to above.

5.744 We continue to consider the 4.48% midpoint figure as the correct basis of any assessment (with any decision to aim away from the midpoint fundamentally sector-specific), and note that GEMA's 4.55% cost of equity is higher than this. It is not correct to state that simply combining GEMA's beta estimate with the PR19 Redetermination estimates of RFR and TMR leads to the 'correct' cost of equity in RIIO-2. All cost of equity decisions are taken 'in the round', and metrics cannot simply be substituted into the analysis in the way that has been suggested by the appellants.

5.745 In relation to the post-provisional determination joint submission relating to the CMA 'creating uncertainty for regulators and regulated alike and increasing regulatory risk for investors' (see paragraph 5.740), we disagree with the appellants' assessment. We note, for example, evidence from the Moody's report submitted by SGN (see paragraph 5.742). In this report, Moody's states that:

> The CMA's review process highlights the importance of licensees having the right of redress in a timely manner to an adverse regulatory determination. The provisional determination continues to support the transparency and predictability of the regime and

[931] SGN Response to PD, paragraph 97.

hence our Aaa scoring for the relevant subfactor under Moody's regulated networks methodology. [932]

The section of the Moody's report quoted above is primarily focused on the CMA's provisional decisions to remove the outperformance wedge and the innovation uplift. However, in retaining a (post-provisional determination) Aaa score for this subfactor, it appears that Moody's independent and investor-focused assessment does not align with the appellants' concern that small cost of equity approach differences between RIIO-2 and the CMA's PR19 Redetermination will lead to 'damaging signals' or any other deterioration in investor appetite for the sector.

5.746 Our final determination in relation to alleged inconsistency between GEMA's RIIO-2 and the CMA's PR19 Redetermination remains in line with that set out in our provisional determination, noted in paragraphs 5.735 – 5.739. Specifically, that:

a) GEMA's approach is not constrained by the approach taken by the CMA in its PR19 Redetermination. Similarly, differences in preferred methodologies between GEMA and the CMA do not, merely by virtue of being differences, constitute errors. In this appeal, we have considered the evidence and arguments and found GEMA's approach to each of the cost of equity metrics to be not wrong in both isolation and combination.

b) we consider the right comparison for this exercise to be GEMA's 4.55% cost of equity estimate and the 4.48% midpoint of the CMA's PR19 cost of equity estimate range;

c) we have not been convinced by the appellants that GEMA's estimate of 4.55% is insufficient relative to 4.48% on the basis of higher systematic risk levels in the energy network sector;

d) we have found nothing in the CMA's approach to cross-checks that would suggest that GEMA's approach was wrong; and

e) we do not agree that differences in methodology and approach between the CMA's PR19 Redetermination and those used by GEMA in RIIO-2 present a material risk to the stability or reputation of the relevant regulatory regimes.

5.747 On the inconsistency point we therefore conclude that it was not wrong for GEMA to adopt a different conclusion to that reached in PR19.

[932] Moody's (2021),'CMA draft ruling provides only modest concessions to tough RIIO-2 determination', page 6.

In the round – our conclusion

5.748 For the reasons set out in the preceding paragraphs, we determine that GEMA was not wrong in setting its cost of equity allowance in the round. We find that the appellants have not demonstrated that GEMA has combined CAPM metrics to deliver a cost of equity that was too low in the round, nor that there were errors in GEMA's cross-checks of its estimate nor that evidence from the CMA PR19 Redetermination suggests that GEMA's cost of equity allowance is too low.

Aiming up

Introduction

5.749 This section covers the errors alleged by the appellants relating to GEMA's decision not to set a cost of equity allowance higher than the midpoint of its CAPM-implied cost of equity range.

Background to the alleged error

5.750 Estimating the individual components of the cost of equity is not an exact science – there is inherent parameter uncertainty due to the unobservable (in real time) nature of the CAPM metrics, and any estimation methodology requires the application of judgement. There is a regulatory history, in both the UK and internationally, of addressing the risks posed by these uncertainties by setting a range for the cost of equity and then picking a point estimate from the top half of that range.[933]

The RIIO-2 decision

5.751 In setting the cost of equity, GEMA chose not to apply an additional allowance on top of the CAPM-implied cost of equity in order to 'aim up'. In its FD, GEMA set out its consideration of a range of arguments in favour of aiming up within the CAPM-implied range (and for individual CAPM parameters).[934] GEMA's decision was based on the following evidence and reasoning:

a) GEMA considered the CMA's provisional findings in the *NATS* and PR19 appeals and the need to aim up to address asymmetry. It noted that the CMA PR19 Provisional Findings appeared to place significant weight on

[933] Regulators have previously picked from the top half of metric estimate ranges or from the eventual overall estimate range for the cost of equity. For further discussion of the history of aiming up, see CMA PR19 Redetermination, paragraphs 9.1226–9.1235.
[934] GEMA Response A, paragraph 257.

an assumption that there was asymmetric downside risk within the PR19 framework. GEMA explained that it considered whether the RIIO-2 framework contained net asymmetric risk and whether there were parallels between RIIO-2 and the CMA's interpretation of PR19, ultimately deciding that 'a material adjustment to allowed returns on this basis would be unwarranted.'[935]

b) GEMA considered the need to aim up to maximise consumer welfare or secure additional investment.[936] GEMA referred to arguments raised in the CMA PR19 Provisional Findings that underinvestment caused by a cost of capital being set too low had the potential to damage the overall welfare of consumers (and potentially the wider economy) materially more than the welfare lost through bills that may be slightly too high.[937] It concluded that this argument was not fully applicable to the regulation of energy networks, noting that some literature underpinning these arguments did not account for relevant considerations such as sharing factors, Output Delivery Incentives (**ODIs**) and licence obligations, as implemented as part of RIIO-2.[938]

c) GEMA considered regulatory precedent of aiming up and concluded that while there was precedent of aiming up in price controls, there were also examples where an 'aim straight' approach had been taken which it considers relevant to the case of RIIO-2.[939]

d) GEMA considered the need to aim up to address financeability. GEMA set out that it considered the notional efficient company to be equity financeable under RIIO-2 and there was therefore no need to aim up on equity financeability grounds.[940,941]

5.752 Within its FD, GEMA noted that its cost of equity estimate was arguably consistent with a degree of aiming up because the Step 2 cross-checks suggested that the expected return was lower than the CAPM-implied value from Step 1. GEMA said that based on Step 2 evidence its range was 3.8% to 5.0%, which implied a midpoint of 4.4%, which is lower than its cost of equity estimate of 4.55%.[942]

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[935] GEMA FD Finance Annex, paragraph 3.176–3.180.
[936] GEMA FD Finance Annex, paragraphs 3.181–3.184.
[937] GEMA FD Finance Annex, paragraph 3.181 quoting CMA PR19 Provisional Findings, paragraph 9.667.
[938] GEMA FD Finance Annex, paragraph 3.181 quoting CMA PR19 Provisional Findings, paragraph 9.667.
[939] GEMA FD Finance Annex, paragraph 3.182.
[940] GEMA FD Finance Annex, paragraph 3.185.
[941] GEMA FD Finance Annex, paragraph 3.185.
[942] GEMA FD Finance Annex, paragraph 3.186.

5.753 Overall, therefore, GEMA chose not to add an additional allowance on to the cost of equity in order to 'aim up' but noted that its final decision is arguably consistent with a degree of aiming up.[943]

The alleged errors

5.754 In submissions in this appeal, the appellants argued that GEMA had made an error by not 'aiming up' when setting the cost of equity.

5.755 The submissions received with regard to GEMA's alleged error were split into the following sub-errors:

a) GEMA's erroneous claim that it had 'aimed up';

b) Failure to 'aim up' for uncertainty;

c) Failure to 'aim up' for asymmetric risk; and

d) Individual complaints.

5.756 In the paragraphs below we summarise the evidence that has been presented to us, set out our provisional assessment and then consider the parties' responses to our provisional determination before providing our final conclusion of whether GEMA's decision not to aim up or down on the cost of equity was wrong.

GEMA's alleged failure to 'aim up' for uncertainty

Appellants' submissions

5.757 The appellants made a number of submissions with regard to GEMA's failure to aim up for uncertainty reasons. These can be split into the following subsections:

a) Regulatory precedent;

b) Misunderstanding and mischaracterisation of aiming up;

c) Impact of over- versus underestimation of cost of equity; and

d) Relevance of other uncertainty mechanisms.

5.758 We summarise each of these subsections in turn.

[943] GEMA FD Finance Annex, paragraph 3.186.

Regulatory precedent

5.759 The appellants told us that that GEMA was wrong not to aim up for parameter uncertainty, in line with recent regulatory precedent. They told us that GEMA was departing from a well-established approach without sufficient justification, that there are long-term risks arising from setting the cost of equity too low (eg deterring investment and risking exit of capital) and that these risks are particularly acute considering the current demands on the energy sector.

5.760 The appellants referred to recent regulatory precedent around aiming up, in particular to the CMA's recent PR19 Redetermination, including the Aiming Up Working Paper published as part of the PR19 appeal[944] and the New Zealand Commerce Commission policies on this matter.[945]

5.761 Cadent submitted that in deciding not to aim up, GEMA had sought to contest the CMA PR19 Provisional Findings, which concluded that, broadly speaking, aiming up represented consistency with regulatory orthodoxy.[946]

5.762 NGET/NGG submitted:

a) that GEMA was wrong to depart from the well-established approach of aiming up without sufficient justification. It told us that GEMA had no compelling reasons for departing from the established practice for aiming up and failed properly to have regard to and/or give appropriate weight to principles of best regulatory practice;

b) that the logic supporting aiming up is clear, well-understood and long-standing; and

c) that the then recent Aiming Up Working Paper by the CMA provides a useful initial checklist of factors which justify the need for regulators to aim up when setting the cost of equity and that this framework explains why aiming up is appropriate in the context of RIIO-T2.[947]

5.763 SSEN-T submitted that GEMA's approach was contrary to the approach recognised by UK and international regulators over many previous price controls and overlooked the importance of setting a point estimate commensurate with attracting the necessary investment at a particularly

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[944] CMA (2021), 'Water Redeterminations 2020: Choosing a point estimate for the Cost of Capital – Working Paper'.
[945] New Zealand Commerce Commission (2014), 'Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services', paragraphs X17–X20.
[946] Cadent NoA, paragraph 4.145.
[947] NGET NoA, paragraphs 3.332–3.346 and NGG NoA, paragraphs 3.332–3.346.

critical time for SSEN-T given the significant investment needed to achieve Net Zero objectives over the forthcoming price control (and beyond).[948]

5.764 SPT told us that GEMA had failed to have regard to, or have sufficient regard, to the principle of 'aiming up' and that the principle had a pedigree in previous regulatory determinations.[949]

Misunderstanding and mischaracterisation of aiming up

5.765 The appellants told us that GEMA had misunderstood and mischaracterised the need to aim up within the RIIO-2 price control. In particular, appellants were concerned with the following paragraph in GEMA's FD:

> The design of the RIIO-2 price control includes several features, such as [uncertainty mechanisms], to protect network companies and consumers from uncertainty regarding investment during the RIIO-2 period to deliver, for example, net zero. This flexibility weakens the argument that allowed returns should materially exceed the cost of capital. For example, rather than allow a material premium above the cost of capital, UM totex allowances can, at the time of established need, reflect consumer benefits of actual investment in a targeted and evidenced way, with a concrete link between allowances and outputs/outcomes. By contrast, an allowed return on capital that materially exceeds the cost of capital does not appear to be an effective or targeted method of securing higher investment, particularly in the absence of agreed investment(s).[950]

5.766 Cadent submitted that contrary to GEMA's mischaracterisation of the argument for aiming up, it is intended to reduce the risk of the allowed cost of equity being set below the true cost of equity and thereby to avoid 'disabling' investment. Cadent noted that 'disabling' investment refers to preventing specific and large new investments and the exit of capital from the sector over time.[951]

5.767 NGET/NGG submitted that in stating the point set out paragraph 5.765 above, GEMA had 'misunderstood, and therefore failed to engage with' the appellants' concerns with failing to aim up. They told us that GEMA should have acknowledged that the risks associated with choosing a point estimate for the cost of equity which was too low outweighed the risks associated with

[948] SSEN-T NoA, paragraph 4.85.
[949] SPT NoA, paragraph 35.
[950] GEMA FD Finance Annex, paragraph 3.183.
[951] Cadent NoA, paragraph 4.114.

choosing a point estimate which was too high and that GEMA's suggestion that other features of the price control meant aiming up was not required was not a sufficient justification to fail to aim up.[952]

5.768 NGN submitted that GEMA's conclusion appeared to be based on the view that aiming up was not needed because it did not incentivise more investment and that GEMA had fundamentally misunderstood the economic principle behind aiming up.[953]

5.769 SGN submitted that it was clear from the language used by GEMA that it 'misunderstands the concept and [the] rationale' of aiming up. SGN told us that recent reports acknowledge that the principal objective of aiming up is not to incentivise higher investment, as GEMA had assumed, but to mitigate the risk of applying the wrong cost of equity and therefore disabling investment. It continued by telling us that the goal of aiming up was to attract or enable adequate investment and maximise societal welfare, and not to deliberately over-remunerate or promote additional inefficient investment that was not in the consumers' interest.[954]

5.770 SSEN-T told us that this was a 'fundamental mischaracterisation' of the rationale for aiming up within the cost of equity range and that the basis of this principle is that the range selected by the regulator is an appropriate range of realistic values within which to set the cost of equity parameter. It submitted that the established regulatory practice is to select a higher value within an appropriate cost of equity range as the most realistic and appropriate outcome.[955]

5.771 WWU submitted that GEMA had characterised aiming up as a process of setting an allowed return that 'materially exceeds' or entails a 'material premium above' the cost of capital but that this was a basic conceptual error. WWU told us that the rationale for aiming up is not about setting the point estimate above the actual cost of equity – the issue is precisely that the actual cost of equity cannot be identified with certainty – but about setting the allowed cost of equity to ensure that, having regard to the return required by investors in the light of the perceptions of risk, they are willing to continue to invest.[956]

5.772 WWU submitted that GEMA's use of language, specifically presenting aiming up as a matter of excess, revealed either a serious misunderstanding of the

[952] NGET NoA, paragraph 3.359 and NGG NoA, paragraph 3.359.
[953] NGN NoA, paragraph 211(ii).
[954] SGN NoA, paragraphs 252–253.
[955] SSEN-T NoA, paragraph 4.82.
[956] WWU NoA, paragraph B5.6.

concept or a predisposition against it. WWU told us that in either case, it was an error because it operated on the related assumptions that the actual cost of equity was the mid-point in the range (a fact that cannot be known) and that everything above the mid-point must 'ipso facto' be a premium (which therefore did not follow).[957]

Impact of over- versus under-estimation of cost of equity

- *In the energy sector*

5.773 The appellants told us that the risk of underinvestment had greater detrimental effects than the risk of overinvestment, and that the concern was particularly acute in the energy sector.

a) Cadent submitted that the risks of underinvestment were particularly acute in the energy sector, both because of the scale of new investment that was likely to be required for Net Zero and because of the damaging effects of network failures.[958] It told us that where the allowed cost of equity was lower than required, companies would face difficulties in attracting or retaining capital, and might have little incentive to try and identify new investments. By contrast, in a (theoretical) situation where the allowed cost of equity was higher than required, there would be numerous factors at play which would determine whether over investment in fact transpired.[959]

b) SSEN-T told us that since newer, uncertain green technology was also likely to be riskier than the existing technology, there was a higher risk that if the cost of capital was set too low, firms would also underinvest in green technology. It said that, therefore, in addition to future economic losses, consumers would suffer social welfare losses in future periods due to missed Net Zero goals.[960]

c) SSEN-T also submitted that blackouts were a tangible risk in the energy sector due to potential long-term underinvestment from aiming too low in the range. It told us that based on the work of its advisor, Oxera, setting the cost of capital too low could potentially cost the UK economy between £6.3 billion and £31.6 billion annually.[961]

957 WWU NoA, paragraph B5.7.
958 Cadent NoA, paragraph 4.117.
959 Cadent Reply, paragraph 103(a).
960 SSEN-T NoA, paragraph 4.93.
961 SSEN-T NoA, paragraph 4.94.

d) SPT submitted that the risks to consumers and social harm from underinvestment were considerably greater than the relatively minor welfare loss to customers from transmission charges that were marginally higher than necessary. It submitted that externalities impacting the risks were likely to be of particular significance in the context of electricity transmission given both the central role of the transmission sector in delivering the sustainability objectives as regard Net Zero and the high levels of investment as a proportion of transmission owners' RAV which would consequently be required to achieve that in RIIO-T2 and beyond.[962]

e) NGET told us that the choice whether to aim up or not was not a question of regulatory discretion and that it was justified by the consumer benefit of doing so, and the harm to consumers in not doing so.[963]

f) NGN submitted that GEMA had failed to maximise consumer welfare through enabling investment, one reason of which being that GEMA's position was in contrast to the recognition by the UKRN Report of the importance of aiming up in order to protect consumer welfare.[964]

- *Parameter uncertainty*

5.774 The appellants raised concern with regard to parameter uncertainty arising from the inherent uncertainty in estimating the cost of equity through the CAPM. The appellants told us that indexation of the RFR was not sufficient to protect against the allowed return on equity being set too low.[965] They told us that the other CAPM metrics (TMR and beta) had a greater impact on uncertainty in cost of equity and that indexing the RFR did not resolve it being set too low in the first place. In particular:

a) Cadent submitted that GEMA had suggested that the indexed nature of its RFR protected against the allowed return on equity falling out of line with the true cost of equity of RIIO-2. However, it told us that under a TMR approach for the CAPM as typically applied in UK regulation, the impact of RFR volatility on the overall allowed cost of equity was limited, if equity beta was close to 1. The main drivers of uncertainty in cost of equity would therefore in this case be TMR and beta.[966]

b) NGN said that indexation would not correct for the problem that GEMA's use of ILGs would systematically underestimate the RFR, regardless of

962 SPT NoA, paragraph 36.
963 NGET NoA, paragraph 3.349.
964 NGN NoA, paragraph 211.
965 SGN Reply, paragraph 62.
966 Cadent Reply, paragraph 106(b).

whether this was then indexed over time.[967] This was echoed by NGET/NGG who told us that indexing the RFR failed to mitigate the concern of setting the cost of equity too low to begin with.[968]

5.775 The appellants told us that GEMA's agreement that there was underlying parameter uncertainty within the CAPM meant that it was hard to comprehend its high level of confidence that its cost of equity estimate had not been set too low.[969]

5.776 For example, NGN told us that it was difficult to square GEMA's claim that it had a high degree of confidence that its cost of equity estimate was not too low with statements suggesting that estimating the cost of equity was subject to significant uncertainty with numerous different possible approaches. NGN said that the cross-checks did not have sufficient accuracy to allow for anything other than checking whether or not the cost of equity lay 'within the extremes of relevant possibilities.' It continued by telling us that the lack of direct comparators for energy network betas and the significant impact that even small errors in beta could make on the estimated cost of equity indicates that it was 'just not credible' to suggest that GEMA's cost of equity estimate is subject to limited uncertainty.[970]

Relevance of other uncertainty mechanisms

5.777 The appellants told us that uncertainty mechanisms within the RIIO-2 price control were not sufficient to manage uncertainty and underinvestment as a result of setting the cost of equity too low.

a) Cadent submitted that GEMA's line of thinking was incorrect, and that where the allowed rate of return did not equal the true cost of capital, licence obligations and other mechanisms might preserve investment in the short term (and should not be relied upon to reflect inefficient market outcomes in the first place), but did not ultimately protect from the negative consequences of incentivising an exit of capital or an inability to attract new capital to finance investment.[971]

b) NGET submitted that uncertainty mechanisms did not obviate the need for aiming up, and in fact created a risk of deferred investment in the short term. It told us that UM funding only adjusted totex allowances if additional investment was required; they did not adjust the cost of equity

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[967] NGN Reply, paragraph 63.
[968] NGET/NGG Joint Reply, paragraph 3.29(f).
[969] SGN Reply, paragraphs 58–61.
[970] NGN Reply, paragraph 62.
[971] Cadent NoA, paragraph 4.121.

and that the FD cost of equity remained the same regardless of the totex levels, so uncertainty mechanisms would not impact on the main reason to aim up – namely the uncertainty of the true cost of equity.[972]

c) NGN told us that GEMA suggested that energy companies would be forced to invest even if the cost of equity was set too low. It said that was 'clearly incorrect' since companies needed to raise finance to invest and would only do so if the allowed rate of return at least equalled the true (but unobservable) WACC. NGN told us that the impact of a cost of equity that was set too low would be felt over the longer term therefore focusing on investment during RIIO-GD2, as GEMA's arguments did, is 'clearly wrong' and had a negative impact on the interests of existing and future customers.[973]

d) SGN submitted that GEMA had suggested that the price control mechanisms at RIIO-2 were sufficient to protect licensees and consumers in the energy sector for uncertainty in investment and that it had used this to assert that there was little downside risk of setting the WACC too low for the energy sector. However, SGN told us that this conflated the risk to companies' cashflows, with the risk of setting the allowed return too low. It said that while these mechanisms might serve to partially mitigate the risk to cashflows, they were not a means of protecting against the WACC being set too low.[974]

e) SGN submitted that GEMA appeared to assume that licence obligations and performance incentives could be used to ensure optimal investment, regardless of the cost of equity allowance. However, it said that investors would only commit capital if there was a mean expectation of earning the market cost of equity as investors had alternative opportunities where they could earn the market cost of equity and it would be irrational to avoid these opportunities in favour of investing in GDNs, if the cost of equity was set too low.

f) SGN said that the requirement to set the cost of equity in line with the market evidence therefore held, regardless of the licence obligations and performance incentives in the package.[975] SGN told us that UMs could help mitigate companies' cashflow issues, but that aiming up was required

[972] NGET NoA, paragraph 3.358.
[973] NGN NoA, paragraph 211(v).
[974] SGN NoA, paragraph 255.
[975] SGN NoA, paragraph 256.

to address parameter uncertainty and guard against the risk that the allowed return was below the 'true' cost of capital.[976]

g) SPT told us that the within period incentive mechanisms and licence obligations only went some way to reducing the risk of underinvestment. It continued by saying that there remained uncertain investments for the RIIO-T2 period, and investments must be planned in good time during RIIO-T2 to have effect in subsequent periods.[977]

h) WWU submitted that in its FD, GEMA had concluded that aiming up was unnecessary in the price control because it contained sufficient UMs.[978] WWU told us that this failed to take into account that the main purpose of aiming up was to secure investment over the long-term, not merely during the next price control period and that the UMs in RIIO-GD2 could not by themselves answer the question of whether aiming up is merited.[979] WWU submitted that there was no evidence that GEMA had had any adequate regard to the particular circumstances of the gas distribution sector at the present time, referring in particular to Net Zero and climate challenges facing the sector.[980]

i) NGN told us that GDNs were not listed, so GEMA's suggestion that potential underinvestment would be reflected in the market value of the assets 'is not credible'. It told us that even if it were and was corrected for in the next price control, it still came at the cost of underinvestment in the intervening period which is crucial to the Net Zero agenda.[981]

GEMA's submissions

5.778 With regard to regulatory precedent, GEMA submitted that there was no general rule that 'aiming up' is required. It referred to instances where it and other regulators have previously 'aimed straight' or 'aimed down' as well as 'aiming up'.[982]

5.779 Therefore, GEMA told us, in the absence of any rule requiring 'aiming up', the question was whether GEMA had properly and reasonably exercised its regulatory judgement in selecting the point estimate for the baseline allowed return and neither a tally of decisions where it had or had not aimed up nor

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[976] SGN Reply, paragraph 63.
[977] SPT NoA, paragraph 38(1).
[978] WWU NoA, paragraph B5.8.
[979] WWU NoA, paragraphs B5.9.
[980] WWU NoA, paragraphs B5.10–B5.11.
[981] NGN Reply, paragraph 64.
[982] GEMA Response A, paragraph 262.

the CMA's preference for 'aiming up' in the PR19 Redetermination should inform the CMA's approach to this appeal.[983]

5.780 GEMA told us that it 'well understood' the principle of 'aiming up' and the arguments in favour of it. It said that it understood and appreciated the arguments relating to societal welfare and that its references to returns 'materially exceeding the cost of capital' in its FD referred to the risk of materially exceeding the true costs of capital through indiscriminate 'aiming up' regardless of context and the surrounding circumstances.[984]

5.781 It told us that this argument for aiming up did not imply that any regulator setting a price control for the notional cost of equity should always select a point estimate for the notional cost of equity above the mid-point of any estimated range. Rather, the merits of aiming up would depend on:

a) The regulator's level of confidence in the robustness of the cost of equity assessment – ie what it assessed as the risk of a particular point estimate being an underestimate of the true cost of equity;

b) The regulator's level of confidence that the expected return on equity would be above the assessed cost of equity; and

c) The regulator's assessment of the level of risk of under-investment in all the circumstances.[985]

5.782 GEMA told us that these were matters of regulatory judgement which it had duly considered and reached conclusions that were entirely reasonable and should not be interfered with in this appeal.[986] It told us that:

a) GEMA was very confident – based on market cross-checks, in particular, MARs – that 4.55% was unlikely to be an underestimate of the true costs of equity and that any inadvertent underestimate could be adjusted for in this or future price controls;

b) GEMA's view was that companies had reasonable expectations of outperforming the allowed return on equity by at least 0.25% and that if they did not achieve this then companies would benefit from the expected outperformance ex-post mechanism, so that returns would be adjusted upwards by up to 0.25%; and

[983] GEMA Response A, paragraph 264.
[984] GEMA Response A, paragraph 265.
[985] GEMA Response A, paragraph 266.
[986] GEMA Response A, paragraph 267.

c) GEMA considered that the risks of short to medium term under-investment were substantially addressed by other incentive mechanisms in the RIIO-2 settlement (eg ODIs, quality of service obligations). It said that in any event, the link between underestimating the true cost of equity and long-term under-investment in networks was overstated given the lack of observed over-investment in RIIO-1.[987]

5.783 With reference to the points related to uncertainty mechanisms per paragraph 5.777 above, GEMA submitted that it did not consider that ODIs, licence obligations etc remove any role for the allowed return on equity in incentivising appropriate long-term investment.[988] It told us that these mechanisms were matters that gave GEMA a substantial degree of confidence that incentives to invest would not be undermined in the short to medium term and that it had had due regard to the need to secure appropriate long term investment, but had not considered that it justified a baseline allowed return on equity above 4.55% in these circumstances.[989]

5.784 GEMA submitted that in the event that the point estimate did prove too low to secure long-term investment, this could be readily observed in MARs and addressed through the cost of equity estimate in the next price control process – or, in extremis, in adjustments to RIIO-2 itself.[990]

Intervener submissions

5.785 Citizens Advice disagreed with the notion that GEMA should aim up within the RIIO-2 price control, submitting that no further aiming up should be allowed. In addition to expressing disagreement with the requirement to aim up, and any necessity to do so within this price control, it told us that it had seen no evidence that the risk to consumers of setting a cost of capital too low exceeded the risk of setting it too high because it would impact future investment. It noted that MAR evidence demonstrated that outperformance was expected within the energy sector.[991]

GEMA's alleged failure to 'aim up' for uncertainty – our provisional assessment

5.786 In making the assessment set out in our provisional determination, we recognised the appellants' arguments that recent regulatory precedent includes examples of aiming up when estimating the cost of equity. However, these precedents were not binding on GEMA, and were therefore not in

[987] GEMA Response A, paragraph 267.
[988] GEMA Response A, paragraph 268.
[989] GEMA Response A, paragraph 268.
[990] GEMA Response A, paragraph 268.
[991] Citizens Advice Intervention Notice, paragraphs 136–143.

themselves evidence that GEMA was compelled to aim up. The RIIO-2 decision needed to be made in the context of this price control and if, based on its own regulatory judgement, GEMA considered the selected cost of equity to be an appropriate estimate, then it was not required to make adjustments simply to be consistent with its own previous regulatory decisions or those of other regulators.

5.787 We considered the three key arguments from the appellants:

a) that the purpose of aiming is to protect against the uncertainty of estimating the cost of capital, and not to set an allowed return on equity that is materially in excess of the actual cost of capital;

b) that where the cost of equity is set too low, there is a risk of longer-term underinvestment; and

c) that the UMs within the price control more broadly do not compensate for an incorrectly set cost of equity.

5.788 In our view, for the reasons below, none of the issues raised by the appellants provided sufficient evidence that GEMA had misunderstood or mischaracterised their assessment of the issues or that GEMA was wrong not to aim up in this case.

5.789 With regard to paragraph 5.787a), the inherent uncertainty in assessing the cost of equity meant that regulatory judgement must be exercised in determining the appropriate cost of equity allowance.

5.790 GEMA had provided evidence that it had assessed the appropriateness of its estimate through comparison to a series of cross-checks, and that these checks demonstrated a high likelihood that GEMA's allowance was at least high enough. Again, as noted in paragraph 5.748 we found no error in GEMA's estimate of the cost of equity in the round, and concluded that there was a body of evidence that suggested that GEMA could have chosen a lower point estimate. In addition, GEMA had supplied evidence that it had considered the broader package of the price control, including the impact of measures such as uncertainty mechanisms, in coming to the view that aiming up is not required or in the best interest of consumers. Although GEMA's approach did not eliminate parameter uncertainty, we noted that the use of cross-checks did provide additional reassurance that uncertainty in respect of parameters that were hard to measure, such as TMR, did not result in an estimate of the cost of equity that was too low.

5.791 In considering a broad range of evidence and testing the estimate against cross-checks, we therefore considered that GEMA had tried to reduce parameter uncertainty today (ie in setting the cost of equity at ‘year zero’). However, we recognised that this did not necessarily, in itself, resolve the question of parameter uncertainty arising in the future (ie whether the cost of equity will still be appropriate going forwards in the price control).

5.792 With regard to future uncertainty, GEMA noted that the indexing of the RFR should help to mitigate the risk of the cost of equity being materially wrong during the price control. The appellants disputed this claim, noting that the estimated cost of equity (using the CAPM) was much more sensitive to the estimated levels of TMR and beta. In practice, there is inevitably some parameter uncertainty when using a model such as CAPM, and we considered that there were limitations on how accurately this can be assessed. However, as discussed above, we agreed that GEMA had mitigated this risk through its use of cross-checks, and the indexation of the RFR would at least contribute to addressing the risk that the cost of equity increases during RIIO-2.

5.793 We then considered points (b) and (c) in paragraph 5.787 in order to assess whether the residual parameter uncertainty would justify ‘aiming up’, We took into account evidence from GEMA which demonstrated that the RIIO-2 price control included a range of mechanisms to address the potential risk of under-investment within the energy sector. We recognised the broader argument that a cost of equity set too low could increase the risk of under-investment; however, in this particular scenario, we concluded that this risk was significantly mitigated in RIIO-2. The level of investment was expected to be significantly influenced by external factors, including the approach to Net Zero, or for the case of GDNs the replacement expenditure programme. GEMA had put in place a number of re-openers to allow it to adjust outputs and allowances where the case for investment has been identified. We did not consider that the appellants had shown that it was also necessary for customers to provide an additional allowance to the companies in the form of an ‘aiming up’ adjustment to the cost of equity. Based on the evidence provided, we did not see an error in GEMA’s approach.

5.794 For reasons set out above, we considered that we had not been presented with any convincing evidence supporting a requirement for GEMA to ‘aim up’. As a result of the evidence presented to us, we provisionally concluded that GEMA had given due regard to the cost and benefits of aiming away from the midpoint, and that there was no error in GEMA’s approach or decision in relation to ‘aiming up’ for uncertainty.

Appellants' responses to the provisional determination on GEMA's alleged failure to aim up for uncertainty

5.795 The appellants jointly submitted that they considered that GEMA had made an error by not determining a cost of equity above the midpoint in its range of estimates. They told us that even if GEMA had not made errors in estimating the cost of equity range, the inherent uncertainty of the estimates created a risk that the midpoint of the range was below the true cost of equity. The appellants submitted that in this scenario, network companies would be more inclined to mitigate the erosion of shareholder value, including potentially scaling back and delaying investment, resulting in harmful consequences for companies, consumers and the environment in the long term.[992]

5.796 The appellants' submissions were split into the following sub-topics.

a) Parameter uncertainty

b) Impact of over- versus under-estimation;

c) Regulatory precedent;

d) UMs; and

e) Misunderstanding and mischaracterisation of the need to aim up.

5.797 We set out submissions on each sub-topic below.

Parameter uncertainty

5.798 Appellants submitted that they disagreed with the provisional determination's finding on the lack of an 'in the round' error and its finding that GEMA's cross-checks were satisfactory to mitigate the need to aim up.[993] [994] [995] For example:

a) SGN told us that GEMA's Modigliani-Miller and MARs analyses were not sufficient to conclude that the likelihood of overestimating the cost of equity was sufficiently greater than underestimating it and that there was no error.[996]

b) SPT submitted that it disagreed that uncertainty around the true cost of equity was mitigated by GEMA's cross-checks and that the principal

[992] Appellants' Joint Response to PD on Ground A, page 8.
[993] Cadent Response to PD, paragraph 11.109(a).
[994] NGN Response to PD, paragraphs 161–162 and paragraph 166.
[995] SPT Response to PD, paragraph 105.
[996] SGN Response to PD, paragraph 156(iv).

reason for aiming up – ie to address the risk of setting a cost of equity that is too low and risk to socially beneficial investment – remained and that GEMA was in error in failing to address this.[997]

5.799 SGN submitted that it was 'not uncontroversial that the cross-checks used suffer from a number of shortcomings' and that the CAPM-derived cost of equity was the primary means to determine the cost of equity. It told us that the evidence submitted by the appellants demonstrated that the CAPM-derived cost of equity was too low.[998]

5.800 NGET/NGG referred to the CMA PR19 Redetermination and noted that the CMA's methodological approach to setting the TMR and RFR contributed to the reduction in the cost of equity from the previous price control period. It said that the CMA had expressed caution in setting the cost of equity on the basis that there may be risks associated with implementing such material changes. NGET/NGG submitted that concerns around potential asymmetry in the choice of parameters, particularly in the context of a sharp reduction since the previous price control period, applied equally to energy companies.[999]

5.801 SPT highlighted parameter uncertainty, noting that RIIO-2 involved: (i) a very sharp drop in the cost of equity (from approximately 7% to a level equivalent of around 3% on an RPI-adjusted basis); and (ii) uncertainty about the measurement of the cost of equity. It told us that these two factors informed the CMA's decision to include an element of aiming up in its PR19 Redetermination and that GEMA's changes in estimation method led to greater uncertainty as to the true cost of equity at RIIO-2 compared to any previous price control, increasing the need to aim up.[1000]

Impact of over- versus underestimation

5.802 The appellants repeated arguments that GEMA should have aimed up due to the principle that the impact of under-estimation of the cost of equity is likely to cause greater harm than over-estimation. The appellants told us that appropriate weight was not given to the principal objective with regard to the asymmetry of losses to consumers arising from setting the cost of equity too low, ie GEMA is required to set the cost of equity allowance at a level where the likelihood of overestimating the cost of equity is sufficiently greater than underestimating it.[1001]

[997] SPT Response to PD, paragraph 105.
[998] SGN Response to PD, paragraph 156(iii).
[999] NGET and NGG Joint PR19 submission, paragraphs 2.65–2.66.
[1000] SPT Response to PD, paragraph 104.
[1001] Cadent Response to PD, paragraphs 11.111–11.112 and SGN Response to PD, paragraph 157.

5.803 For example:

a) SGN[1002] and NGN[1003] told us that GEMA is required to set a cost of equity allowance at a level that is best calculated to minimise consumer welfare losses from underinvestment in RIIO-2 and in future price controls as a result of setting the cost of equity too low, and from increased customer bills as a result of setting the cost of equity too high. The appellants told us that GEMA is required to set the allowance to balance these effects, which is at a level where the likelihood of overestimating the cost of equity is sufficiently greater than underestimating it due to the inherent asymmetry.

b) NGN submitted that the fact that GEMA's approach did not calibrate a cost of equity in order to optimise the risk of under- or overestimation was 'starkly demonstrated' by the 'clear downward bias' in GEMA's approach.[1004]

c) SGN[1005] and NGN[1006] submitted that the CMA is required to conclude that the likelihood of overestimating the cost of equity is sufficiently greater than underestimating it, and that regulatory precedent suggests that the likelihood of overestimation should be roughly twice as large as the likelihood of underestimation to minimise consumer welfare losses. These appellants submitted that KPMG's analysis suggests that this is at least 25bps above the best estimate of the cost of equity in RIIO-2.

5.804 In response to the provisional conclusion set out at paragraph 5.792, the appellants told us that indexation of the RFR was not sufficient to reduce parameter uncertainty (risking under-estimation of the CAPM-derived cost of equity):

a) Cadent submitted that RFR indexation could, in principle, reduce parameter uncertainty where RFR has been estimated in an 'unbiased manner' but is not the case for RIIO-2. It told us that the impact is likely muted given that the estimated cost of equity is much more sensitive to the estimated levels of TMR and beta.[1007]

b) NGN told us that while indexation of the RFR might mitigate the risk that the cost of equity becomes even further below its true level as a result of changes in interest rates, it did not remove the underlying risk that by

[1002] SGN Response to PD, paragraph 156(i).
[1003] NGN Response to PD, paragraph 163.
[1004] NGN Response to PD, paragraph 167.
[1005] SGN Response to PD, paragraph 156(i).
[1006] NGN Response to PD, paragraph 166.
[1007] Cadent Response to PD, paragraph 11.109(c).

failing to aim up the cost of equity is likely to be too low to optimise consumer welfare.[1008]

Regulatory precedent

5.805 The appellants told us that an inconsistent approach was taken to statutory duties across different sectors. They told us that the energy sector faced an even greater need for future investment during the RIIO-2 period than the water sector and that there was a failure to engage with the expert evidence highlighting the urgency of these risks. The appellants submitted that it was 'incongruous' for the CMA to consider that its statutory duties required it to aim up in the cost of equity range in the water industry but not in this case, and that the 'disconnect' with the approach in its PR19 Redetermination was contrary to best regulatory practice. [1009] [1010] [1011]

UMs

5.806 The appellants submitted that the UMs within the RIIO-2 price control were not sufficient to mitigate the risk of underinvestment.

a) NGET/NGG submitted that a significant proportion of reopeners (ie UMs within the price control) relied on networks proactively identifying the need for investment and that networks would be less inclined to do this if the cost of equity had been set too low. They noted that in the PR19 Redetermination the CMA had recognised that companies would be less likely to plan and bring forward investments if the cost of equity was inadequate and that it was 'untenable' for the provisional determination to assume reopener mechanisms would result in networks investing regardless of the adequacy of the cost of equity without rigorously testing that assumption.[1012]

b) Cadent submitted that the broader package of the price control, including the impact of measures such as uncertainty mechanisms helped mitigate companies' cashflow issues but aiming up was required to address parameter uncertainty and guard against the risk that the allowed return was below the 'true' cost of capital.[1013] It told us that the need for investment in the sector together with a reliance on companies to put

[1008] NGN Response to PD, paragraph 164.
[1009] Appellants' Joint Response to PD on Ground A, page 9.
[1010] SSEN-T Response to PD, paragraph 2.105–2.111 and WWU Response to PD, paragraph B1.3.
[1011] SGN Response to PD, paragraph 157.
[1012] NGET/NGG Response to PD, page 45.
[1013] Cadent Response to PD, paragraph 11.109(b).

forward investment proposals through reopeners increased rather than decreased the importance of not setting the cost of equity too low.[1014]

c) NGN told us that if the cost of equity was set below its true level, reopeners would not be triggered, since there was no economically rational case for investment on the part of a GDN. It submitted that too low a cost of equity also risked the repex programme being delivered in a sub-optimal way.[1015]

d) SGN told us that mechanisms such as indexation of RFR and reopeners could only help reduce the welfare asymmetry but did not remove it, and did not address the risk that an allowance was set too low at the start of the price control.[1016]

5.807 NGN referred to the analysis as set out at paragraph 5.793 and told us that the Net Zero agenda served to both heighten uncertainty and increase the importance of setting a cost of equity which was not too low so as to safeguard incentives to invest. It told us that the impact of Net Zero on risks facing GDNs would lead to greater uncertainty and such considerations should reinforce the case for aiming up, not be used as an argument against it. NGN told us that this was particularly the case for GDNs.[1017]

5.808 SPT submitted that it could not see where the CMA had addressed the issue of longer-term uncertainty in detail, beyond ‘recognising’ the issue as set out at paragraph 5.790 above. It submitted that the UMs addressed the requirements for **companies** to invest within the price control period only, but that they could not address and did not attempt to address **investors**’ willingness to commit capital in the longer term and **investors**’ longer term perceptions as to the stability of returns in GB networks (emphasis added).

5.809 SPT told us that there were longer term risks to investments from setting a cost of equity that was too low and that it might be possible (at a stretch) for a regulator to partially dictate the quantum of investment in any given regulatory period through its regulatory levers, such as through PCDs. However, it submitted, it was implausible for the regulator to ensure the optimal quantum of investment over successive regulatory periods, since this depended upon autonomous investment and planning decisions made in advance. SPT told us that the requirement to avoid an error in setting the allowed rate of return and ensure an optimal level of socially desirable investment was also greater in the context of Net Zero and therefore the requirement to aim up was

[1014] Cadent Response to PD, paragraph 11.110.
[1015] NGN Response to PD, paragraph 164.
[1016] SGN Response to PD, paragraph 156(ii).
[1017] NGN Response to PD, paragraph 165.

greater at RIIO-2 than other previous reviews, reinforcing the acknowledged public interest case for aiming up.[1018]

Misunderstanding and mischaracterisation of the need to aim up

5.810 NGET/NGG submitted that the CMA had misunderstood the need to aim up in the provisional determination. They told us that the analysis as set out at paragraph 5.793 above mischaracterised the appealing parties' arguments. They told us that the appealing parties had not requested an 'additional allowance' but that, on the contrary, the purpose of aiming up was not to provide something 'additional' but rather to recognise that the cost of equity was uncertain and unknowable. They noted that the costs of setting the cost of equity too low outweighed the costs of setting it too high and that aiming up was a rational and economically correct solution supported by academic literature and regulatory precedent.[1019]

GEMA's alleged failure to 'aim up' for uncertainty – our final assessment

Parameter uncertainty

5.811 We considered the appellants' arguments relating to the need to aim up as a result of parameter uncertainty.

5.812 First, we observe that GEMA had carried out a series of cross-checks on its cost of equity parameter estimates. As is set out at paragraph 5.718 to 5.723 of our 'in the round' final assessment, we recognise that no cross-checks are perfect nor is it always possible to accurately rank or weight cross-checks due to their effectiveness being dependent on the situation in which they are applied. We have set out our reasoning, in particular on MAR and Modigliani Miller cross-checks, and have concluded that: (i) the cross-checks utilised by GEMA have not been demonstrated to be 'wrong'; (ii) there is no one 'superior' cross-check that should have been utilised which GEMA was wrong to exclude; and (iii) the cross-check evidence does not demonstrate that GEMA's cost of equity allowance was too low.

5.813 Second, we observe that the MARs evidence is strongly suggestive of a willingness on the part of investors to invest in the energy sector at a material premium to RAV at the WACC set by GEMA in RIIO-2. In our view, this supports the finding both that the cost of equity has not been set too low and

[1018] SPT Response to PD, paragraph 106–107.
[1019] NGET/NGG Response to PD, page 45.

that under-investment over the RIIO-2 period is unlikely (see paragraphs 5.816 to 5.818 below).

5.814 While we agree with the appellants that indexation would not solve a problem with the original level of the RFR, and that the RFR is of less consequence to the overall level of the cost of equity than TMR and beta, (i) we have found that GEMA's estimates of RFR, TMR and beta were not wrong, and (ii) we note that RFR is the only one of the three elements that can be expected to change materially over the period of a price control. Therefore, we find that RFR indexation does serve to mitigate parameter uncertainty, albeit does not eliminate it altogether.

5.815 For these reasons, we find that GEMA was not wrong, on the balance of the evidence, in deciding not to aim up as a result of parameter uncertainty.

Impact of over- versus underestimation

5.816 We do not consider that the appellants' submissions in response to the provisional determination on over- versus underestimation of the cost of equity provide new evidence. The appellants submitted that in order to have regard to the statutory duties, GEMA should have aimed up as the negative impact of underestimation is greater than the negative impact of overestimation. For the reasons set out in the provisional assessment described above (at paragraphs 5.786 to 5.794), in making our final assessment we maintain our conclusion that there is no requirement for GEMA to aim up.

5.817 We find that GEMA is not required to aim up on the CAPM-implied cost of equity in order to satisfy the duty to have appropriate regard to both present and future customers, for the following reasons:

a) First, while we recognise that the **purpose** of aiming up may not be to provide an additional return to investors but rather to mitigate the risk of setting the cost of equity too low and incurring the associated costs, we find that the **effect** of consistently aiming up over a best estimate of the cost of equity is likely to result in additional return to investors over time (emphasis added). That is to say, there are real costs to consumers from a policy of aiming up. We find that this is a relevant consideration for GEMA to take into account in coming to a view on whether aiming up is required in the circumstances of a particular price control;

b) Second, we note GEMA's submission that a significantly higher cost of equity in RIIO-1 did not bring forward material additional investment. This would tend to suggest that, in the short-term, investment decisions may not respond significantly to the precise level of the cost of capital. We find this to be relevant in the context of the other aspects of the price control, such as PCDs, ODIs, repex programmes, much of which are legally mandated, and uncertainty mechanisms, which seek to ensure appropriate levels of investment in the short-term. Therefore, to the extent that the cost of equity was set too low, it is not clear to what extent under-investment is likely to occur in the short-term;

c) Third, we agree with GEMA that, to the extent that it errs in terms of the level of the cost of capital in one price control, it can correct for this in subsequent price controls, re-establishing longer-term incentives to bring forward investment plans.

5.818 We find that GEMA's detailed analysis of the CAPM metrics themselves as well as its consideration of a range of market-based cross-checks, together with its consideration of the above points, supports the finding that GEMA has given sufficient regard to the question of whether to aim up and has reached a well-reasoned decision not to do so. In doing this, it has therefore met its statutory duty.

Regulatory precedent

5.819 Appellants submitted that there was a perceived greater risk with regard to investment/climate change in the energy sector than water sector, and aiming up on the cost of equity had occurred in the CMA's PR19 Redetermination so it should also be applied in RIIO-2.

5.820 With respect to the higher perceived risk associated with the energy sector as compared with the water sector due to climate change, we observe that the market-based evidence, ie MARs, does not provide clear support for this proposition. While we recognise that MARs are 'broad-brush' metrics, ie there are a number of factors that feed into the figures for each firm, and there are a limited number of available data points, the premia paid for energy firms are not clearly lower than those for water firms. The allowance set by GEMA reflects market-based returns available today and estimates over the future of the control based on evidence relevant to the energy sector at the time of undertaking the RIIO-2 analysis. As is set out in the preceding sections, we do not consider that GEMA has made an error in determining the CAPM metrics, even when these result in estimates which differ from other previous price controls.

5.821 With regard to SPT's point on a drop in the cost of equity, we do not consider that providing greater allowances simply on the basis of higher past returns would be in the interest of consumers (present or future).

5.822 More broadly, with regard to the principle of regulators aiming up in previous price controls, we note GEMA's evidence that it has also aimed straight and aimed down in previous price controls, ie not all the precedent supports aiming up, and reiterate our view on the non-binding nature of past decisions, including the CMA PR19 Redetermination, which is discussed in more detail from paragraph 5.735 of the 'in the round' assessment.

UMs

5.823 The appellants argued that if the cost of equity is set too low then there is a risk of underinvestment, and that the UMs will not be sufficient to resolve this concern. These points raised by the appellants are not new and repeat arguments made earlier in the appeal.

5.824 We consider that the UMs can help mitigate some form of uncertainty arising in the price control. We continue to consider that the UMs such as reopeners are an appropriate means by which to allow companies to obtain additional funding where new investment opportunities / requirements are identified. In this context, we conclude that the UMs are in place to directly combat this concern and to allow for additional funding to be obtained as and when required, thereby mitigating the risk of investment uncertainty associated with the RIIO-2 price control.

5.825 We agree that the UMs do not particularly address the risk of underinvestment due to a cost of equity that is set too low. However, we point to our assessment on the impact of over- versus under estimation at paragraphs 5.816 to 5.818 above, and our point in paragraph 5.813 about MARs providing fairly strong evidence that investors are prepared to provide capital at the current cost of equity.

5.826 We consider points raised with regard to uncertainty arising from the Net Zero agenda in the relevant Net Zero section below.

Misunderstanding and mischaracterisation of the need to aim up

5.827 With regard to NGET/NGG's submission, we note that 'additional' allowances (as per paragraph 5.810) refer to allowances 'in addition' to the CAPM-calculated cost of equity. We recognise that the principle of aiming up is not intended to provide an 'additional' allowance to equity-holders, but rather to compensate for the risk of underestimation of the CAPM-derived cost of equity in determining the 'real' cost of equity. However, as set out in the above assessment, we consider that GEMA has appropriately considered the evidence to reduce this risk of uncertainty in setting the cost of equity.

5.828 In summary, the submissions made by the appellants in response to the provisional determination have not provided new insight into the question of the need to aim up for uncertainty. We therefore consider that our provisional assessment as set out at paragraphs 5.786 to 5.794 remains relevant in setting out our reasoning. We have expanded upon this reasoning based on submissions made by the appellants in response to the provisional determination, as set out at paragraphs 5.811 to 5.827 above. Having concluded there is no error in either the 'in the round' or cross-check assessment, and with consideration of the broader price-control package we do not consider that GEMA was required to aim up on the CAPM-calculated cost of equity.

5.829 With regard to regulatory precedent, while aiming up has occurred in the past and there may be instances in which it is deemed relevant, this is not binding and does not compel GEMA to aim up.

Aiming up for asymmetric risk

Appellants' initial submissions

5.830 The appellants submitted that asymmetric risk is the risk that the potential for profit or loss within the price control is imbalanced, ie the risk is not equal to the potential reward. The appellants submitted that GEMA had committed an error by failing to account for asymmetric risk:

a) GEMA had failed to appreciate that 'aiming up' is necessary where price control settlement involves asymmetric risks; and

b) GEMA had failed to appreciate that the energy networks suffer from 'negative skewness'.

5.831 Each of these points are considered in turn.

GEMA failed to appreciate that 'aiming up' is necessary where price control settlement involves asymmetric risks

5.832 NGET submitted that GEMA had wrongly assumed that asymmetric downside risk did not apply in RIIO-T2. It told us that evidence from Frontier Economics demonstrated that 'structural asymmetry in the ODIs' that the CMA found in its PR19 Redetermination was also present in NGET's RIIO-2 price control. NGET submitted that there was significant asymmetric downside risk in the RIIO-2 package, in the form of use-it-or-lose-it totex allowances and evaluative UMs, and to a greater extent than was the case in PR19. NGET told us that GEMA was therefore wrong to rely on this issue as justification for not aiming up in RIIO-2.[1020]

5.833 SPT submitted that GEMA did not express a clear view on whether there was asymmetric risk within RIIO-T2 and that 'it is clear that there is'. SPT told us that the risks of not meeting the sustainability objectives or of material incidents on the system meant that the downside risk was heightened in the present context (compared with eg PR19 and previous price control periods for SPT).[1021]

5.834 Cadent told us that it disagreed with GEMA's assertion that there was no asymmetry in the RIIO-GD2 package and that the approach and significant number of errors that characterised GEMA's RIIO-2 cost assessment process called into serious doubt how GEMA could have performed any meaningful assessment of asymmetry in respect of totex.[1022]

The energy networks suffer from 'negative skewness' which reinforces the need to 'aim up'

5.835 SSEN-T submitted that evidence of National Grid's share price reaction relative to the FTSE All-share in response to political, regulatory and other events demonstrates the existence of 'negative skewness' in the sector.[1023]

5.836 SSEN-T told us that negative skewness is illustrative of a riskier environment for investors in the energy sector, compared to other sectors, from which they demand a commensurate risk premium. It continued by stating that the existence of such risks in the energy sector is an additional reason that GEMA was not justified in departing from the established principle of 'aiming up' in its Decision.[1024]

GEMA's submissions

5.837 With regard to the points raised by NGET and SPT at paragraphs 5.832 and 5.833 above, GEMA submitted that it accepted, in principle, that material net asymmetric risk in a price control settlement would warrant a degree of aiming up on the allowed return on equity. However, it told us that it, did not consider that the RIIO-2 settlement presented a sufficiently material net asymmetric

1020 NGET NoA, paragraphs 3.353–3.354.
1021 SPT NoA, paragraph 38(2).
1022 Cadent Reply, paragraph 107.
1023 SSEN-T NoA, paragraph 4.99.
1024 SSEN-T NoA, paragraph 4.99.

risk to licensees. GEMA said that that represents both a factual conclusion and an exercise of judgement.[1025]

Intervener initial submissions

5.838 In addition to a view that GEMA had 'aimed up' via, in particular, its selection of debt beta and its decision not to adjust the cost of equity estimate as a result of its 'Step-2' cross-checks, BGT submitted that the downside risk exposure the appellants would face had been overstated.[1026] BGT stated that the appellants' evidence had not mentioned the 'myriad of decisions in their favour which, in aggregate, had led to the Decision being skewed in their favour and included settlements that were generous to the appellants, which went beyond what represented a 'fair bet''.[1027]

5.839 Specifically, BGT told us that the downside risk exposure the appellants will face in RIIO-2 had been overstated because the calibration of some incentive mechanisms inherently provided protection for the appellants. In particular, it referred to:

a) The complaints metric in the GD price control: BGT told us that all GDNs achieved and have sustained improvement in performance against this incentive during RIIO-GD1 but that the baseline performance target for the sector for RIIO-2 had been set at a level materially below the performance achieved by all GDNs over the course of RIIO-GD1. It said that this meant that GDNs could allow performance to significantly deteriorate relative to the levels achieved during RIIO-GD1 without incurring penalties.

b) Unplanned interruptions incentive: BGT told us that minimum performance targets had been set no shorter than each GDN's worst performance during the first six years of RIIO-GD1 and that due to the 'worst performance' approach, GDNs were effectively provided with significant protection from incurring penalties.[1028]

Aiming up for asymmetric risk – our provisional assessment

5.840 In making the assessment set out in our provisional determination with regard to the appellants' arguments that GEMA had failed to account for the asymmetric risk across the RIIO-2 package, we provisionally concluded that

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[1025] GEMA Response A, paragraph 269.
[1026] *Edwards (BGT)*, paragraph 30.
[1027] *Edwards (BGT)*, paragraph 21.
[1028] *Edwards (BGT)*, paragraph 31.

both GEMA's response to the appellants' arguments and its FD demonstrated that it had considered the overall symmetry of the package and determined that a material adjustment to returns was not necessary. We noted that in its FD, GEMA stated that:

> '[It] considered whether the RIIO-2 framework contains net asymmetric risk, or whether there were parallels between RIIO-2 and the CMA's interpretation of PR19. However [its] view, which [it] believe[s] is shared by most RIIO-2 stakeholders and responses to DDs, is that a material adjustment to allowed returns on this basis would be unwarranted (…)
>
> [It] do[es] not, however, expect RIIO-2 companies to face perfectly symmetric risks across every aspect of their regulated activities. [It] recognise[s] that RIIO-2 companies operate under regulatory arrangements that expose them to risks and provide opportunities for rewards to varying degrees. While, in aggregate, price control packages are typically calibrated to provide companies with a fair opportunity to earn an efficient cost of capital, it is possible that individual elements of the price control package are not perfectly symmetrical and may be biased upwards or downwards'.[1029]

5.841 We also noted the evidence provided by BGT which suggested that the downside risks faced by the appellants had been overstated relative to the upside opportunities.

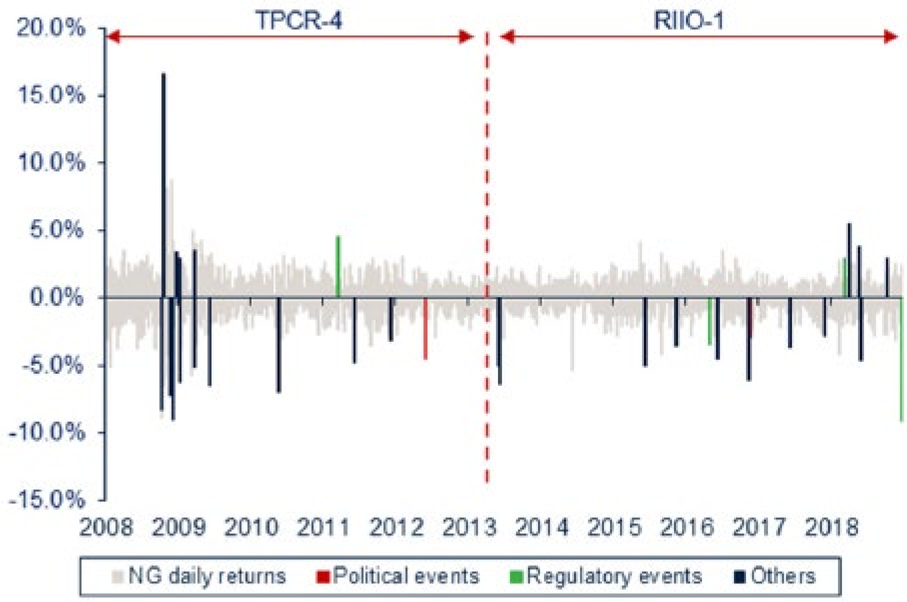
5.842 In making our provisional determination, we noted that it was clear to us that GEMA had considered the potential for asymmetry in the overall RIIO-2 package and, exercising its regulatory judgement, had appropriately determined that while there was the potential for instances of asymmetry facing the network companies, overall asymmetry was neither certain nor material enough as to require an ex-ante adjustment to the allowed returns on equity. This was in line with our assessment of the asymmetry of the overall price control package, and thus we found no error in GEMA's consideration of asymmetric risk. This issue is considered in more detail within chapter 6 where we discuss the outperformance wedge.

5.843 With regard to the submission on 'negative skewness' in the sector, we noted that we were not convinced by SSEN-T's evidence on the need for an adjustment to the cost of equity via aiming. National Grid's share price

[1029] GEMA FD Finance Annex, paragraphs 3.179–3.180.

reaction in relation to the FTSE All-share is captured within analysis and setting of the beta for the price control. Further, we were not convinced that the evidence did demonstrate particular ‘negative skewness’; rather Figure 5-16 demonstrated a broadly symmetric picture of National Grid’s share price reaction. We considered that further adjustments would significantly increase the risk of ‘cherry-picking’ data rather than taking an appropriate in the round assessment, and as such we did not consider such adjustment would be appropriate.

Figure 5-16: National Grid’s share price reaction (a sharp increase or decrease in price relative to the FTSE All-share), 2008–18



Source: SSEN-T NoA, Figure 5, Oxera analysis based on Thomson Reuters data.
Note: The highlighted statistically significant observations (two standard deviations away from the long-run historical average) represent extreme movements in National Grid’s share price, where its share price deviated substantially from that of the FTSE All-share. Events are categorised based on Oxera’s qualitative assessment of the news content. ‘Others’ includes systematic, company-specific and safe-haven events.

5.844 As a result of these assessments, we provisionally concluded that we did not consider there to be evidence that GEMA has made an error in choosing not to ‘aim up’ within the cost of equity as a result of asymmetric risk.

Appellants’ submissions in response to the provisional determination

5.845 Cadent submitted that it was well established that asymmetric risk must be taken into account in setting the cost of equity, with the CAPM providing the level of return on an asset that was considered to be a ‘fair bet’. It told us that if such non-systematic risks were not taken into account, the cost of equity would be too low, and the regulator would not have given appropriate weight to its finance duty.[1030]

5.846 NGN pointed to forward-looking Monte Carlo analysis it had submitted with its Reply as demonstrating an expected underperformance by a notional GDN due to negative structural asymmetry of the RIIO-GD2 financial package, and submitted that this should be considered in the context of aiming up.[1031]

5.847 NGN submitted that this analysis demonstrated that if neutral totex performance is assumed, then RIIO-GD2 was forecast to deliver underperformance of around 15bps for the notional GDN.[1032] NGN submitted that by not aiming up to take account of this asymmetry in the RIIO-GD2 package, GEMA had failed to give appropriate weight to relevant evidence.[1033]

Aiming up for asymmetric risk – our final assessment

5.848 With regard to asymmetry within the price control, we note Cadent's submission that where non-systematic risks are not taken into account, the cost of equity will be too low. However, we consider that the RIIO-2 price control is structured such that, while there is the potential for instances of asymmetry facing the network companies, overall asymmetry is neither certain nor material enough as to require an ex-ante adjustment to the allowed returns on equity. We have not received evidence to negate this conclusion in response to the provisional determination.

5.849 We note the Monte Carlo analysis submitted by NGN, but do not consider this to have identified an asymmetry in expected outcomes that would be expected to justify any aiming up when setting the allowed return on equity. We note that the expected financial underperformance identified in NGN's modelling results to a large extent from the consideration of scenarios in which the notional GDN's operational performance falls significantly below the target levels that have been set for RIIO-GD2.[1034] GEMA has set out the basis upon which those target levels (and other ODI parameters) were set,[1035] and we do not consider NGN's analysis to have demonstrated why the possibility

[1030] Cadent Response to PD, paragraph 11.114.
[1031] NGN Response to PD, paragraph 169.
[1032] NGN Response to PD, paragraph 169.
[1033] NGN Response to PD, paragraph 169.
[1034] We note, in particular, that Table 11 of *Alexander 3 (NGN)*, shows the primary drivers of the average RORE underperformance identified in NGN's analysis to be operational underperformance in relation to the Complaints metric, Guaranteed Standards of Performance and Emergency response time.
[1035] GEMA response of 1 July 2021 to the questions arising from the Outperformance Wedge Joint Hearing on 22 June 2021, Table 3.

of underperformance in relation to those operational targets should be regarded as having implications for setting the allowed return on equity.

5.850 On the basis of our reasoning as set out at paragraphs 5.840 to 5.844 and 5.848 to 5.849 above, we continue to conclude that we do not consider there to be evidence that GEMA has made an error in choosing not to 'aim up' within the cost of equity as a result of asymmetric risk.

Aiming up for Net Zero

Appellants' initial submissions

5.851 Cadent, NGN, SGN and WWU submitted that GEMA had failed to recognise a 'gas stranding' risk in light of the Net Zero agenda.

5.852 Cadent submitted that:

a) GEMA appeared to accept that gas sector stranding risk may present asymmetric risk. However, it does not provide any cost of equity adjustment to account for this seemingly on the basis of recoverability via change in depreciation policy at each price control review and a general dismissal of there being compelling evidence for a need for higher returns on capital to reflect this risk.[1036]

b) GEMA had not made any serious attempts to assess the need for higher returns on capital to reflect the asymmetric risk arising from structural factors, with the scope of work for GEMA's consultants, CEPA, being limited to estimating beta, ie systematic risk.[1037]

c) the Net Zero agenda represented a significant paradigm shift for GDNs and one of the consequences of this was the asymmetric risk uniquely posed to gas networks in the context of uncertainty of long-term usage of the gas network.[1038]

d) there was no overall balance of risk and return in GEMA's RIIO-GD2 package due to asymmetry, and that its package did not provide the best incentives to companies in the interests of consumers.[1039]

5.853 NGN told us that GEMA had failed to adjust its estimate to account for the asymmetric risk exposure facing GDNs which, 'means that investors are not

[1036] Cadent NoA, paragraph 4.126.
[1037] Cadent NoA, paragraph 4.127.
[1038] Cadent NoA, paragraph 4.128.
[1039] Cadent NoA, paragraph 4.132.

appropriately provided with a fair bet when investing in GDNs, implying that investment will be sub-optimal'.[1040]

5.854 SGN submitted that GDNs faced asymmetric risk as a result of long-term demand risk, which might arise under certain future scenarios as the UK transitions towards Net Zero.[1041] It told us that one extreme leads to, at best, the decommissioning of assets as they become unviable, while the other extreme would require significant and rapid investment in repurposing and reinforcing the assets in line with the Net Zero agenda.[1042]

5.855 Therefore, SGN told us that GEMA should have aimed up for the asymmetry arising from asset stranding risks, having failed to price it elsewhere.[1043] SGN also said that a number of elements in the price control package were asymmetric by design which made the case for aiming up for asymmetry stronger as there was an increased likelihood that investors did not have a mean expectation of earning the market cost of equity.[1044]

5.856 WWU said that without direction for future investment opportunities, the gas industry could be facing reduced capital expenditure and the resulting risk of plateauing or shrinkage of RAV through the potential for gas infrastructure to become 'stranded assets.' It told us that the combination of falling demands for natural gas, technological and policy uncertainties surrounding its replacement, and the potential impact upon investor perception of the sustainability of the gas sector demonstrated that GDNs were in an increasingly precarious position at the beginning of RIIO-GD2 as compared to other utility sectors.[1045]

5.857 The appellants disputed GEMA's suggestion that stranding risk could be resolved through the implementation of accelerated depreciation as this would result in excessive increases in customer bills that would only hasten the transition away from gas. For example, Cadent told us that accelerated depreciation as put forward by GEMA as a solution did not stand up to scrutiny given that, upon analysis, the potential effect this would have on customer bills would not allow for full recoverability.[1046] It continued by telling us that accelerated depreciation exacerbated the issue because the resulting price increase would accelerate any potential move to alternative sources of energy as gas became less competitive, resulting in a greater loss of the

[1040] NGN NoA, paragraph 212.
[1041] SGN NoA, paragraph 262.
[1042] SGN NoA, paragraph 262.
[1043] SGN NoA, paragraph 267.
[1044] SGN NoA, paragraph 268.
[1045] WWU NoA, paragraphs 4.41–4.42.
[1046] Cadent NoA, paragraph 4.129.

customer base and that this would result in a spiralling effect.[1047,1048] Overall, it submitted that accelerating depreciation could not remove the risk to investors and therefore was not an alternative to remunerating investors appropriately for the risks they bear.[1049]

5.858 NGN submitted that simply accelerating depreciation of the asset base today would be to recognise that a reduction in value had already occurred. It told us that it was not a realised loss today that investors are concerned about, but the potential loss due to the UK's transition to Net Zero, which would be unrecoverable under the accelerated depreciation mechanism as a result of an implied infeasible hike in prices, to which investors attributed a non-zero probability. NGN said that investors required an 'insurance premium' to accept this risk on an expected basis, unless GEMA was able to demonstrate that it would safeguard investors' assets with sufficient guarantee.[1050] In addition, NGN noted that it had estimated that the impact of aiming up to address this problem would equate to an approximately 50p increase in customer bills, while the impact of accelerated depreciation at the required rate would be an approximately £40 increase in customer bills.[1051]

5.859 NGN also noted that environmental, social and governance factors could not necessarily solve asymmetry issues as it was not clear that investment in gas networks would be considered compliant with these factors, as evidenced by the ongoing EU debate on the labelling system for energy investments.[1052]

5.860 KPMG, on behalf of Cadent, SGN and NGN, submitted that the need to aim up was supported by the existence of real options arising due to the Net Zero agenda, which meant that investors might derive value from adopting a 'wait and see' approach before making capital commitments, instead of investing today.[1053]

5.861 Cadent,[1054] SGN[1055] and NGN[1056] told us that GEMA had conflated the timing of when the risk is likely to materialise with the timing of when it will be reflected in investor expectations of future cash flows and therefore expected returns. It said that GDN investors would project cashflows over their entire investment horizon (which it noted was generally considerably longer than five years) and that a potential loss of cashflows would be priced in today,

1047 Cadent Reply, paragraph 109.
1048 Cadent Closing Statement, Table 5.
1049 Cadent Reply, paragraph 114.
1050 NGN Reply, paragraph 69.
1051 NGN Main Hearing Transcript, 30 June 2021, page 10, line 16–page 11, line 13.
1052 NGN Reply, paragraph 70.
1053 KPMG (Cadent, NGN, SGN), Expert Report 'Estimating the Cost of Equity for RIIO GD-2', paragraph 2.4.6.
1054 Cadent Closing Statement, Table 5.
1055 SGN Closing Statement, paragraph 8.
1056 NGN Closing Statement, paragraph 6.

regardless of whether it would materialise in the next five years, so was not a matter only for the next price control.

5.862 Cadent,[1057] SGN[1058] and NGN[1059] also told us that the risk of cost non-recovery due to implementation of Net Zero policies was unlikely to be (fully) diversifiable, as it was linked to the affordability of energy bills for consumers and ultimately the state of the economy through the regulatory process. It said that even if it were diversifiable, aiming up for asymmetry would still be required in RIIO-2 as an adjustment to ensure that investment in GDNs was a fair bet.

5.863 The appellants reiterated that aiming up was the solution to the 'problem' and several appellants pointed to analysis by KPMG which suggested that a 15bps increase to the CAPM-calculated cost of equity would be appropriate to address this risk.[1060]

GEMA's initial submission

5.864 With regard to the 'stranding risk' argument as set out in paragraphs 5.851 to 5.858, GEMA submitted that the relevant appellants (Cadent, NGN, SGN and WWU) themselves had not sought to mitigate this risk by seeking increases in capital depreciation allowances for RIIO-2. It told us that it had demonstrated a willingness to manage this risk both with NGG and in setting the accelerated depreciation policy for gas distribution in RIIO-1.[1061]

5.865 GEMA submitted that it considered such provision for accelerated depreciation to be a more appropriate way to manage gas asset stranding risk than increasing allowed returns on equity, which would lead to higher consumer charges. It told us that it was concerned to ensure that gas network companies had appropriate incentives to manage gas asset stranding risks with GEMA's cooperation and that such incentives would be undermined if companies were allowed higher returns on their regulatory asset base.[1062]

Aiming up for Net Zero – our provisional assessment

5.866 With regard to the risk of asset stranding in the gas networks and real options, we acknowledged the uncertainty that arose from the Net Zero agenda and the potential for a disproportionately large impact on investors in the gas

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[1057] Cadent Closing Statement, Table 5.
[1058] SGN Closing Statement, paragraph 9.
[1059] NGN Closing Statement, paragraph 7.
[1060] KPMG (Cadent, NGN, SGN), Expert Report 'Estimating the Cost of Equity for RIIO GD-2', paragraph 2.2.2.
[1061] GEMA Response A, paragraphs 270–271.
[1062] GEMA Response A, paragraph 272.

networks. However, we were unconvinced that aiming up was the appropriate way to address this risk in RIIO-2. The appellants were unable to provide more accurate analysis than that in KPMG's proposal for a small upward adjustment to the cost of equity, which we concluded would only have a small effect on the risk-reward trade-off in RIIO-2, by comparison to the size of some of the longer-term downside risks beyond RIIO-2 identified by the parties.

5.867 We were not persuaded that aiming up to account for the risk of asset stranding in the gas networks would be an appropriate balance of considerations between customers and investors in RIIO-2. We noted our expectation that, following RIIO-2, there would be increased clarity over the future of the gas network, and GEMA would be well placed to respond to technical and political developments in ensuring appropriate compensation for investors in gas assets.

5.868 As a result, we agreed with GEMA that the issues relating to the Net Zero agenda were better addressed with the benefit of more information on how these would impact the energy networks, and in particular the gas networks – we considered this to be more appropriate than making an adjustment now for something which was, as yet, unquantifiable.

5.869 We also recognised that GEMA had identified accelerated depreciation as the primary risk mitigant while Net Zero uncertainty remained at current levels. While the use, or potential use, of accelerated depreciation was not directly in the scope of this appeal, we agreed with GEMA that, in principle, this would be a more appropriate solution to the risk of stranded assets than small pre-emptive increases to the allowed cost of equity.

5.870 In addition, we noted that we had not yet seen tangible evidence of reduced investor appetite in capital markets as a result of the risks associated with the potential for asset stranding in the gas sector. Rather, we had observed continued appetite for investment in the gas sector, as evidenced by SSE's then recent announcement that it had sold its 33.3% stake in SGN to a consortium of large investors.[1063] GEMA submitted that the premium earned on the transaction ranged between 35% and 37% above RAV based on estimates by JP Morgan and Citi.[1064]

[1063] See SSE's corporate website for details.
[1064] GEMA letter to CMA, 4 August 2021.

Appellants' submissions in response to the provisional determination

5.871 Collectively, the appellants submitted that they were concerned that the provisional determination had overlooked the risk of Net Zero for the energy sector. They told us that Net Zero risks were not a theoretical future concern for the appellants, but a legislated target which sat at the top of the political agenda and the forefront of decision-making in the energy sector, impacting companies and consumers both now and in the future.

5.872 They submitted evidence[1065] [1066] setting out the potential impact that early or delayed action to reduce emissions could have on the UK public debt and referenced studies exploring the impact of climate change more broadly. The appellants told us that they were concerned that the material risks of delays to investment and the consequent impact on consumers and the environment had not properly been taken into account in the assessment of GEMA's decision not to aim up in RIIO-2. The appellants submitted that these risks must be taken into account in line with the requirement to apply GEMA's statutory duties in the decision of this appeal and the provisional conclusion.[1067, 1068, 1069]

5.873 In this context, the appellants told us that the provisional determination had failed to engage properly with its statutory duties. The appellants focused on the principal objective to consider future consumers as well as current consumers and told us that the provisional determination 'did not properly consider the material environmental and security of supply risks facing the energy sector, the delays to investment and the consequent impact on consumers and the environment'.[1070, 1071]

[1065] For example, the appellants set out the OBR recent quantification of the cost to UK taxpayers of unmitigated climate change. They told us that if governments around the world took early action to reduce emissions, the OBR would add 21 % of GDP to UK public debt in 2015-51. They noted that this figure would be much higher if governments delayed acting until 2030 and then had to cut emissions sharply – they noted the OBR's statement that unchecked climate change could take public debt to 289 % of GDP by the end of the century. (Office for Budget Responsibility, 'Fiscal risks report', July 2021).
[1066] The appellants also referred to the UK's involvement in the COP26 summit and reports such as the sixth assessment of the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change, 'Climate Change 2021, The Physical Science Basis', 7 August 2021) and The UK Government's 'UK Hydrogen Strategy' paper (UK Government, 'UK Hydrogen Strategy', 17 August 2021).
[1067] Appellants' Joint Response to PD on Ground A, pages 5–6.
[1068] SSEN-T Response to PD, paragraph 2.112–2.116.
[1069] WWU Response to PD, paragraph B1.3.
[1070] SSEN-T Response to PD, paragraph 2.105–2.111 and WWU Response to PD, paragraph B1.3.
[1071] NGET/NGG Response to PD, page 46.

Non-gas-specific Net Zero concerns

5.874 The appellants told us that the provisional determination was too focused on gas asset stranding risk and did not consider the risk of Net Zero on the energy sector more broadly.[1072]

5.875 In particular, SPT submitted that the provisional determination did not sufficiently consider its submissions in relation to how Net Zero will impact Electricity TOs.[1073]

a) In its NoA, SPT had submitted that GEMA had paid insufficient regard to the need to secure SPT's ability to finance its licensed activities by securing reasonable returns on capital and that the costs to future consumers would consequently be increased. SPT told us that the transition to Net Zero necessitated significant investment in the transmission system and that there were ambitious targets set for the connection of renewable generation. It said that SPT would have to continue to innovate in all parts of its business, which carried risk, and that the sharp drop in the allowed return on equity would encourage a more cautious and traditional approach. SPT told us that this would slow progress and result in the loss of efficiency.[1074]

b) SPT submitted evidence of the change in the electricity sector in recent years and the expected and required changes within the sector and the SPT business going forward in light of Net Zero. It submitted that the business needed to invest in new transmission capacity and to innovate and that significant costs would be incurred in doing so. It submitted that the consequences of not delivering investments on time were significant for consumers and there could be an increased risk of supply incidents. SPT told us that the required planning and investment was not 'business as usual.'[1075]

c) SPT also told us that it had very real concerns that GEMA's RIIO-2 decision would jeopardise the framework for developing the network and put at risk essential Net Zero ambitions. It provided evidence on potential significant costs of delay and told us that inadequate returns would not attract sufficient further money into the electricity networks sector, which

[1072] NGET/NGG Response to PD, page 46.
[1073] SPT Response to PD, paragraph 111.
[1074] SPT NoA, paragraphs 49–52.
[1075] *Mitchell (SPT),* paragraphs 19–69.

risked damaging investor confidence in the regulatory regime and was likely to lead to a higher cost of capital in the longer term.[1076]

5.876 SPT told us that Net Zero had profound consequences for its business because:

a) the decarbonisation of electricity had materially increased risks for SPT and would continue to do so;[1077]

b) there was a need to increase transmission capacity significantly to deliver Net Zero and investment in the transmission system was critical to the achievement of Net Zero. There was a need for material long-term planning, innovation and investment; and

c) the costs to both present and future consumers of a failure to deliver investments in transmission would be material, noting that these costs were not only monetary but also related to the environment.[1078]

5.877 NGET/NGG submitted that the provisional determination did not engage with the magnitude of consumer harm that could be caused by setting the cost of equity at an insufficient level. With particular regard to how the cost of equity will impact investment decisions, they told us that investments might be delivered at slower pace, in a lower risk way, and that discretionary investments might not be brought forward at all. They submitted that waiting for more information failed to take proper account of the costs of delay, in the form of additional constraint costs, which would likely increase significantly at the expense of consumers and noted SSEN-T’s submission in its hearing that a one-year delay in one project would increase constraint costs by £600 million.[1079]

Gas-specific Net Zero concerns

5.878 The appellants made a number of submissions on gas-specific Net Zero risks, most of which had been raised prior to the provisional determination. The appellants told us that:

a) The future of gas was uncertain;

[1076] *Mathieson (SPT),* paragraph 37–79.
[1077] SPT submitted evidence that decarbonisation will introduce material uncertainties into the business, see *Mathieson (SPT),* Appendix One, section E, paragraph 35.
[1078] SPT Response to PD, paragraph 112–117.
[1079] NGET/NGG Response to PD, pages 46–47.

(i) For example, NGN submitted that the UK Government's Hydrogen Strategy paper[1080] makes clear that no decision has been taken by the Government in relation to the future of hydrogen and, as a result, as to the future of the UK gas networks. It told us that the report sets out the uncertainty surrounding the future of hydrogen in the UK energy system and that, more broadly, the report illustrates that the risk facing gas networks is unique to the gas sector and does not apply to water and electricity.[1081]

(ii) NGN highlighted that the report recognises the risk of asset stranding, noting the *'*need to manage or mitigate the risk of stranded assets if pipelines developed for initial projects in the 2020s are not fit for purpose in the 2030s*'*. NGN told us that GEMA's disregard of such evidence was a clear error.[1082]

(iii) Further, NGN submitted that GDNs faced the risk of a significant reduction in demand. It told us that GDNs faced a significant risk of asset stranding, unlike any other regulated utility in the UK, and that this was already present and manifest since no agency, neither the UK Government nor GEMA, had given any long-term assurances on the recovery of RAV. NGN told us that the assertions as set out at paragraph 5.867 are an 'unsubstantiated leap of faith' and no substitute for the rigorous standard of review which the law requires of the CMA.'[1083]

b) The risk arising from gas uncertainty is present today and it is inadequate to defer making a decision on Net Zero until there is more information on how to quantify the risk. Therefore, the risk arising from Net Zero to GDNs represented an unremunerated expected loss;

(i) For example, Cadent told us that investors in gas networks project cashflows over their entire investment horizon and will reflect the potential loss in their expectations of future cash flows and therefore expected returns today.[1084]

(ii) Cadent,[1085] SGN[1086] and NGN[1087] submitted that a risk that current investors are exposed to, that materialises within the life of an

[1080] Exhibit NGNPDR1_005_The UK Government Strategy Paper
[1081] NGN Response to PD, paragraphs 114–115.
[1082] NGN Response to PD, paragraphs 115–116.
[1083] NGN Response to PD, paragraph 130.
[1084] Cadent Response to PD, paragraph 11.115.
[1085] Cadent Response to PD, paragraph 11.115.
[1086] SGN Response to PD, paragraph 117.
[1087] NGN Response to PD, paragraph 131.

investment, has to be priced ex-ante, no matter how far into the future actual outcomes may be observed. NGN noted that it does not follow that an 'unquantifiable' risk has a price of zero. The appellants told us that it is a misapplication of financial theory to conclude that this risk may be potentially addressed in the future without providing investors with a commensurate return for facing that risk today.

(iii) Cadent[1088] and NGN[1089] told us that the risks surrounding gas networks in the context of Net Zero directly translated into expected losses today, which should be remunerated. They told us that GEMA acknowledged that, to the extent an expected loss exists, it must be adjusted for, but that the risk was not accounted for by GEMA resulting in an unpriced expected loss for GDNs.

c) Accelerated depreciation is an inadequate solution to the risks facing gas networks;

(i) Cadent submitted that accelerated depreciation policies cannot provide a complete solution to the issue, given the downward spiral effect and therefore cannot be a more appropriate solution to the risk of stranded assets than an uplift to the cost of equity. It told us that accelerated depreciation would only take effect from RIIO-3 meaning that companies would be unfairly exposed to risk in RIIO-2.[1090] NGN told us that accelerated depreciation does not deal with the risk that is already present for investors and that there is no guarantee that future accelerated depreciation will be sufficient to assure the RAV nor assure investors.[1091]

d) Previous estimates of how much to 'aim up' for based on Net Zero risks were prudent and their small value was not sufficient to disregard the arguments associated with Net Zero;[1092]

(i) For example, SGN set out that it is not sound to dismiss an error on the basis that the proposed solution would only have a small effect on the risk-reward trade-off in RIIO-2. It noted that expected losses are calculated as probability weighted outcomes and it is not clear why a comparison of expected losses versus the magnitude of extreme

[1088] Cadent Response to PD, paragraph 11.116.
[1089] NGN Response to PD, paragraph 128.
[1090] Cadent Response to PD, paragraph 11.116.
[1091] NGN Response to PD, paragraph 131.
[1092] Cadent Response to PD, paragraph 11.117 and NGN Response to PD, paragraph 134.

outcomes would be an indicator of the effectiveness of a commensurate uplift on the risk-return trade-off.[1093]

e) Evidence from the SGN sale was not sufficient to reflect the market as a whole; and

(i) Cadent,[1094] SGN[1095] and NGN[1096] submitted that evidence from the SGN sale, 'a single private transaction' did not reflect the perception of Net Zero risks by the market as a whole. Further, Cadent submitted that there were a series of transaction specific considerations in the SGN sale that meant it was not a sound basis on which to dismiss the consideration of Net Zero risks by the market as a whole.[1097]

f) GEMA did not have sufficient regard to its statutory duties in making its assessment of gas-specific Net Zero concerns.

(i) For example, NGN submitted that failing to aim up would aggravate issues of intergenerational unfairness, inappropriately increasing costs for future consumers in a manner that was contrary to GEMA's principal objective to protect the interests of existing and future consumers.[1098]

(ii) SGN told us that the provisional determination gave very little weight to the challenge posed by the move to Net Zero, despite the need to have regard to the same statutory duties as GEMA, which included those of current and future customers. SGN submitted that this under-remuneration would distort investment incentives, increasing the risk of underinvestment in the GDN sector at a critical juncture during the UK's transition toward Net Zero.[1099]

Aiming up for Net Zero – our final assessment

5.879 The appellants' arguments in relation to Net Zero are focused on the proposition that, in the absence of aiming up, equity capital in the energy sector will be under remunerated resulting in delays to investment or a lack of necessary investment and associated environmental, security of supply and economic costs. They highlighted the following key points:

1093 SGN Response to PD, paragraph 118.
1094 Cadent Response to PD, paragraph 11.118.
1095 SGN Response to PD, paragraph 119.
1096 NGN Response to PD, paragraph 135.
1097 Cadent Response to PD, paragraph 11.118.
1098 NGN Response to PD, paragraph 133.
1099 SGN Response to PD, paragraph 121.

a) Net Zero is a legislated target which is a significant issue today;

b) To avoid significant delays and consequent increased costs, the appellants need to act now to prepare for Net Zero;

c) Net Zero will affect electricity networks as well as gas networks;

d) It is not appropriate for Net Zero risk to be priced-in to the cost of equity in the future when the risk is present today, nor can it be adequately addressed via accelerated depreciation of the RAV;

e) UMs are not sufficient to bring forward investment in Net Zero because if the cost of equity is too low then investments will be delayed, and the UMs will not be triggered;

f) Not aiming up will negatively impact future consumers and therefore there has not been sufficient regard to the principal objective of the statutory duties; and

g) Gas networks have continued to submit that the risk to the gas sector is greater than the electricity sector as a result of asset stranding risk.

5.880 We consider each of these points in our assessment below.

5.881 We acknowledge that Net Zero is at the forefront of the minds of investors and networks today and appreciate the significant undertakings that will be required to meet Net Zero targets. We recognise that the point at which clear solutions are determined and targeted investment can start will impact the overall cost of transition, with solutions undertaken closer to the deadline potentially costing more than those undertaken at an earlier stage.

5.882 Furthermore, we recognise that Net Zero will impact electricity networks albeit in a different way to gas networks, with a concern around investment to increase capacity as opposed to the risk of stranded assets.

5.883 However, we remain unpersuaded that aiming up to account for the risk of Net Zero would be an appropriate balance of considerations between customers and investors in RIIO-2. The current situation remains unclear - while there are targets in place, the overall approach to Net Zero and how this will be achieved is not yet clear.

5.884 First, we do not find that the evidence supports the finding that the risks arising from Net Zero insofar as they relate to the electricity sector are asymmetric. We note that there are very significant growth opportunities for the sector, with potential for associated rewards. Therefore, we do not agree with the appellants that there is any reason to aim up above the cost of equity as estimated using the CAPM in the electricity sector.

5.885 Second, on balance, we agree with GEMA that the allowed return on equity is sufficient for both gas and electricity networks without aiming up. We have not received sufficient evidence of a lack of available equity capital for the energy sector and have instead seen a series of new shareholders enter the sector.

5.886 In particular, we note that during this appeal process SSE sold their gas distribution assets at a significant 36% MAR premium. Market analyst commentary in relation to this transaction also noted that there is likely to be 'a clear role for these [gas] assets for some time to come'.[1100] As noted in our discussion of MAR cross-checks (see from paragraph 5.675), we agree that there are a range of potential investor assumptions underlying any such transaction. However, we would again view this as convincing evidence that the equity return available to investors in the gas networks is not currently 'too low' to offset any future risks. In this context, we note the appellants' arguments about raising investment and the need to price in future risks ex-ante to allow investors a commensurate return for facing risks today but note that the evidence does not point to the cost of equity being set at a level that is too low to generate future investment. Further, we refer to our discussion on parameter uncertainty as set out at paragraphs 5.811 to 5.815 above, where we noted that we are not expecting underinvestment in this period.

5.887 As a result, aiming up to address Net Zero risk today would provide shareholders with an additional return with no commensurate benefit to current or future customers in terms of bringing forward necessary investment. This would also likely lead to a situation of 'double' rewarding shareholders if risks do crystalise and mitigation mechanisms are put in place in the future. We note that the appellants explicitly submitted that there are plausible scenarios where investors could receive a cost of equity that includes aiming up but still suffer incomplete recovery of the RAV.[1101] In other words, aiming up is not an insurance against under recovery of RAV.

5.888 While there may, at some point, be a transition for gas assets, we note that this is not immediate and there is likely to be demand for natural gas for some time. Submissions with regard to accelerated depreciation are in line with those received prior to the provisional determination, and we continue to agree with GEMA that, in principle, this would be a more appropriate solution to the risk of stranded assets than small pre-emptive increases to the allowed

[1100] Utility Week (3 August 2021), 'Analysts surprised at SGN premium'. Quote relates to comments from Dominic Nash at Barclays.
[1101] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 147, lines 8–12.

cost of equity, as the use of accelerated depreciation would avoid remunerating investors 'twice' for the RAV. In this respect, we note that we were not convinced that the additional annual costs associated with accelerated depreciation (approximately £40 per year according to NGN)[1102] were likely to be sufficiently large to influence the rate at which customers switched away from gas in the context of the very significant capital costs associated with doing so.[1103] We remain of the belief that as more information becomes available on the approach required of gas networks in order to manage their assets in the transition, more targeted approaches can be made to manage the risk and ensure financing and returns remain appropriate.[1104]

5.889 We saw no evidence that increasing the cost of equity allowance would increase investment to support the Net Zero agenda and concluded that financial support, if needed, was better targeted at specific opportunities when identified rather than on a 'just in case' basis now. On the same basis, we consider that this approach has regard to the principal objective of considering the interests of both present and future consumers.

5.890 On the basis of our assessment as set out at paragraphs 5.866 to 5.870 and paragraphs 5.879 to 5.889 above, we conclude that GEMA was not wrong in choosing not to aim up on the cost of equity as a result of Net Zero.

Other individual complaints

Legitimacy and political risk

Appellants' initial submissions

5.891 Cadent submitted that considerations of legitimacy and political risk also appeared to have influenced GEMA's decision[1105] with reference to GEMA's SSMD in which GEMA stated:

> Finally, it would be remiss to ignore the risks of consistent and deliberate over-remuneration. Such risks, including political risk and increased

[1102] NGN Main Hearing Transcript, 30 June 2021, page 10, line 16–page 11, line 13.
[1103] For example, the Energy Saving Trust estimates that a heat pump costs between £7,000 and £13,000 to install, with householders potentially needing to change elements of their central heating system as well, eg installing underfloor heating, to ensure that running costs do not exceed those achieved using a gas boiler.
[1104] We note that HM Government recently published 'Net Zero: Build Back Greener' a document introducing its strategy on Net Zero. The strategy document notes that consultations will shortly begin to ascertain what the ongoing role of the gas networks will look like, and to determine how the gas market will need to evolve to ensure the right market and regulatory signals are in place to offer the necessary level of investment and maintenance throughout the transition. We consider that this approach is in line with our assessment of future targeted approaches as set out at paragraph 5.888. See: UK Government, 'Net Zero Strategy: Build Back Greener', October 2021.
[1105] Cadent NoA, paragraph 4.122.

legitimacy risk, could in fact out-weigh the benefit of aiming up, to which Frontier refer.[1106]

5.892 Cadent said that it was not appropriate for GEMA to base policies on its perception of political risks and that based on GEMA's statutory duties it was wrong for GEMA to dismiss the benefits to consumers of aiming up on the basis of political risk.[1107]

GEMA's initial submissions

5.893 GEMA submitted that Cadent's argument was 'pure speculation with no basis in the text of the RIIO-2 documentation or in any other evidence.'[1108] It told us that it was aware of wider political questions, but that political risk was not taken forward as a rationale for rejecting aiming up at FDs.[1109]

Legitimacy and political risk – our provisional assessment

5.894 Our review of GEMA's decision on aiming up demonstrated that it had considered a range of relevant issues, including wider political issues (ie the Net Zero agenda), but we had received no evidence that GEMA chose not to aim up directly or indirectly as a result of taking into account any inappropriate factors or influences. Therefore, we provisionally did not consider that GEMA had made an error.

Responses to the provisional determination

5.895 We did not receive any submissions focused on legitimacy and political risk in response to the provisional determination.

Legitimacy and political risk – our final assessment

5.896 With no further submissions made on legitimacy and political risk, and with consideration of our assessment of aiming more broadly, we maintain our reasoning as set out at paragraph 5.894 for our final assessment. We conclude that GEMA was not wrong in choosing not to aim up based on legitimacy and political risk.

[1106] GEMA SSMD Finance Annex, paragraph 3.277.
[1107] Cadent NoA, paragraph 4.122.
[1108] GEMA Response A, paragraph 273.1.
[1109] *Wilde 1 (GEMA),* paragraph 144.

Alleged undue influence of outperformance in RIIO-1

Appellants' initial submissions

5.897 NGET submitted that GEMA was wrong to suggest that the fact that companies may have underspent their allowances in RIIO-1, where there was aiming up, provided a reason not to aim up in a subsequent price control.[1110] Relying on evidence from Frontier Economics, NGET argued that this was an error because:

a) the fact that some companies outperformed during RIIO-1 did not mean there was no requirement for the regulator to aim up when setting the cost of equity. Investment being delivered more efficiently should not be confused with an allowed return failing to incentivise investment in the first place;[1111] and

b) outperformance during RIIO-2 was far from guaranteed, given the step change in challenge resulting from material changes to the design and calibration of the price control.[1112]

5.898 NGET submitted that the drivers for aiming up were about incentivising investment being brought forward by networks rather than incentivising them to be risk averse and cautious, and therefore put at risk investment.[1113]

GEMA's initial submissions

5.899 GEMA submitted that 'to the extent that this is intended to suggest that GEMA deliberately under-estimated the notional cost of equity in RIIO-2 to account for outperformance in RIIO-1, this is baseless.' It noted, however, that outperformance in RIIO-1 did affect its assessment of the strength of the link between under (over) estimating the true cost of equity and under (over) investment in networks.[1114]

Alleged undue influence of outperformance in RIIO-1 – our provisional assessment

5.900 In making our provisional assessment, we first noted that the outcomes of RIIO-1 are intrinsically a legitimate source of information for GEMA when

[1110] NGET NoA, paragraph 3.360.
[1111] NGET NoA, paragraph 3.360(a).
[1112] NGET NoA, paragraph 3.360(b).
[1113] NGET NoA, paragraph 3.361.
[1114] GEMA Response A, paragraph 273.2.

designing the RIIO-2 price control (as is the case with all regulators considering the outcomes of previous controls).

5.901 We agreed that outperformance in RIIO-1 would not be sufficient reason by itself to 'avoid' aiming up, if deemed necessary. However, in the preceding paragraphs we concluded that:

a) We found no errors in GEMA's estimation of the cost of equity in the round; and

b) GEMA properly considered the evidence in relations to the pros and cons of aiming up in RIIO-2 and has made its decision on the basis of that judgement.

5.902 Further, in considering the financeability of the RIIO-2 price control and as set out from paragraph 5.942 we considered that GEMA's cost of equity must be set in such a way that it can meet the obligations of the finance duty – we did not consider that this was necessarily obtained through aiming up, rather was the result of setting an appropriate cost of equity in the round.

5.903 We did not consider there to be sufficient evidence that GEMA chose not to aim up solely as a result of outperformance in RIIO-1 and without due consideration of all relevant factors. Therefore, we provisionally did not consider that GEMA's potential consideration of performance in RIIO-1 (in determining whether or not to aim up) to constitute an error.

Responses to the provisional determination

5.904 We did not receive any submissions focused on the undue influence of outperformance in RIIO-1 in response to the provisional determination.

Alleged undue influence of outperformance in RIIO-1 – our final assessment

5.905 With no further submissions made on the undue influence of outperformance in RIIO-1, and with consideration of our assessment of aiming more broadly, we maintain our reasoning as set out at paragraphs 5.900 to 5.903 for our final assessment. We conclude that GEMA was not wrong in choosing not to aim up based on the alleged undue influence of outperformance in RIIO-1.

Due regard to higher regulatory returns available in other jurisdictions

Appellants' submissions

5.906 SPT submitted that it competed for the deployment of capital from its ultimate parent company (Iberdrola SA) with similar electricity network businesses located in other geographic regions, including the US and Spain and that such equivalent international investments were likely to give returns materially in excess of the return allowed by GEMA.[1115] It told us that the reduction in return on equity from the previous price control was from approximately 7% per year to a level equivalent to around 3% per year on an RPI adjusted basis.[1116]

5.907 SPT also told us that such a sharp drop had not been mirrored in other jurisdictions and by contrast, investors in transmission could receive above 6.5% per year in the US on a like-for-like basis. SPT noted the relevance of this by stating that the US and UK were broadly comparable in terms of risk profile and there was nothing at a country level which would make the US less attractive to investors. SPT concluded the point by stating that the price signal from the cost of equity was that capital should be conserved and not invested.[1117]

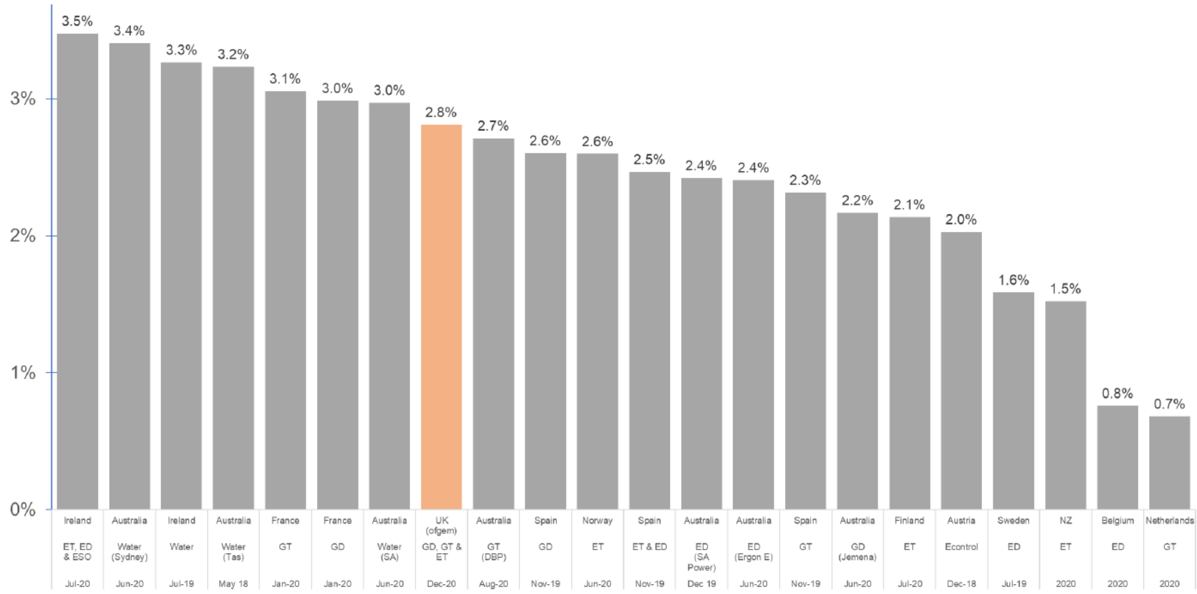
GEMA's submissions

5.908 GEMA submitted that SPT's evidence indicated that it had 'erred on the side of caution compared to other jurisdictions.'[1118]

5.909 GEMA said that Figure 5-17 below demonstrates that regulators in other countries typically allow returns on capital below the level that GEMA allows for RIIO-2.[1119]

[1115] SPT NoA, paragraph 35.
[1116] SPT NoA, paragraph 35(2).
[1117] SPT NoA, paragraphs 35(3)–(4).
[1118] GEMA Response A, paragraph 273.3.
[1119] GEMA Response A, paragraph 273.3.

Figure 5-17: GEMA's submission on allowed returns on capital: proposals and decisions internationally



Source: GEMA Response A, Figure 1.

Due regard to higher regulatory returns available in other jurisdictions – our provisional assessment

5.910 In making our provisional assessment, we did not consider GEMA to be under any specific obligation to assess its estimated cost of equity against the returns available in other jurisdictions (over and above the requirements to set a financeable price control).

5.911 In setting an appropriate cost of capital for the RIIO-2 price control, GEMA used a series of UK market inputs that were already heavily influenced by the net effects of international competition for capital. As a result, we did not consider the fact that GEMA has set an allowed cost of equity that was lower than that available in some other jurisdictions to be an error.

5.912 Further, we noted that in its response to the NoAs, GEMA had provided evidence that its allowed return of equity compared favourably to returns available from regulated monopolies in some alternate jurisdictions.

5.913 We noted that the countries set out in the evidence by GEMA were not necessarily directly reflective of either (i) energy distribution or transmission in the US or (ii) electricity transmission in Spain, being the relevant comparators as suggested by SPT. However, we also noted that accurate comparison across markets was an involved process and that it was unlikely to be sufficient to compare headline rates of return without a broader consideration of the regulatory framework involved.

5.914 Therefore, we provisionally determined that GEMA did not make an error by not aiming up (or down) to reflect higher (or lower) allowed returns on equity in other markets.

Responses to the provisional determination

5.915 We did not receive any further submissions focused on whether GEMA had due regard to higher regulatory returns available in other jurisdictions in response to the provisional determination.

Due regard to higher regulatory returns available in other jurisdictions – our final assessment

5.916 With no further submissions made on whether GEMA had due regard to higher regulatory returns available in other jurisdictions, and with consideration of our assessment of aiming more broadly, we maintain our reasoning as set out at paragraphs 5.910 to 5.914 for our final assessment. We conclude that GEMA was not wrong in choosing not to aim up based on whether it had due regard to higher regulatory returns available in other jurisdictions.

GEMA's allegedly erroneous claim that it had 'aimed up'

Appellants' submissions

5.917 The appellants told us that GEMA's suggestion that it had, to an extent, 'aimed up' was incorrect. They submitted that GEMA was wrong to suggest that it had aimed up, largely because the cross-checks utilised by GEMA were unreliable.

5.918 SPT submitted that GEMA had aimed down at each stage of its cost of equity calculation as a result of its implementation of cross-checks and the outperformance wedge:

a) SPT told us that stakeholders had made representations to GEMA noting that its Step-2 cross-checks were not as strong as GEMA believed and that using a lower value was not a justified use of regulatory discretion. SPT told us that GEMA's suggestion that it arguably aimed up as a result of cross-check evidence 'is without any sound foundation' and that the cross-checks which GEMA had used were inherently unreliable and systematically tended to underestimate the true cost of capital.[1120]

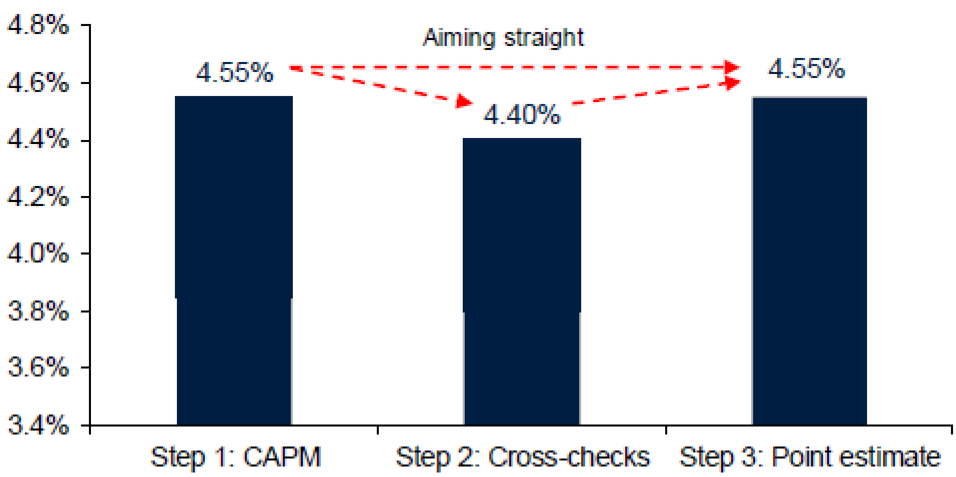
[1120] See our assessment of cross-checks at paragraphs 5.663–5.840.

b) SPT submitted that GEMA had suggested that it had acted generously by not making a larger downward adjustment than 25bps to account for expected outperformance, which SPT noted was erroneous. It told us that it was actually a form of 'aiming down'.[1121]

5.919 WWU submitted that GEMA's conclusion appeared to be based entirely on its use of cross-checks which suffered from various conceptual and estimation errors.[1122]

5.920 SSEN-T submitted that GEMA's point estimate was well below an appropriate level for attracting the much-needed investment which SSEN-T required over the RIIO-2 period. It told us that there were a number of significant flaws in GEMA's cross-checks of CAPM-implied cost of equity and that 'in reality, GEMA used its cross-checks to "aim down" by decreasing the CAPM-estimated cost of equity range from 3.85% to 5.24% to 3.80% to 5.00%' and that once this was corrected for 'GEMA's point estimate of 4.55% was the exact mid-point of the CAPM estimated cost of equity range' as per Figure 5-18 below.[1123]

Figure 5-18: GEMA's use of CAPM and cross-checks in deriving a point estimate



Source: SSEN-T NoA, Figure 4, Oxera analysis based on GEMA's Table 12 of the RIIO-2 Final Determination Finance Annex

5.921 Cadent told us that the cross-checks, which were used by GEMA to gain 'very high confidence' that the mid-point of its CAPM implied cost of equity was unlikely to be an underestimate, were not robust and that valid cross-checks supported a higher cost of equity point estimate.[1124]

[1121] SPT NoA, paragraph 39.
[1122] WWU NoA, paragraphs B5.13 and Oxera (WWU), 'Cost of equity report', paragraphs 8.5–8.6 and Appendix A1.
[1123] SSEN-T NoA, paragraphs 4.87–4.90.
[1124] Cadent Reply, paragraph 106(a).

GEMA's submissions

5.922 GEMA submitted that whether it could properly be described as 'aiming up' in the circumstances was irrelevant, and that the real question was whether GEMA's point estimate represented an exercise of judgement that was balanced and reasonable in all the circumstances.[1125]

5.923 It told us that it was fully cognisant of the risks of the expected return on equity (including the baseline allowed return on equity and expected outperformance) falling below the true cost of equity.[1126]

5.924 GEMA submitted that it considered that companies could expect to earn returns above their cost of equity for three primary reasons:

a) First, it submitted that a 4.55% cost of equity is a conservative reading of the body of evidence;

b) Second, it told us that expected outperformance is likely to be higher than 0.25% based on the body of evidence that GEMA assembled and that by accounting for only 0.25% GEMA has therefore again been conservative in favour of the network companies. It told us that the appellants have attempted to mischaracterise the debate in narrow terms, as only being about the cost of equity range and the baseline allowed return but that the consumer welfare that companies focus on only arises 'when the expected return is lower than the expected cost of equity';

c) Third, GEMA submitted that its inclusion of an ex-post true up mechanism secures that companies are protected if 0.25% of expected outperformance does not materialize and that this is a one-way upwards only adjustment in favour of the network companies.[1127]

5.925 GEMA noted in its FD that its 'final view in these FDs is arguably consistent with a degree of aiming up'.[1128]

Intervener submissions

5.926 BGT submitted that GEMA effectively aimed up in setting the cost of equity. It told us that the appellants are correct in their claim that GEMA did not 'aim up' in the conventional sense (by adding an uplift to the midpoint of assessed range) but that this interpretation overlooks the ways in which GEMA

[1125] GEMA Response A, paragraph 260.
[1126] GEMA Response A, paragraph 260.
[1127] GEMA Response A, paragraph 261.
[1128] GEMA FD Finance Annex, paragraph 3.186.

effectively added uplifts when assessing the range, and therefore the midpoint. It told us that this happened in two instances:

a) When deriving the debt beta: BGT told us that GEMA exercised its discretion and adopted a value of equates to aiming up of 0.05 on the midpoint of the modelled range.

b) When setting the range: it told us that an adjustment to the range derived from the CAPM when cross-checking against other indicators was not made. BGT noted that GEMA's CAPM modelling produced a range of 3.85% to 5.24%, with a midpoint of 4.55%. It referred to GEMA's modelling of other indicators (ie cross-checks) which produced a range of 3.8% to 5.0%, with a midpoint of 4.4%. BGT told us that GEMA effectively 'aimed up' on the cost of equity by 15bps by not making a downward adjustment to the assumed range based on cross-checks.[1129]

GEMA's alleged erroneous claim that it had 'aimed up' – our provisional assessment

5.927 We considered that the disagreement between the appellants and GEMA as to whether or not GEMA aimed up in selecting its point estimate for RIIO-2 is irrelevant to the assessment of whether GEMA's decisions when setting the allowed return on equity were wrong.

5.928 We were presented with no evidence that GEMA was required to aim above the midpoint of their overall cost of equity estimate range. In the paragraphs above we assessed whether GEMA's decisions in this area were wrong based on the balance of evidence – we considered it more pertinent to focus on whether GEMA's decision on the cost of equity was wrong, rather than to debate the semantics of whether GEMA did or did not aim up.

Responses to the provisional determination

5.929 We did not receive any responses on the topic of GEMA's allegedly erroneous claim that it had 'aimed up' in response to our provisional determination.

GEMA's alleged erroneous claim that it had 'aimed up' – our final assessment

5.930 With regard to whether GEMA did or did not aim up, we consider that our assessment as set out at paragraphs 5.927 to 5.928 above remains relevant for our final determination and that GEMA was not required to aim above the midpoint of the CAPM-implied cost of equity range.

[1129] *Edwards(BGT)*, paragraph 28.

Aiming up in the context of our outperformance wedge decision

Aiming up in the context of our outperformance wedge decision – background

5.931 We note that the CAPM-implied cost of equity is 4.55%, to which GEMA proposed to apply a reduction in the form of the outperformance wedge of 0.25%, bringing the allowed return on equity to 4.3%. In our provisional determination we concluded that GEMA was wrong to introduce this outperformance wedge, as set out in Chapter 6.

GEMA's response to the provisional determination

5.932 In response to the provisional determination, GEMA submitted that we should consider that:

a) The separation of the joined grounds A (cost of equity) and B (outperformance wedge) reflected the administration of the appeals rather than the decision that GEMA had taken to set an allowed return of 4.3% and that GEMA may have set a lower allowed return than 4.55% in the absence of its closely related decisions on the expected outperformance adjustment and the ex-post true-up mechanism;

b) GEMA may have estimated a lower cost of equity than 4.55% based on the evidence. It told us that the assessments within the provisional determination on Modigliani-Miller and MAR evidence (paragraphs 5.672 and 5.685, respectively) agreed with GEMA's view and that by extension the provisional determination suggests an allowed return of 4.3% was not wrong;

c) There is a difference between (i) deciding it is wrong to account for expected outperformance of 0.25%; and (ii) deciding that an allowed return of 4.3% is wrong; and

d) Whether an allowed return of 4.3% is wrong. It told us that this is an important consideration and that ultimately the allowed return matters more than any assumption upon which it is based.[1130]

Aiming up in the context of our outperformance wedge decision – our final assessment

5.933 We do not consider our finding in relation to the outperformance wedge to have a knock-on implication for the consideration of the cost of equity and we

[1130] GEMA Response to PD, paragraph 119.

set out our view in detail at paragraph 6.187 of Chapter 6. In the context of aiming, we consider GEMA's question of whether 4.3% could be considered an appropriate allowed return on equity is, in effect, asking whether it should have 'aimed down' on the cost of equity by 0.25%. As set out at paragraph 5.719, we note that the evidence on Modigliani-Miller/MARs cross-checks could have pointed to a cost of equity lower than the 4.55% chosen by GEMA. However, we note that aiming down on the cost of equity is not an appeal point that has been raised and it therefore does not fall within our statutory function to decide that question as part of this determination.

Aiming up - our conclusion

5.934 In coming to our conclusion, it is our view that we have been presented with no evidence that a regulator is required to aim up in every instance. Rather, it is our view that the decision as to whether aiming up would provide a net benefit to consumers requires regulatory judgement. As we have noted at paragraph 3.76, GEMA's margin of appreciation will be at its greatest in situations such as this, as it is required to make an overall value judgement based upon a range of sometimes conflicting expert evidence in the context of a public policy decision. Similarly, we do not find the appellants' evidence with reference to past regulatory decisions, and in particular the approach taken in the CMA's PR19 Redetermination, to be proof that GEMA choosing not to aim up was an error. As we have noted at paragraph 3.87, past decisions taken by the CMA in other regulatory appeals are not binding. In this context, we have considered whether there is sufficient evidence specific to the current circumstances to suggest that GEMA was wrong in choosing not to aim up when setting the RIIO-2 cost of equity.

5.935 In determining whether to aim up, GEMA has had regard to the overall level of the cost of equity. It has considered cross-checks and the fact that some evidence would support a cost of equity lower than GEMA's chosen estimate of 4.55%.

5.936 GEMA has demonstrated that it has considered the pros and cons of aiming above the midpoint of its CAPM-estimate and has judged such an adjustment to be unnecessary. We consider GEMA's assessment to be supported by the evidence.

5.937 GEMA references specific factors within the price control (such as the use of indexation and the implementation of UMs) as factors which mitigate the historical arguments for 'aiming up', thus supporting the view that GEMA has considered the evidence and taken a position that falls within the scope of its margin of appreciation.

5.938 We recognise that the Net Zero agenda is at the forefront of the minds of energy networks and their investors and acknowledge that investment will likely be required in order to transition both gas and electricity networks to meet the demands of Net Zero. However, as is noted by the appellants, the nature and strategy of forward-looking investment is not yet clear. In this context, we consider that targeted financial support, where needed, is a more appropriate solution to Net Zero than a 'just in case' uplift to the CAPM-estimated cost of equity.

5.939 Similarly, we are not convinced that investors require an uplift to the CAPM-implied cost of equity as a result of Net Zero. As set out in our assessment above, we do not think that under-investment is likely during the RIIO-2 price control based on the MARs evidence and other mechanisms that GEMA has put in place. Further, we recognise the costs to consumers that would result from giving an uplift to the cost of equity now while also later guaranteeing the recovery of the RAV. Hence, we agree with GEMA that a better solution is using accelerated depreciation, rather than aiming up on the cost of equity.

5.940 Overall, we determine that GEMA's decision not to aim up on the cost of equity was not wrong.

Financeability

Introduction

5.941 This section covers errors alleged by the appellants relating to GEMA's calibration and assessment of the 'financeability' of the RIIO-2 price control.

Background to the alleged error

5.942 Assessing whether a price control meets the requirements of the finance duty is commonly referred to as the financeability test. In the case of the energy networks, GEMA has a duty to carry out its functions in a manner it considers is best calculated to further the principal objective to protect the interests of existing and future consumers. In addition, when performing certain duties, it must have regard (amongst other things) to the need to secure that licence holders are able to finance the activities which are the subject of the obligations imposed under the relevant acts.[1131]

5.943 In line with several other regulators, GEMA makes its assessment of company financeability following adjustments to bring companies into line with the

[1131] EA89, section 3A(2) and GA86, section 4AA(2)(b).

‘notional’ capital structure assumed in the price control. GEMA does not specifically assess companies’ financeability at their actual structure, which may be materially different to the notional capital structure, principally to ensure that the risks and rewards associated with financing and capital structure decisions reside with companies and not consumers.

5.944 For discussion of the issues relating to WWU’s alleged errors in GEMA’s application of the finance duty in relation to the common cost of debt, see Chapter 14.

The RIIO-2 Decision

5.945 GEMA interpreted its financing duty as a duty to have regard to the need to secure that network companies were able to finance the activities which were the subject of obligations imposed by or under the relevant legislation.[1132]

5.946 GEMA stated that this involves a focus on the notional company and that it would review financeability following submission from companies of business plans and any updates to the financial parameter working assumptions.[1133]

5.947 GEMA stated that the purpose of its financeability assessment was to check that all components of its FD, when taken together, allow a notional efficient operator to generate cash flows sufficient to meet its financing needs.[1134]

5.948 Under GEMA’s Business Plan Guidance (**BPG**) it required companies to submit a financeability assessment in their business plans, with assurance the plan was financeable on both the notional and actual capital structure bases or that they have considered all applicable mitigating measures to improve financeability. The guidance also required them to provide an explanation of their target credit rating, supported with evidence of the financial metrics on both a notional and an actual basis.[1135]

5.949 GEMA stated that all networks included board assurance in their business plans stating that they considered the notional company to be financeable on the basis of the SSMD working assumptions. GEMA stated that the companies provided this assurance by considering rating agencies

[1132] GEMA DD Finance Annex, paragraph 5.1.
[1133] GEMA DD Finance Annex, paragraph 5.2.
[1134] GEMA FD Finance Annex, page 73.
[1135] GEMA DD Finance Annex, paragraph 5.5.

methodologies and stated metric guidance for a target rating of BBB+/Baa1 for the notional company.[1136,1137]

5.950 In its financeability assessment, GEMA made assumptions about the notional company. These included the following adjustments to assumptions made about the notional company at RIIO-1:[1138]

a) Notional gearing was reduced to 55% for TO networks[1139] and 60% for NGG and GDNs.[1140]

b) The proportion of index linked debt (**ILD**) was increased from 25% to 30%.[1141,1142]

c) The notional dividend yield was reduced from 5% to 3%.[1143,1144]

d) The introduction of the assumption that the notional company will outperform in the base case (referred to as the outperformance wedge, see chapter 6).

e) All existing RPI debt was switched to CPIH-linked debt.[1145]

5.951 A summary of the change to notional gearing is included at Table 5-5 below:

Table 5-5 Summary of notional gearing at RIIO-1 and RIIO-2

Sector	Company	RIIO-1	RIIO-2	Net change
GT	NGG	62.5%	60%	-2.5%
ET	NGET	60%	55%	-5%
	SPTL	55%	55%	-
	SHET	55%	55%	-
GD	All	65%	60%	-5%

Source: CMA analysis of GEMA DD Finance Annex, Table 33.

1136 GEMA DD Finance Annex, paragraph 5.6.
1137 GEMA noted that this is with the possible exception of SPT, who indicated Baa1-A3 target rating, although it also said 'RIIO-2 final proposals for electricity transmission need to achieve an implied credit rating of at least a strong Baa1', page 33, Annex 25, December 2019 Business Plan submission.
1138 GEMA DD Finance Annex, paragraph 5.22.
1139 GEMA note that SPT and SSEN-T notional gearing was 55% at RIIO-1 and therefore there was no change at RIIO-2.
1140 GEMA DD Finance Annex, page 96.
1141 GEMA DD Finance Annex, paragraph 5.22.
1142 GEMA RIIO-GD1 Final Proposals - Finance and uncertainty supporting document, paragraph 3.58.
1143 GEMA FD Finance Annex, paragraph 11.93.
1144 GEMA RIIO-1 GD Final Proposals - Finance and uncertainty supporting document, paragraph 3.57.
1145 GEMA DD Finance Annex, paragraph 5.22.

5.952 GEMA stated that it considered all licensees were financeable on a notional capital structure basis, taking account of cost and incentive allowances, cost recovery and allowed returns in its FD.[1146]

5.953 Further, GEMA stated that it was comfortable with network companies' suggestions of target credit quality of two notches above investment grade (which provided headroom over their investment grade licence obligation) and that it considered the financeability assessment was consistent with this target credit quality.[1147]

5.954 GEMA said that it believed its decision to move from RPI to CPIH was fair for both investors and consumers and that the primary motivation for the change was that RPI was no longer seen as a 'credible' measure of inflation.[1148]

5.955 Regarding equity and debt financeability, GEMA stated in its SSMD that it was conscious that financeability referred to the licence holder being able to finance activities that were the subject of obligations imposed under relevant legislation and hence was applicable to both equity and debt.[1149] In assessing equity financeability, GEMA continued to look primarily to ensure that its cost of equity and allowed equity return assessment was robust and hence sufficient for the equity financeability of the notional company. It also stated that it included a suite of equity metrics (including dividend yield and dividend cover) in business plan models and considered these in its analysis.[1150]

5.956 GEMA stated that it did not agree that the financeability assessment was a reliable cross check on the allowed return.[1151] GEMA stated that it was an assessment of the price control package and cashflows as a whole including whether these were sufficient to allow the notional efficient operator to access finance on reasonable terms. GEMA submitted that it did not consider it a reliable check on whether the allowed return (or components of it) was reasonable. GEMA also submitted that the cross checks employed for the cost of capital parameters themselves served to provide comfort that the allowed return was set at the level indicated by market evidence of the requirements of investors.[1152]

[1146] GEMA FD Finance Annex, page 73.
[1147] GEMA FD Finance Annex. paragraph 5.36.
[1148] GEMA FD Finance Annex, paragraph 9.6.
[1149] GEMA DD Finance Annex, paragraph 5.8.
[1150] GEMA DD Finance Annex, paragraph 5.8.
[1151] GEMA FD Finance Annex, paragraph 5.12.
[1152] GEMA FD Finance Annex, paragraph 5.12.

The alleged errors

5.957 We received submissions from all the appellants regarding errors in GEMA's approach to financeability. The appellants claimed that, as a result of these errors, GEMA had failed to provide a price control that was financeable for licensees. There were two main subcomponents to this error:

a) First, that GEMA had failed to apply an assessment of equity financeability as a cross-check; and

b) Second, that the financeability assessment that was conducted was inappropriate, primarily as a result of changes to the notional capital structure used within the assessment.

5.958 In the paragraphs below we summarise the evidence that has been presented to us, set out our provisional assessment and then consider the parties' responses to our provisional determination before providing our final conclusion of whether GEMA's decision not to aim up or down on the cost of equity was wrong.

GEMA's failure to apply an assessment of equity financeability as a cross-check

Appellants' submissions

5.959 Cadent told us that GEMA should have carried out a specific financeability cross-check to its CAPM-based allowed cost of equity. It submitted that KPMG (its economic advisers) set out that: [1153]

a) There was no basis for GEMA to dismiss financeability as a cross-check on the assumption that it had measured the cost of equity correctly by definition. [1154]

b) An estimate based on the CAPM did not eliminate parameter uncertainty and, in practice, measuring the cost of equity was subject to significant uncertainty.[1155]

[1153] Cadent NoA, paragraph 4.138.
[1154] KPMG (Cadent), 'Equity financeability of Cadent based on the RIIO-GD2 Final Determination', paragraphs 1.1.31–1.1.36.
[1155] KPMG (Cadent), 'Equity financeability of Cadent based on the RIIO-GD2 Final Determination', paragraphs 1.1.31–1.1.36.

c) GEMA's removal of the financeability cross-check on the allowed return was inappropriate and increased the probability that the cost of capital was estimated with error.[1156]

d) GEMA's removal of the financeability cross-check on the allowed return failed to take into account that returns needed to be set on a basis that was consistent with the risk implied by the regulatory framework and what investors in the company could earn on investment of comparable cashflow risk.[1157]

5.960 Cadent submitted that its financeability assessment highlighted mis-calibration of totex allowances, downside exposure implied by regulatory mechanisms (with no corresponding adjustments to returns), as well as the cost of equity as drivers of the financeability constraints implied by GEMA's FD.[1158]

5.961 Cadent further submitted that the cost of equity was the primary driver of free cashflows available for management of risk, projected coverage metrics applied by rating agencies as well as distributions. It told us that there was clear line of sight between calibration of the allowed cost of equity and financeability constraints identified for the notional company.[1159]

5.962 Three appellants submitted that the need to carry out such a financeability cross check was supported by the CMA's conclusions on this issue within its PR19 Redetermination:

a) Cadent submitted that it agreed with the CMA's conclusion on financeability in the CMA PR19 Redetermination. It told us that, as to GEMA's suggestion that aiming up was in principle not an appropriate remedy to financeability concerns, an efficient market outcome would be expected to reflect fully the pricing of risks.[1160,1161] Cadent told us that this would be consistent with the CMA's recent decisional practice in the CMA PR19 Redetermination where the CMA had stated that:

> We continue to be of the view that financeability provides a relevant cross-check on the choice of the cost of equity. The use of credit ratios at least provides a check on whether the cost of equity appears to be of a level which is broadly consistent with

[1156] KPMG (Cadent), 'Equity financeability of Cadent based on the RIIO-GD2 Final Determination', paragraphs 1.1.31–1.1.36.
[1157] KPMG (Cadent), 'Equity financeability of Cadent based on the RIIO-GD2 Final Determination', paragraphs 1.117–1.1.18 and Section 7.
[1158] Cadent Reply, paragraph 138.
[1159] Cadent Reply, paragraph 139.
[1160] KPMG (Cadent), 'Equity financeability of Cadent based on the RIIO-GD2 Final Determination', Section 8.
[1161] Cadent NoA, paragraph 4.139.

the high-quality credit ratings required by Ofwat and implied in the cost of debt.[1162,1163]

b) Cadent also told us that it agreed with the conclusion the CMA had reached in the CMA PR19 Redetermination that financeability on a notional company structure was a key cross-check on cost of equity calibration.[1164]

c) NGET/NGG submitted that GEMA's failure to carry out an equity financeability assessment meant that it had failed to identify that its determined allowed equity return did not enable the notional company to consistently meet its financeability requirements.[1165] NGET/NGG further submitted that the CMA's views in the CMA PR19 Redetermination lent support to the appellants' submissions that GEMA should have carried out a financeability cross-check on the cost of equity.[1166]

d) NGET/NGG also submitted that GEMA's decision to reduce notional gearing where financeability concerns were identified was analogous to the approach Ofwat took in changing Pay As You Go (**PAYG**) rates in order to artificially achieve financeability, which the CMA rejected in the PR19 Redetermination.[1167,1168]

e) SGN submitted that while GEMA should have independently assessed the allowed cost of capital based on available evidence, the financeability assessment was a valuable cross-check. It submitted that the CMA had recently endorsed this in the CMA PR19 Redetermination, noting that 'financeability should be a valuable cross-check when picking an appropriate point estimate from a calculated cost of capital range'.[1169,1170]

f) SSEN-T told us that in the CMA PR19 Redetermination, the CMA maintained its view on aiming up set out in its January 2021 Working Papers and decided that its statutory duties required it to aim up by 25bps above the mid-point in the CMA's cost of equity range in order to take into account relevant cross-checks, including financeability, by using credit ratios to assess whether the cost of equity was of a level that was broadly

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1162 CMA (2021), Water Redeterminations 2020 – Choosing a point estimate for the Cost of Capital – Working Paper, paragraph 113.
1163 Cadent NoA, paragraph 4.140.
1164 Cadent NoA, paragraph 4.144.
1165 NGET/NGG joint PR19 submission, paragraph 2.53.
1166 NGET/NGG joint PR19 submission, paragraph 2.54.
1167 CMA PR19 Redetermination, paragraph 9.1399.
1168 NGET/NGG joint PR19 submission, paragraph 2.53.
1169 CMA PR19 Redetermination, paragraph 9.1383.
1170 SGN Reply, paragraph 69.

consistent with the high-quality credit ratings required by the regulator.[1171,1172]

5.963 SGN told us that GEMA's financeability assessment did not represent an adequate cross-check of its cost of equity point estimate. It submitted that Errors 1[1173] and 2[1174] had had a material impact on the appellants but that the true impact of these errors had been disguised as a result of GEMA's flawed financeability assessment.[1175] SGN also submitted that, while the appellants did not contest that appropriate adjustments could be implemented to the notional company to address financeability constraints, the number and scale of the adjustments which were made in addition to bringing forward of cashflows by means of the transition from RPI to CPIH, meant that the financeability assessment did not represent an appropriate cross-check on the calibration of the price control. It submitted that GEMA's flawed assessment of financeability disguised the true impact that the errors had on the appellants' ability to finance their functions.[1176]

GEMA's submissions

5.964 GEMA told us that each of the arguments was no more than a disagreement with its exercise of regulatory judgement in relation to matters with respect to which reasonable people may differ. In particular, GEMA told us that it took the reasonable view that a financeability assessment (with a focus on credit ratings but also consideration of equity metrics) could only be reliably used to cross-check that the cash flows under the RIIO-2 settlement overall were sufficient for a notional efficient operator to finance its activities; while other market-based cross-checks were significantly more informative on the estimated notional cost of equity. GEMA submitted that this was line with standard regulatory practice, including GEMA's own approach to financeability assessment in the past.[1177]

5.965 GEMA also submitted that that its approach to financeability was a broader test around meeting its financeability duty, rather than a narrow test that the cost of capital was correct[1178] and that applying a determinative relationship

[1171] CMA PR19 Redetermination, paragraphs 86 and 9.1399.
[1172] SSEN-T PR19 submission, paragraph 1.6(d).
[1173] SGN defined Error 1 as: GEMA has failed to take into account relevant factors, and reached conclusions without having regard to relevant evidence, when calculating the components of the CAPM cost of equity. SGN NoA, section 4.4.
[1174] SGN defined Error 2 as: GEMA's failure to 'aim up' in its selection of a point estimate for the allowed cost of equity will lead to underinvestment in energy infrastructure which will negatively impact current and future customers, SGN NoA, section 4.5.
[1175] SGN NoA, paragraph 283.
[1176] SGN NoA, paragraph 285.
[1177] GEMA Response A, paragraph 279.1.
[1178] *Wilde 1 (GEMA),* paragraph 167.

between financeability tests and the cost of equity was incorrect and incompatible with the purpose of a financeability test.[1179]

GEMA's failure to apply an assessment of equity financeability as a cross-check - our provisional determination

5.966 With regard to this appeal, the appellants alleged that GEMA had had insufficient regard to equity financeability when cross-checking its cost of equity estimate.

5.967 In considering the evidence that has been presented, we first noted in our provisional determination that the views in the CMA PR19 Redetermination are not binding precedent, nor the benchmark of whether GEMA's approach to this issue in RIIO-2 was wrong (see further paragraphs 3.87 and 3.88 of the Legal Framework chapter). However, the broad concepts and arguments discussed in the CMA PR19 Redetermination are equally applicable and therefore relevant to the facts of this case.

5.968 The appellants were correct that the CMA commented on financeability as a cross-check in the CMA PR19 Redetermination. In that decision, the CMA noted that the WACC was the primary factor in ensuring that an efficient firm can finance its functions, and that if the WACC was set at a level which properly reflects the cost of debt and cost of equity for the investors in the sector, both debt and equity investors would earn sufficient returns to cover the costs of financing, and therefore the companies would be financeable.[1180]

5.969 With regard to this appeal, none of the appellants had provided evidence that the financeability assessment performed by GEMA was not sufficient to demonstrate that the WACC was high enough to support financeability and therefore we considered that a separate financeability cross-check would not add anything to GEMA's assessment. This compared to the PR19 Redetermination process, where the disputing companies raised concerns related to Ofwat's use of mechanisms other than sufficiently high returns, such as bringing forward revenues to support financial ratios.

5.970 As discussed at paragraph 5.723, GEMA has undertaken extensive cross-checks of the appropriateness of its CAPM-based estimate of the cost of equity. It was our provisional view that a separate 'equity financeability' cross-check would not have added to the efficacy of GEMA's assessment of financeability and that GEMA did not err in not having carried one out.

[1179] *Wilde 1 (GEMA),* paragraph 165.4.
[1180] CMA PR19 Redetermination, paragraph 10.72.

GEMA’s failure to apply an assessment of equity financeability as a cross-check - response to the provisional determination

Appellants’ submissions

5.971 The appellants reiterated that an equity financeability assessment remained a meaningful cross-check on GEMA’s estimate of the cost of equity. For example:

a) Cadent submitted that the use of GEMA’s Step-2 cross checks does not represent a sufficient condition to secure equity financeability and the regulator must consider licence holders’ overall financial position based on the regulated business. Cadent stated that it was an error to assume that financeability tests do not add to the selection of a point estimate for the cost of equity or that the introduction of new cross checks could obviate the need to assess whether the cost of equity had been set such that the notional company as a whole could finance its activities.[1181]

b) NGN submitted that it disagreed with the provisional determination’s assessment of GEMA’s cost of equity cross-checks, stating that these market-based cross-checks were inherently incapable of highlighting a material error in the CAPM-based cost of equity. NGN reiterated that the use of alternative cross-checks should not negate the importance of financeability as a meaningful cross-check.[1182]

c) SGN reiterated that GEMA’s approach in effect makes the financeability assessment obsolete, removing a key cross check on which investors rely.[1183]

GEMA’s submissions

5.972 GEMA told us that it agreed with the CMA’s view that ‘GEMA’s Step-2 cross-checks demonstrate that it has properly considered equity financeability’ and that the formal inclusion of Step-2 cross checks in the allowed return on equity estimated provided more transparent and comprehensive evidence of the consideration than GEMA had ever provided in the past. It submitted that this furthered GEMA’s better regulation duties and represented an improvement in regulatory transparency, stability and predictability.[1184]

[1181] Cadent Response to PD, paragraph 11.87.
[1182] NGN Response to PD, paragraph 102.
[1183] SGN Response to PD, paragraph 103 (iii).
[1184] GEMA Response to PD, paragraph 36.

GEMA's failure to apply an assessment of equity financeability as a cross-check - our final assessment

5.973 The appellants have not materially updated their arguments in response to the provisional determination, and continue to view GEMA's cross-checks as taking insufficient account of equity financeability.

5.974 As noted at paragraph 5.970, and in line with our assessment in the provisional determination, we disagree with the appellants' assessment and conclude that GEMA has undertaken extensive cross-checks of the appropriateness of its CAPM-based estimate of the cost of equity.

5.975 As noted at paragraph 5.969, none of the appellants provided evidence that the financeability assessment performed by GEMA is not sufficient to demonstrate that the WACC was high enough to support financeability. Therefore, it is our view that a separate 'equity financeability' cross-check would not have added to the efficacy of GEMA's assessment of financeability and that GEMA did not err in not having carried one out. In order to fully consider the overall WACC financeability, having regard to the interaction of debt and equity costs at the notional capital structure, we consider the issues raised by the appellants in the paragraphs below.

Alleged errors in GEMA's financeability assessment and the adjustments to the notional company

5.976 The appellants told us that GEMA had made errors in relation to its financeability assessment, in particular that GEMA had erroneously made unjustifiable changes to the notional structure in order to make the price control appear financeable. The appellants made submissions in the following areas:

a) Adjustments to the notional company structure;

b) The credit rating achievable by the notionally structured company;

c) The application of the finance duty; and

d) An exclusive focus on debt financeability.

5.977 In the paragraphs below, we summarise the evidence presented on each of these subtopics before providing our assessment.

Appellants' submissions

5.978 Five appellants made submissions alleging that GEMA had made errors as a result of the application of unjustifiable adjustments to the notional company structure used within the financeability assessment:

a) Cadent told us that the FD created financeability constraints for the notional company, even on GEMA's own financeability analysis. It submitted that KPMG concluded that GEMA found problems under its financeability analysis and, in order to avoid this conclusion, GEMA had (a) changed multiple assumptions about the notional financial structure and appears to have tailored the results of the analysis to support the key parameters tested and (b) relied on cash flow profile implications of some elements of the FD, like the switch to CPIH, to 'solve' financeability problems it identified.[1185,1186]

b) Cadent also told us that it did not agree with GEMA's assumption that financeability concerns could be addressed through reduced pay-outs to investors and that Cadent's investors had a long-term investment horizon and commitment to the business, which was enabled in part by an expectation of stable dividend yields over time.[1187] Cadent submitted that GEMA's changes to the specification of the notional company 'quite clearly' sought to make the notional company 'fit' the FD, rather than setting a price control that met financeability tests and so discharged GEMA's financeability duty. Cadent submitted that, in doing so, GEMA 'not only' redefined what is financeable, it also arrived at 'clearly unreasonable and unrealistic' assumptions.[1188]

c) Cadent submitted that there had been no material reduction in gearing over time based on sector averages cited by GEMA and that, if anything, evidence showed a slight increase in gearing. Cadent further submitted that, on a RAV basis, GEMA had reduced gearing below the average for the sector.[1189]

d) Cadent submitted that GEMA's references to the CMA precedents (*NATS* and *Firmus*) in its witness statements to justify changes to the notional

[1185] KPMG (Cadent), 'Equity financeability of Cadent based on the RIIO-GD2 Final Determination', Sub-Section 6.4.
[1186] Cadent NoA, paragraph 4.141.
[1187] Cadent NoA, paragraph 6.28.
[1188] Cadent Reply, paragraph 136.
[1189] Cadent Closing Statement, Table 4.

company were equally misplaced because those decisions turned on company specific factors that did not apply in the current context.[1190]

e) NGET submitted that the FD adjusted the notional gearing for NGET down to 55% from 60% for debt financeability reasons and that without this adjustment, the financial metrics would not have met the required thresholds for GEMA's targeted credit rating.[1191]

f) NGET/NGG submitted that equity investors would require a strong projection of value growth and dividend yield commensurate with the risks they are taking on. It also submitted that GEMA assumed a notional dividend yield of just 3% and that this low level of dividend could not be maintained based on the FD cost of equity, with a notional dividend cover materially less than 1.[1192,1193]

g) SSEN-T, on behalf of all appellants, submitted that:[1194]

(i) GEMA had highlighted that the gearing of all companies was higher than the notional gearing and that GEMA had reduced it in order to support credit financeability;

(ii) GEMA had selected to use a higher-than-industry average weighting to ILD in the notional structure in order to improve credit financeability;

(iii) GEMA had set the notional dividend yield at 3%, but in comparison the dividend yield of the FTSE was over 4% and of regulated utilities was over 5%; and

(iv) In an environment where investment from equity investors 'could not be any more needed' and a significant amount of borrowing was required, 'we are basically going to allow Ofgem to constrain equity returns and to reduce how much equity investors can take and expect them to put more money onto these companies over a period of time'.

h) SGN submitted that GEMA's financeability assessment was based on several assumptions about the notional company. SGN told us that GEMA had adjusted some key assumptions since RIIO-GD1, including implementing a full transition from RPI to CPIH for the purpose of calculating RAV indexation and allowed returns. SGN submitted that this

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1190 Cadent Reply, paragraph 137(b).
1191 NGET NoA, paragraph 3.402.
1192 NGET NoA, paragraph 3.400.
1193 NGG NoA, paragraph 3.400.
1194 Cost of Equity Joint Hearing Transcript, 21 June 2021, page 154, lines 16–page 155, line 3.

had the effect of significantly bringing forward cashflows such that the financeability metrics were materially increased, as set out in the KPMG Financeability Report.[1195,1196]

i) Regarding the specific adjustments, SGN submitted:

(i) By assuming a reduction in gearing, GEMA had effectively identified a financeability constraint with its price control settlement which it proposed to address by assuming a substantial notional equity injection at the same time as a significant reduction in equity returns from GD1. GEMA merely shifted risk exposure from debt to equity.[1197,1198]

(ii) Regarding the increase in the proportion of ILD: this amounted to an arbitrary increase in the proportion of ILD to address financeability constraints.[1199,1200]

(iii) Regarding the reduction in notional dividend yield this was inconsistent with the dividend yield of 4 to 6% for comparable (actual) companies and market benchmarks as set out in the KPMG Financeability Report. It was not appropriate to rely on a reduction in the dividend yield and a payout ratio that was below market benchmarks to improve the financeability position.[1201]

(iv) Regarding the outperformance wedge the expectation that the notional company would outperform by 0.25% of its RoRE misstated the actual cash flows during RIIO-2 (and consequently overstates the credit metrics).[1202]

j) WWU told us that reducing dividends, notional gearing or advancing revenues would not resolve financeability issues in the absence of increased revenue allowances.[1203,1204] WWU submitted that it was inconsistent of GEMA to state that there was significantly less systemic risk in the RIIO-2 price control compared to the RIIO-1 price control and then reduce notional leverage. It also submitted that, had GEMA run the financeability tests using higher leverage levels consistent with its view of

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1195 *Millar 1 (SGN)*, paragraphs 4.4.5–4.5.3.
1196 SGN NoA, paragraph 284.
1197 *Millar 1 (SGN)*, paragraphs 4.4.7–4.4.19.
1198 SGN NoA, paragraph 284(i).
1199 *Millar 1 (SGN)*, paragraphs 4.4.20–4.4.28.
1200 SGN NoA, paragraph 284(ii).
1201 SGN NoA, paragraph 284(iii).
1202 *Millar 1 (SGN)*, paragraphs 4.4.6–4.4.57.
1203 Oxera (WWU), 'RIIO-GD2 financeability, Prepared on behalf of WWU for the CMA', paragraph 3.
1204 WWU NoA, paragraph B1.10.

lower systematic risk, financeability would have been weakened to below a Baa1 credit rating which would have exposed the inadequacy of revenues set of by GEMA.[1205]

k) Regarding the transition from RPI to CPIH, WWU told us that without this shift, GEMA's 3% dividend yield was not appropriate for its notional efficient operator in RIIO-2 and that GEMA's notional company was not financeable for RIIO-GD2. WWU also submitted that GEMA's contention of net present value (**NPV**) neutrality from the RPI to CPIH change was no defence for financeability in respect of RIIO-2.[1206]

GEMA's submissions

5.979 GEMA told us that the assumptions as to the relevant characteristics of the notional efficient energy company used by GEMA to assess financeability were reasonable and supported by evidence. GEMA submitted that the fact that KPMG had arrived at a different assessment on the basis of alternative assumptions did not disclose any appealable error.[1207]

5.980 In response to the KPMG report submitted on behalf of Cadent, GEMA told us that the financeability conditions suggested by KPMG were 'excessively strict'.[1208]

5.981 GEMA also submitted that claims that its choice of inputs were selected to provide a financeable outcome were unsupported and did not indicate error and that its input assumptions were each supported by evidence.[1209]

5.982 Regarding the dividend yield, GEMA submitted its decision should be viewed in light of the fact that this dividend yield was still higher than that assumed by Ofwat in PR19 for many companies[1210] and that, from a regulator's perspective, the causality should flow from performance/returns to dividend yield/growth, not the other way.[1211]

5.983 Regarding GEMA's assumption that a significant amount of notional equity could be attracted into the sector during RIIO-2, GEMA told us:

[1205] WWU Closing Statement, paragraph 5.2(c).
[1206] WWU Closing Statement, paragraph 5.2(a).
[1207] GEMA Response A, paragraph 279.2.
[1208] *Wilde 1 (GEMA)*, paragraph 165.2.
[1209] *Wilde 1 (GEMA)*, paragraph 170.
[1210] Ofwat PR19 Final Determinations Allowed Return on Capital Technical Annex, footnote 113.
[1211] *Wilde 1 (GEMA)*, paragraphs 171–172.

a) It agreed that this involved an element of judgement for which there are limited mechanisms to 'test' this upfront.[1212]

b) Its cost of equity cross-checks provided comfort at the time it took the Decision and subsequent events, such as National Grid agreeing to buy WPD networks at a 61% premium to RAV for a £7.8 billion equity investment, provided evidence that this judgement was not wrong. If its cost of equity estimate was right, then existing or new investors should be willing to invest further capital.[1213] It also told us that National Grid's announcement to purchase WPD is a clear sign of investor confidence in the investability of the UK energy sector and/or the stability of the regime. If National Grid had genuine concerns over either the ability to earn returns on investment or a return of its investment, GEMA would expect it to bid for assets regulated by GEMA at or below the value of the RAV.[1214]

5.984 Regarding the claim that reducing notional gearing due to an inadequate cost of equity was a logically incoherent position, GEMA submitted that it did not agree that a debt metric financeability check provided a check on whether the assessed cost of equity or allowed return on equity is inadequate, as the relevant checks for this were instead cross-checks on the CAPM-implied cost of equity itself.[1215]

5.985 GEMA submitted that its adjustment to ILD was based on information submitted in business plans that 37% of externally raised GD&T company debt (pre derivatives) was inflation linked as at FYE 2019.[1216,1217]

5.986 Regarding the outperformance adjustment, GEMA submitted that it considered it was appropriate and internally consistent, because if it was suitably convinced to make an adjustment to allowed returns to reflect this expected outperformance, then it should also be convinced that it will be earned for the purposes of assessing financeability.[1218]

Intervener submissions

5.987 BGT and Citizens Advice told us that they were in favour of the notional structure model.[1219,1220]

[1212] *Wilde 1 (GEMA)*, paragraph 183.
[1213] *Wilde 1 (GEMA)*, paragraph 183.
[1214] *Wilde 1 (GEMA)*, paragraph 184.
[1215] *Wilde 1 (GEMA)*, paragraph 173.
[1216] GEMA DD Finance Annex, page 99.
[1217] *Wilde 1 (GEMA)*, paragraph 176.
[1218] *Wilde 1 (GEMA)*, paragraph 179.
[1219] BGT Hearing Transcript, 7 July 2021, page 19, lines 4–6.
[1220] Citizens Advice Hearing Transcript, 7 July 2021, page 35, lines 20–24.

5.988 BGT also noted that every company that had a higher cost of capital would want to have company specific rather than market wide allowances. BGT also told us that the use of market wide allowances was a very good way to preserve incentives in minimising the cost of capital, and it was widely done.[1221]

Alleged errors in GEMA's financeability assessment and the adjustments to the notional company – our provisional assessment

5.989 In coming to our provisional assessment on the alleged errors in GEMA's adjustment to the notional company, we considered two related questions. First, was GEMA wrong in principle to change the notional capital structure; and second was the 'new' capital structure used by GEMA appropriate for the energy networks in this price control.

5.990 In addressing the first question, we noted that notional capital structures have changed significantly over time. In particular, we noted that the assumed levels of both gearing and ILD had changed over time. For example, the GD sector saw notional gearing rise to 65% in RIIO-1 compared to the 62.5% used previous control. Conversely, the gearing assumed for SSEN-T and SPT fell from 60% to 55% between the two controls.[1222] We had seen a similar trend in other sectors. For example, in the water sector's PR09, the notional gearing was 57.5%,[1223] while the PR14 notional gearing was 62.5%.[1224]

5.991 While we acknowledged the potential theoretical merits of a stable notional structure, we noted that such an approach was unlikely to match the practical challenges that a regulator faces. In our view, no notional structure was likely to be perfect for all circumstances. If a regulator fails (or is not allowed) to adjust the notional structure to the relevant market conditions, it could be prevented from setting a price control that is in the best interest of current and future consumers. In our view, the appellants had failed to supply evidence that GEMA's adjustments to the notional company could be considered wrong.

5.992 We also noted that GEMA's assumptions relating to the notional company also closely match those used by Ofwat and the CMA for PR19, a sector the appellants claim is lower risk than energy. Further, we considered that if the appellants were correct on the relative risks of the energy and water markets, GEMA would be justified in assuming that a more conservative capital

1221 BGT Hearing Transcript, 7 July 2021, page 19, lines 10–13.
1222 GEMA DD Finance Annex, Table 32.
1223 Ofwat future water and sewage charges 2010-2015: Final determinations, Table 46.
1224 Ofwat final price control determination notice: policy chapter A7 – risk and reward, Table A7.10.

structure should be adopted in energy in comparison to water. We also noted that, with regard to gearing, both Ofwat and the CMA reduced the notional gearing assumption in their PR19 FD and Redetermination respectively, with both regulators using 60%.[1225]

5.993 While we acknowledged that changes to the notional capital structure may inconvenience companies looking to match such a structure, we noted that it was clear that regulators regularly change the exact specification of the notional capital structure, and that such adjustments could reflect upward and downward movements to key metrics.

5.994 We agreed with GEMA that it was a matter of regulatory judgement whether to match the notional capital structure to prevailing market conditions, if it believed that this was appropriate and in line with a notional structure that would be suitable for the market conditions likely to be in place during a price control. In terms of the scale of movement, GEMA had reduced gearing by 5 percentage points to 60% for all GD networks, by 2.5 percentage points to 60% for NGG and by 5 percentage points to 55% for NGET; dividends by 2 percentage points to 3% and increased ILD weight to 30% from 25%. In our assessment, we did not view such changes to be material enough to render companies unable to match such a structure if they wished, or in the case of dividends that such a move would constitute such a large impact on the mix of investor returns as to be untenable.

5.995 The change to dividend yield assumption appeared to be broadly appropriate given that allowed return on equity had fallen from 6.7% (RPI-real) in RIIO-1 to 4.3% (CPIH-real) in RIIO-2,[1226] and we agreed with GEMA that, in principle, the dividend should reflect the growth and returns expected in the price control, not the other way around. In addition, we were not aware of any evidence that the absolute level of notional dividends had been guaranteed in the past, but in any event, we did not consider such changes 'out of bounds' for the regulator.

5.996 In relation to the question of exactly when GEMA decided to make changes to the notional structure, we acknowledged the argument that it would be most helpful to do this as early as possible. GEMA had argued that such changes were flagged as being considered early in the process,[1227] while the appellants claimed GEMA 'back-solved' financeability by changing the assumptions until the companies appeared financeable.[1228] It was extremely

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[1225] CMA PR19 Redetermination, paragraphs 9.37–9.45.
[1226] RIIO-GD1: Final Proposals - Finance and uncertainty supporting document. For note, an equivalent CPIH-real figure at RIIO-2 would have been approximately 7.7%.
[1227] GEMA Clarification Hearing Transcript, 12 May 2021, page 74, lines 3–5.
[1228] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 155, line 22–page 156, line 4.

difficult for either side to prove what GEMA was 'thinking' through this process. What we could see from the evidence was that GEMA flagged a 3% dividend yield and 60% gearing level in its SSMD and increased the assumed weight to ILD in its DD.

5.997 On balance, we considered it appropriate for the metrics associated with financeability to change as the regulator developed its thinking and gained more insight into the position of the price control 'in the round'. As a result, we viewed GEMA's changes to have been flagged sufficiently early to negate any assessment of 'back solving' in order to make the RIIO-2 FD appear erroneously financeable.

5.998 As a result of this combined assessment, we did not see evidence that GEMA was wrong, in principle, to change the notional capital structure.

5.999 We then addressed the question of whether the 'new' notional structure was wrong in terms of being inappropriate for the energy networks over the period of the RIIO-2 price control. We noted that GEMA had chosen to use a notional structure with 60% gearing, assumed 30% of ILD, a dividend yield of 3% and a full transition to CPIH-based indexing.

5.1000 We again noted that this was an almost identical[1229] set of notional metrics as used by both Ofwat and the CMA in their PR19 FD and Redetermination respectively. That was interesting, not (as had been said throughout this determination) because PR19 decisions were in any way binding on GEMA's RIIO-2 determination, or the CMA's findings in this appeal, but because the appellants had been very clear that they considered the risks faced by energy networks to be higher than the risks faced by water companies. The logical extension of the appellants' arguments was that we might expect, all other things being equal, to see a more 'conservative' notional capital structure deployed in the energy network sector to offset these increased risks.

5.1001 Taking these assessments in the round, we did not see sufficiently persuasive evidence that either GEMA's decision to change the metrics within the notional structure, or the individual metrics themselves, constituted an error.

[1229] Both the CMA and Ofwat assumed a more gradual transition to CPIH-based from RPI-based indexing, while PR19 assumed 33% ILD rather than the 30% used in RIIO-2.

Alleged errors in GEMA's financeability assessment and the adjustments to the notional company - response to the provisional determination

Appellants' submissions

5.1002 Two appellants submitted that the notional company should reflect market evidence:

a) Cadent submitted that the provisional determination's endorsement of GEMA's approach implied that the notional company could evolve to match the regulator's specification of the price control rather than reflect an efficient capital structure based on external market evidence.[1230] It told us that the provisional determination's assessment of the credit rating achievable by the notionally structured company was contingent on the changes made by GEMA to the notional company, and that these changes did not give the required and necessary weight to exogenous, external market evidence. It told us that, where the notional company was specified on this basis, projected metrics were materially below thresholds.[1231]

b) SGN submitted that the correct financeability question should be whether efficient capital structures were financeable based on GEMA's determination. It told us that the notional company structure should match market evidence for the efficient capital structure, which was not achieved by GEMA's adjustments. It also said that changes to the notional company could not be supported by evidence from the water sector.[1232]

5.1003 Cadent also submitted that GEMA's adjustments to gearing and debt composition adjusted notional company assumptions to achieve metrics above thresholds without adjusting returns and were as a result directly analogous to the cash forwarding PAYG adjustment applied by Ofwat at PR19. Cadent told us that the use of financeability adjustments could not represent a robust basis for adopting inconsistent approaches to financeability assessment across the PR19 and GD2 appeals.[1233]

5.1004 SGN submitted that GEMA's financeability test demonstrated that its cost of equity was too low and even with significant adjustments being made to notional financing structure, the notional company only barely achieved a BBB+ rating. It told us that, by effectively undermining the most pertinent of cross-checks on the allowed return in favour of imperfect ones that are likely

[1230] Cadent Response to PD, paragraph 11.88.
[1231] Cadent Response to PD, paragraph 11.94.
[1232] SGN Response to PD, paragraph 92.
[1233] Cadent Response to PD, paragraph 11.100.

to underestimate the cost of equity, GEMA's approach masked the downward bias in its assessment of cost of equity.[1234]

GEMA's submission

5.1005 GEMA submitted that it agreed that the changes to the structure of the notional company were not material enough to render companies unable to match such a structure if they so wished. It told us that it considered it imperative that regulators continued to be afforded regulatory discretion to adjust the notional structure and said it was of the view that such discretion was not only reasonable but necessary for discharging the regulator's duties.[1235]

Alleged errors in GEMA's financeability assessment and the adjustments to the notional company - our final assessment

5.1006 The responses to the provisional determination have not changed our view that the notional company construct should change, within reason, to match the nature of the price control – specifically that falling equity returns would suggest that a lower level of gearing and a lower dividend yield would be appropriate. We do not agree with the appellants that GEMA must match the actual approach taken by companies in the sector – as such an approach would be a) backward looking and resistant to change, and b) a significant constraint on GEMA's ability to set price controls and test financeability in a way that best matches its duties.

5.1007 Further, having considered the responses to the provisional determination, we nevertheless consider the notional structure chosen by GEMA to be appropriate for the nature of the energy network sector and the return levels that are available in this price control. In particular, we note that:

a) The level of gearing used by GEMA is not radically different to that used at the last control and is almost identical to that used for water companies in PR19. As set out in the beta section above, we consider that water companies represent reasonable comparators for the energy sector and that this would hold in terms of gearing as well as beta, although we note that the appellants claim the water sector is lower risk than energy. We consider that if the appellants were correct on the relative risks of the energy and water markets, GEMA would be justified in assuming that a

[1234] SGN Response to PD, paragraph 84.
[1235] GEMA Response to PD, paragraph 35.

more conservative capital structure should be adopted in energy in comparison to water;

b) The significant reduction in the cost of equity between RIIO-1 and RIIO-2 provides sufficient reason to reduce the assumed dividend yield when assessing financeability. Further, in the context of an overall cost of equity of 4.55% and a growing RAV, we consider that a dividend yield of 3% is reasonable; and

c) Finally, we note that GEMA's decision on the proportion of ILD reflects the proportion actually used by the energy firms (see paragraph 5.985) and we consider this to be a reasonable approach.

5.1008 Further, we do not believe that the new notional structure would be in any way unachievable or economically unsustainable for the energy networks.

5.1009 We do not agree with Cadent's argument that changes to the notional structure are analogous to the cash forwarding PAYG adjustment applied by Ofwat at PR19. As noted at paragraph 5.1007, we consider the notional structure chosen by GEMA to be appropriate for the nature of the energy network sector and the return levels that are available in this price control. In our view, the use of tools to temporarily move cash flows between price controls in order to support financeability is fundamentally different to the regulator setting an appropriate notional structure for the current price control.

5.1010 Taking these assessments in the round, we do not consider the appellants to have provided us with sufficient evidence to demonstrate that either GEMA's decision to change the metrics within the notional structure, or the individual metrics themselves, constitute an error.

The credit rating achievable by the notionally structured company

Appellants' submissions

5.1011 Three appellants made submissions regarding the impact of GEMA's financeability assessment on the credit rating achievable by the notionally structured company:

a) Cadent submitted that on a historically comparable basis[1236] to RIIO-GD1, the notional company would achieve a sub-investment grade rating. Cadent submitted that it was only through the full transition to CPIH for

[1236] This assumes no transition to CPIH, 65% gearing, 25% ILD, 5% dividend yield, no assumed out-or under-performance in line with the specification of the notional company at GD1.

RIIO-2, which led to a material improvement in the notional company's financial position, that financial metrics moved into investment grade territory at all and became consistent with a weak Baa2/BBB rating.[1237]

b) Cadent told us that GEMA's position that 'While our view that our in-the-round assessment of the notional company in the FD is consistent with credit quality equivalent of BBB+/Baa1, this does not require Moody's to be of the same view'[1238] was inappropriate. Cadent further submitted that rating agency methodologies were the key independent market test for determining credit quality, and financeability ultimately needed to be confirmed based on tests relied upon by providers of capital in the market.[1239]

c) Cadent also submitted that GEMA's financeability stress test conclusions relied on the assumption that networks had limited cashflow risk, but that GEMA had provided no evidence to support its position that 2% RoRE downsides were 'quite extreme'[1240] other than to refer to the CMA PR19 Redetermination. Cadent also told us that its own risk analysis showed that a 2% RoRE downside was a plausible scenario and would result in below investment grade metrics. It went on to tell us that, by excluding more severe outcomes, GEMA ignored clear evidence of a mismatch between risk exposure and financial headroom for the notional company. Cadent submitted that an assertion that cash flow risk was limited was inconsistent with the assertion that GEMA reduced notional gearing in light of networks' risk exposure because, all else equal, lower risk exposure would imply higher gearing.[1241]

d) SSEN-T, on behalf of all appellants, submitted that the BBB+ credit rating was as a result of GEMA reverse-engineering a notional company and making adjustments to justify that position and that GEMA could not justify that position with its data and the errors it made.[1242]

e) SGN submitted that GEMA stated that it had considered key ratios compared to stated rating agency guidance thresholds for two notches above investment grade (ie Baa1 or equivalent), to apply an 'in the round' assessment which targeted each notional company broadly achieving a comfortable investment grade credit quality. However, SGN told us that, as set out in the KPMG Financeability Report, GEMA had ignored the

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[1237] Cadent NoA, paragraph 6.20(a).
[1238] *Wilde 1 (GEMA)*, paragraph 182.
[1239] Cadent Reply, paragraph 137(a).
[1240] GEMA Main Hearing Transcript, 9 July 2021, page 63, lines 3–8.
[1241] Cadent Closing Statement, Table 4.
[1242] Cost of Equity Joint Hearing Transcript, 21 June 2021, page 155, lines 3–9.

importance that rating agencies place on core metrics (eg the significant weight placed by Moody's on the adjusted interest cover ratio) and that falling below the minimum threshold for a key credit metric could constrain the company's credit rating.[1243,1244]

f) SGN told us that GEMA's financeability stress test conclusions relied on 'incorrect and unjustified' assumptions that networks had very limited cashflow risk, claiming that a 2% RoRE downside was 'quite extreme'.[1245] SGN also told us that GEMA had no evidence to support its position that a 1% RoRE downside was a more reasonable stress test overall; that GEMA pointed to Ofwat's PR19 risk analysis but that analysis carried out in a lower risk sector was not relevant for GD.[1246]

g) [✂][1247]

GEMA's submissions

5.1012 GEMA submitted that KPMG 'cherry picked' the most challenging metrics and also misinterpreted the results of that analysis, treating the Baa1 threshold of a ratio as a binding constraint.[1248]

5.1013 GEMA further submitted that KPMG's interpretation that the notional company failed those conditions drew on too wide a range of downside scenarios and made unsubstantiated adjustments to key input assumptions required for the assessment (eg dividend yield).[1249]

5.1014 However, GEMA also submitted that it considered that some of its base case assumptions may have made certain credit metrics appear weaker than would otherwise be the case and noted the potential impact of making different assumptions.[1250]

5.1015 GEMA noted that the network companies' licences did not require a Moody's rating of a certain category and that a number of actual companies considered themselves perfectly financeable at a rating of Baa2.[1251] GEMA also stated that while its view was that its in-the-round assessment of the

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[1243] *Millar 1 (SGN)*, paragraphs 4.4.46–4.4.57.
[1244] SGN NoA, paragraph 286.
[1245] GEMA Main Hearing Transcript, 9 July 2021, page 63 lines 3–8.
[1246] SGN Closing Statement, paragraph 26.
[1247] [✂]
[1248] *Wilde 1 (GEMA)*, paragraph 165.2.
[1249] *Wilde 1 (GEMA)*, paragraph 165.3.
[1250] *Wilde 1 (GEMA)*, paragraph 180.
[1251] *Wilde 1 (GEMA)*, paragraph 182.

notional company in the FD was consistent with credit quality equivalent of BBB+/Baa1, this did not require Moody's to be of the same view.[1252]

5.1016 GEMA told us that its approach between RIIO-1 and RIIO-2 was similar, in that it carried out a comprehensive assessment of companies' credit, targeting a strong/adequate investment grade rating, which was broadly seen as two notches above the BBB- licence condition. GEMA submitted that its own Challenge Group advised that it should allow companies to get closer to that investment grade hurdle but that it had not looked to argue this point.[1253]

5.1017 GEMA told us that network companies suggested that two notches above minimum investment grade was appropriate for the notional company, and that some did state that, for the actual company, they were comfortable with a notch lower than that and that they were going to continue to raise financing at that lower credit rating. GEMA submitted that that indicated that it was 'perfectly possible' to raise financing at a slightly lower credit rating than two notches above investment grade.[1254]

5.1018 GEMA submitted that it had considered market evidence that the broader market was operating at a slightly lower credit rating than it had been in the past and that it was still 'perfectly able' to finance activities.[1255]

5.1019 GEMA submitted that it also considered that the price control itself was being de-risked into RIIO-2 and that, arguably, companies can have a lower base revenue or base credit profile and still withstand downsides and allow them to stay investment grade.[1256]

5.1020 However, GEMA submitted that it considered that in times of broader market distress, having a slightly higher credit quality did maintain access to markets and that, on balance, it thought that retaining a credit quality two notches above minimum investment grade was appropriate.[1257]

5.1021 GEMA told us that it performed stress tests on its notional financial ratios to assess downside risk. It told us that it consulted on the core stress tests and that one of those performed was an overall RoRE downside. GEMA submitted that it initially suggested a 2% RoRE downside would be 'quite extreme' but that it would look at it in a stress test. GEMA further submitted that it noted in its FD that for PR19 a 1% RoRE downside level was

[1252] *Wilde 1 (GEMA)*, paragraph 182.
[1253] GEMA Main Hearing Transcript, 9 July 2021, page 57, lines 9–16.
[1254] GEMA Main Hearing Transcript, 9 July 2021, page 59, line 22–page 60, line 3.
[1255] GEMA Main Hearing Transcript, 9 July 2021, page 60, lines 9–12.
[1256] GEMA Main Hearing Transcript, 9 July 2021, page 60, lines 13–19.
[1257] GEMA Main Hearing Transcript, 9 July 2021, page 60, lines 21–25.

considered to be 'already quite an extreme scenario' and that it looked at the results of both 1% and 2% downside.[1258]

5.1022 GEMA also told us that the stress tests it ran indicated that the notional company would be able to retain investment grade under those scenarios. GEMA clarified that there would be some scenarios, which extend for very long periods of time, where that may not be the case without other action. However, GEMA submitted that it was comfortable that the stress tests allowed the notional company to retain investment grade status under reasonable downside scenarios.[1259]

The credit rating achievable by the notionally structured company – our provisional assessment

5.1023 In our provisional determination, in considering whether GEMA's approach to the price control would allow the notionally-structured company to achieve a suitable credit rating, we noted from Table 14 of the Finance Annex to the FD[1260] (see below at Figure 5-19) that under GEMA's central financeability scenario all (notionally-structured) companies had financial metrics that were at or above the requirements typically associated with a BBB+ credit rating. Specifically, we noted that all companies were above the 1.4x Adjusted Interest Cover Ratio (**AICR**) that was generally considered to be one of Moody's key tests, and above the 9.0% Funds from Operations (**FFO**)/Net Debt generally considered to be one of S&P Global's key tests.

[1258] GEMA Main Hearing Transcript, 9 July 2021, page 62, line 22–page 63, line 9.
[1259] GEMA Main Hearing Transcript, 9 July 2021, page 64, line 21–page 65, line 1.
[1260] GEMA FD Finance Annex, Table 14.

Figure 5-19: Summary financial ratios for Final Determinations for notional company structures (FYE 2022-2026), Final Determination allowances

Licensee	RIIO-2 Starting Notional Gearing	Adjusted Interest Cover Ratio[169]	Funds from operations/ net debt[170]
SHET	55%	1.64	10.5%
SPTL	55%	1.63	12.7%
NGET	55%	1.60	11.9%
NGGT	60%	1.57	11.6%
Cadent	60%	1.49	10.1%
Northern	60%	1.46	9.7%
Scotland	60%	1.46	9.8%
Southern	60%	1.49	10.1%
Wales & West	60%	1.47	10.1%

Source: GEMA FD Finance Annex, Table 14.

5.1024 WWU's assessment appeared to us to be based on debt financeability in comparison to its specific circumstances rather than at the allowed returns on debt and equity at the notional structure. We considered WWU's appeal of the cost of debt in more detail in Chapter 14.

5.1025 We noted the appellants' arguments questioning GEMA's view that the 2% RoRE downside stress test performed by GEMA was 'quite extreme' and would leave companies with financial metrics below the level required for an investment grade credit rating. By contrast, GEMA had stated that it was comfortable that under its stress tests the notional company would be able to retain an investment grade rating. In making our assessment, we concluded that it was appropriate to perform a stress test on downside scenarios which were plausible. In fact, if a stress test were implausibly harsh it would lose all of its value.

5.1026 The results of the stress tests performed are included at Table 5-6 and Table 5-7 below.

Table 5-6: CMA Summary of GEMA Stress Test Results: RoRE 1%

Licensee	AICR	FFO/ND
SHET	1.31	9.5%
SPT	1.32	11.6%
NGET	1.27	10.5%
NGGT	1.27	10.3%
Cadent	1.21	9.0%
Northern	1.18	8.6%
Scotland	1.19	8.7%
Southern	1.21	8.9%
Wales & West	1.20	9.0%

Source: CMA analysis of GEMA FD Finance Annex (revised), Appendix 6, Tables 25, 27 and 29.

Table 5-7: CMA Summary of GEMA Stress Test Results: RoRE 2%

Licensee	AICR	FFO/ND
SHET	1.04	8.7%
SPT	1.07	10.7%
NGET	1.04	9.8%
NGGT	1.04	9.3%
Cadent	0.99	8.1%
Northern	0.97	7.7%
Scotland	0.98	7.8%
Southern	0.99	8.1%
Wales & West	0.98	8.1%

Source: CMA analysis of GEMA FD Finance Annex (revised), Appendix 6, Tables 25, 27 and 29.

5.1027 We agreed with GEMA's assessment that 1% and 2% RoRE downside scenarios were justifiable stress test scenarios, and GEMA's assessment that the companies would likely have been able (potentially with the addition of some standard remediating actions, such as the injection of further equity) to retain a 'bottom notch' investment grade in such a scenario.

5.1028 We noted that the appellants had not provided sufficiently persuasive evidence that would have suggested that such a scenario would inevitably lead to a downgrade (of the notionally structured company) to a rating below investment grade. As a cross-check to this assessment, we noted that the downside scenario used in the CMA PR19 Redetermination was a 1% RoRE reduction.[1261]

5.1029 On the role of the credit agencies, we agreed with GEMA's position that there was nothing in GA86 or EA89 that required GEMA to ensure companies (notional or otherwise) met the particular ratios suggested by the rating agencies, and we did not believe that it was appropriate for GEMA's

[1261] CMA PR19 Redetermination, paragraphs 10.103.

assessment of an appropriate cost of equity allowance to be entirely constrained by the views of particular credit rating agencies.

5.1030 However, it was clear that, if licence holders were required to maintain certain credit ratings, the standards set by the agencies who award those ratings were an important consideration. In this instance, the evidence provided by GEMA showed that the appellants (at the notional structure) would all have financial ratios consistent with those required for a strong investment grade rating, limiting the need for GEMA to make any 'in the round' assessment that could conflict with the assessment of the credit rating agencies.

5.1031 On the basis of these assessments, we provisionally concluded that GEMA's allowed cost of equity appeared to be sufficient to allow the financial and credit metrics (at the notional structure) associated with a BBB/Baa1 credit rating, in the round. This level was two notches above the minimum investment grade required by GEMA, which was consistent with the suggestion by network companies.

5.1032 We also noted that GEMA considered evidence that a lower credit rating was financeable but concluded that a credit rating two notches above minimum investment grade was appropriate. We also found no error in GEMA's approach to stress testing financeability for downside scenarios. As a result, we were not convinced by the appellants' arguments that GEMA made an error in assessing that the credit rating that could be achieved by the notionally structured company was appropriate.

The credit rating achievable by the notionally structured company - response to the provisional determination

5.1033 Cadent submitted analysis which it said demonstrated that projected financial ratios for the notional company would fail the financeability test without GEMA's financeability adjustments. Cadent submitted that the result of excluding GEMA's 'arbitrary changes' to assumptions was that S&P's FFO/Net debt ratio falls to 7.88% over RIIO-2 (ie below the BBB+ threshold of 9%) and Moody's AICR falls to 1.28x over RIIO-2 (ie below the Baa1 threshold of 1.40x). Cadent submitted that this meant that the notional company would be unable to secure the levels of key financial ratios required to ensure financeability, despite the fact that the underlying ratios are already significantly improved as a result of taking into account the impact of the transition to CPIH.[1262]

The credit rating achievable by the notionally structured company – our final assessment

5.1034 We note that Cadent's analysis is based on its preferred assessment of an appropriate notional capital structure – which assumes higher gearing, lower ILD and a higher dividend yield than is used by GEMA in RIIO-2. As noted at paragraph 5.1007, we have concluded that GEMA's notional structure is appropriate for this price control. As a result, the relevant outcomes of the financeability assessments are as presented by GEMA and shown at Figure 5-19, not those presented by Cadent. Figure 5-19 shows that all companies in the sector comfortably meet the financial metrics associated with a Baa1/BBB+ credit rating (at the notional structure and costs of capital).

5.1035 Having considered the responses to the provisional determination, we nevertheless conclude that GEMA's allowed cost of equity appears to be sufficient to allow the financial and credit metrics (at the notional structure) associated with a BBB/Baa1 credit rating, in the round. This level is two notches above the minimum investment grade required by GEMA, which is consistent with the suggestion by network companies. We also note that GEMA considered evidence that a lower credit rating was financeable but concluded that a credit rating two notches above minimum investment grade was appropriate.

5.1036 We have also found no error in GEMA's approach to stress testing financeability for downside scenarios. As a result, we are not convinced by the appellants' arguments that GEMA made an error in assessing that the credit rating that could be achieved by the notionally structured company was appropriate.

The application of the finance duty

Appellants' submissions

5.1037 Five appellants told us that GEMA had failed to properly have regard to its Finance Duty and/or its statutory duties:

a) Cadent told us that, even absent the outperformance wedge adjustment, the 4.55% cost of equity allowance that GEMA derived through aiming

[1262] Cadent Response to PD, paragraphs 11.95–11.96.

straight in its CAPM-implied cost of equity range failed a robust financeability analysis used as a cross-check that was commensurate with the Finance Duty because:

(i) Taking into account asymmetry in the RIIO-GD2 regulatory determination, the notional company could not reasonably expect, on an ex-ante basis, on average to earn its required return on equity;

(ii) It did not provide the return necessary for the notional company to achieve levels of financial ratios required to retain access to capital; and

(iii) It did not provide adequate financial resources to ensure the notional company was resilient to plausible downside shocks (such as RIIO-GD2 totex challenges and incentive downsides and volatility due to greater indexation).[1263,1264]

b) Cadent also submitted that GEMA had failed properly to have regard to, and had failed to give appropriate or sufficient weight to, its Finance Duty, for the reasons listed at paragraph a) and for failing to carry out a robust financeability assessment and ensure its assessed cost of equity was consistent with the requirements of financeability.[1265]

c) NGN submitted that GEMA had failed properly to have regard to and/or give appropriate weight to its principal objective and its statutory duties to secure that licence holders were able to finance their licensed activities and to contribute to the achievement of sustainable development.[1266]

d) SSEN-T submitted that the need for GEMA to set the WACC at a level commensurate with the need to attract new investment was firmly enshrined in GEMA's statutory duties. SSEN-T also submitted that, as the CMA had held previously, in order to satisfy its Financeability Duty, GEMA was specifically required to set a WACC at a rate that ensured the revenues and therefore cash flows made by the licence holder were sufficient to pay investors a sufficient rate of return.[1267,1268]

e) SPT submitted that it had been allowed an insufficient return to incentivise the necessary investments that would be required during RIIO-T2 and in

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1263 KPMG (Cadent), 'Equity financeability of Cadent based on the RIIO-GD2 Final Determination', Section 7.
1264 Cadent NoA, paragraph 4.142.
1265 Cadent NoA, paragraph 4.161(b).
1266 NGN NoA, paragraph 216(v).
1267 CMA (2017), *Firmus Energy (Distribution) Limited v Northern Ireland Authority for Utility Regulation Final Determination*, paragraph 7.60.
1268 SSEN-T NoA, paragraph 1.28.

future price control periods. It also told us that GEMA had paid insufficient regard to the need to secure SPT's ability to finance its licensed activities by securing reasonable returns on capital.[1269]

5.1038 WWU submitted that if proper regard and appropriate weight had been given to the financing duty and the principal objective as particular parts of the statutory duties, GEMA could not have made the decisions that it had in relation to the cost of equity.[1270] WWU also told us that the effect of these decisions was to 'significantly impair' WWU's equity financeability and contribute to a weakening of its debt financeability.[1271] WWU submitted that it did not agree with GEMA's characterisation of the financing duty as a subordinate duty to the consumer objective. WWU told us that it was its view that the financing duty was an intrinsic part of the consumer objective and that GEMA should have set a cost of capital to secure future investment.[1272]

a) WWU also submitted that it drew the CMA's attention to the central conclusion of the Oxera Financeability Report:

> We find that Ofgem's Decision that the revenue allowance in its RIIO-GD2 Final Determinations are sufficient for WWU to finance its activities is erroneous and that the RIIO-GD2 Final Determinations do not provide sufficient allowances (including total expenditure (TOTEX) and the rate of return) for WWU as a licensee to be considered financeable in either the short or long term. [✄]. In terms of equity financeability, this is due to insufficient allowed return on equity and dividend distributions.[1273,1274]

GEMA's submissions

5.1039 GEMA told us that KPMG's set of financeability conditions misrepresented its financing duty and the approach adopted by credit rating agencies in making their assessment. GEMA further submitted that this led to them drawing the wrong conclusions as regards the financeability of the FD, based on a set of arbitrary rules.[1275]

1269 SPT NoA, paragraph 49.
1270 WWU NoA, paragraph B1.8(c).
1271 WWU NoA, paragraph B1.9.
1272 WWU Reply, paragraph B1.2.
1273 Oxera (WWU), 'RIIO-GD2 financeability, Prepared on behalf of WWU for the CMA', Executive Summary, paragraph 3.
1274 WWU NoA, paragraph B1.10.
1275 *Wilde 1 (GEMA)*, paragraph 165.1.

5.1040 GEMA also told us that the financeability conditions suggested by KPMG were 'excessively strict' and that these stemmed from a misinterpretation of a Moody's statement around the AICR, which led to KPMG 'cherry picking' the most challenging metrics.[1276]

5.1041 GEMA submitted that its approach to its financeability assessment was a broader test around meeting financeability duty, rather than a narrow test that the cost of capital was correct.[1277]

5.1042 GEMA submitted that it undertook a standard and appropriate financeability assessment of the RIIO-2 price controls that was consistent with its statutory duties, that is, a check that the financial package as a whole, in the round, was sufficient for a notional efficient operator to finance their licensed activities.[1278]

5.1043 GEMA submitted that no evidence had been put forward by the appellants to indicate that the way in which GEMA weighed its various duties was inappropriate or wrong. GEMA submitted that the appellants had expressed merely a disagreement with the way in which GEMA did so.[1279]

Intervener submissions

5.1044 Citizens Advice submitted that the appellants' arguments appeared to be confusing financeability with maximising shareholder returns and that as a regulatory concept, financeability required GEMA to 'have regard to […] the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed'.[1280] Citizens Advice told us that it did not accept the suggestion that the outperformance wedge per se meant that the companies were not financeable and that the allowed return of return allowed for by GEMA was clearly sufficient for the companies to finance current and future activities (as demonstrated by the observed MARs, for example). Citizens Advice submitted that the fact that shareholders may not earn as much as they could if prices were higher did not mean the companies were not financeable.[1281]

[1276] *Wilde 1 (GEMA)*, paragraph 165.2.
[1277] *Wilde 1 (GEMA)*, paragraph 167.
[1278] *Wilde 1 (GEMA)*, paragraph 168.
[1279] GEMA Closing Statement, paragraph 4(b).
[1280] Section 3A, Electricity Act 1989, Section 4AA Gas Act 1986.
[1281] Citizen Advice Intervention Notice, paragraphs 211–212.

Third Parties' submissions

ENWL

5.1045 ENWL submitted that GEMA's cost of debt methodology did not ensure, for all individual licence holders, that the financing duty was satisfied. It told us that, under the current settlement customers in Great Britain were, in aggregate, paying the industry's actual cost of debt, but the averaging approach meant that some companies were receiving windfall gains and others were suffering losses that created serious financeability concerns. ENWL further submitted that a debt allowance structure that benefitted the lucky and the large while simultaneously creating financeability issues or under reward for equity investors in the others was not a sound basis for a regulatory settlement.[1282]

5.1046 ENWL also made submissions regarding the legal interpretation of GEMA's statutory duties.[1283]

Ofwat

5.1047 Ofwat told us that it interpreted its financing functions duty as a duty to secure that an 'efficient' company with the notional capital structure can finance its functions, in particular by securing reasonable returns on its capital and that setting a determination by reference to a notional capital structure and notional financing costs was wholly consistent with the application of regulatory duties and the application of an incentive based regulatory regime.[1284]

5.1048 Ofwat also submitted that the notional approach incentivised companies to secure efficient costs of finance and protects customers from the risks of companies' financing decisions.[1285]

The application of the finance duty – our provisional assessment

5.1049 As set out above, we noted that GEMA interpreted its financing duty as a duty to have regard to the need to secure that network companies were able to finance the activities which were the subject of obligations imposed by or under the relevant legislation.[1286]

[1282] ENWL response to the CMA request under Rule 14.4(e), paragraph 112.
[1283] See paragraph 14.69.
[1284] Ofwat response to the CMA request under Rule 14.4(e), page 3.
[1285] Ofwat response to the CMA request under Rule 14.4(e), page 3.
[1286] GEMA DD Finance Annex, paragraph 5.1.

5.1050 We did not consider that the appellants had submitted meaningful evidence demonstrating that GEMA had failed to properly apply the financing duty. This issue was considered in more detail in relation to the credit rating achievable by the notionally-structured company (see from paragraph 5.1023), GEMA's statutory duties when setting the cost of debt allowance (see chapter 14) and in our assessment of GEMA's cost of equity allowance in the round (see paragraph 5.748). In the absence of any convincing evidence that GEMA had failed to act in accordance with the financing requirement, we provisionally found no specific error in this sub-ground.

The application of the finance duty – our final assessment

5.1051 As there were no further submissions with reference to the finance duty in relation to the financeability test following the issue of the provisional determination, our final assessment remains that GEMA has not failed to act in accordance with its finance duty when conducting its financeability assessment.

An exclusive focus on debt financeability

Appellants' submissions

5.1052 Some appellants submitted that GEMA's financeability assessment focused on debt financeability and did not consider equity financeability:

a) NGET/NGG told us that:

(i) GEMA's financeability cross-check only focused on debt metrics and does not include any quantitative assessment of financial metrics to assess whether an investor would be prepared to provide equity finance (ie equity financeability).[1287,1288]

(ii) GEMA's failure to have due regard to equity financeability became all the more relevant given that the FD assumed, without question, that a significant amount of new notional company equity could be attracted into the sector during the RIIO-2 period. In GEMA's high case totex scenarios, nearly £5 billion in new equity was required in the period.[1289,1290]

[1287] NGET NoA, paragraph 3.399.
[1288] NGG NoA, paragraph 3.399.
[1289] NGET NoA, paragraph 3.401.
[1290] NGG NoA, paragraph 3.401.

b) SGN told us that:

(i) The FD had concluded that the notional efficient company was equity financeable under RIIO-2 and there was therefore no need to aim up on equity financeability grounds,[1291] however GEMA's assessment was focused on debt financeability and did not consider issues with the notional company's 'equity financeability'.[1292]

(ii) Under GEMA's own financeability assumptions, this approach left the financeability of equity capital (c.40% of the total capital required) 'simply unconsidered'.[1293]

GEMA's submissions

5.1053 GEMA submitted that the claim that its financeability assessment did not include assessment of equity financeability was misplaced. GEMA told us that its published models contained equity ratios[1294] and that the key equity metric was RoRE, which was a prominent feature of its DD and FD.[1295]

5.1054 GEMA submitted that debt financeability was often considered a pre-requisite for equity financeability given the hierarchy of financing claims. GEMA also submitted that it has recognised that the duty to have regard to financeability referred to the ability of the licence holder to finance activities that were the subject of obligations imposed under relevant legislation and hence was relevant to both equity and debt.[1296,1297]

5.1055 GEMA also submitted that it stated in the SSMD that in assessing equity financeability, it looked primarily to ensure that its cost of equity assessment was robust and hence sufficient for the equity financeability of the notional company.[1298]

An exclusive focus on debt financeability – our provisional assessment

5.1056 In line with our assessment at paragraph 5.970 in relation to GEMA's failure to apply an assessment of equity financeability as a cross check, we provisionally concluded that GEMA's Step-2 cross-checks demonstrated that it had properly considered equity financeability. In addition, our assessment of

[1291] GEMA FD Finance Annex, paragraph 3.185.
[1292] SGN NoA, paragraph 272.
[1293] SGN NoA, paragraph 282.
[1294] See for example the excel spreadsheet published alongside DD, Technical Annexes – 1, 'Draft Determinations - RIIO-ET2 Licence Model' in the worksheet 'Financial Ratios' rows 68 to 109 here.
[1295] *McCloskey (GEMA)*, paragraph 361.
[1296] GEMA RIIO-2 SSMD - Finance, paragraph 4.34.
[1297] *Wilde 1 (GEMA)*, paragraph 154.
[1298] *Wilde 1 (GEMA)*, paragraphs 154–155.

the sub-issues above, specifically in relation to the adjustments made to the notional company structure and the credit ratings available to the notionally structured company, was that GEMA had clearly had due regard to the financeability of equity as well as debt. As a result, we found no error in this sub-ground.

An exclusive focus on debt financeability – our final assessment

5.1057 As there have been no further submissions on this sub-ground since the issue of the provisional determination, our final assessment remains that GEMA has clearly had due regard to the financeability of equity as well as debt. As a result, we find no error in this sub-ground.

Financeability – our conclusion

5.1058 In making our decision on the alleged errors in GEMA's approach to financeability, we have considered the evidence in relation to:

a) GEMA's alleged failure to apply an assessment of equity financeability as a cross-check;

b) Alleged errors relating to adjustments to the notional company structure;

c) Alleged errors relating to the credit rating achievable by the notionally structured company;

d) Alleged errors relating to the application of the finance duty; and

e) Alleged errors relating to an exclusive focus on debt financeability.

5.1059 In relation to each sub-ground we have considered the evidence that has been presented to us and have concluded that there are no errors in GEMA's approach to financeability. As a result, we determine that GEMA was not wrong in its assessment of financeability or its application of the finance duty.

Cost of equity summary and our final determination

Cost of equity summary

5.1060 We determine that GEMA's methodology for estimating the RFR, specifically its reliance on UK ILGs, was not wrong. In coming to this determination, we consider that the appellants have failed to demonstrate that other proxies are required to be included in GEMA's estimate, that GEMA's approach to cross checks was wrong, that GEMA's approach to indexing was wrong or that GEMA's choice of inflation metric was wrong.[1299]

5.1061 We determine that the appellants have not demonstrated that GEMA erred in estimating the TMR, which it used in coming to a view on the cost of equity. Therefore, we have found that GEMA's point estimate of 6.5% (CPI-real) and its range of 6.25% to 6.75% were not wrong.[1300]

5.1062 We determine that GEMA's approach to estimating beta, specifically to include water company data and exclude SSE, European comparators, and 'decomposed' National Grid data was an exercise of regulatory judgement that fell within its margin of appreciation.[1301]

5.1063 With regard to methodological decisions, we conclude that there are different means by which to calculate a beta estimate which may each be considered appropriate in the relevant context – and we found no manifest errors in GEMA's approach. With regard to COVID-19 data, we conclude that GEMA was not wrong to take the view that COVID-19 represents a systematic event that is useful input into the analysis.[1302] In addition, we do not see sufficient evidence to prove the efficacy of focusing on specific 'structural breaks' in the data and have concluded that GEMA's focus on a 10-year led approach does not lead to an inappropriate estimate of beta for the energy networks. [1303] We also agreed with GEMA that it is not clear that Net Zero and related risks to energy networks represent beta (undiversifiable) risk for large global investors in a range of sectors and asset types. As a result, we conclude that beta is not the right place to consider any specific risks in gas networks.[1304] Considering these points in the round, and in light of the responses to the provisional determination, we determine that GEMA was not wrong in determining the beta estimates used as part of the RIIO-2 price controls.[1305]

5.1064 We determine that GEMA was not wrong in setting its cost of equity allowance in the round. We found there to be no sufficiently persuasive evidence that GEMA had combined CAPM metrics to deliver a cost of equity that is too low in the round, nor that there were errors in GEMA's cross-

[1299] See paragraph 5.184.
[1300] See paragraph 5.292.
[1301] See paragraph 5.584.
[1302] See paragraph 5.586.
[1303] See paragraph 5.588.
[1304] See paragraph 5.587.
[1305] See paragraph 5.590.

checks of its estimate nor that evidence from the CMA PR19 Redetermination suggests that GEMA's cost of equity allowance is too low.[1306]

5.1065 We determine that the appellants have offered no sufficiently persuasive evidence that regulators are required to aim up and that, in our view, the decision whether to aim up (or not), was an exercise of regulatory judgement that fell with GEMA's margin of appreciation. Based on our assessment on the circumstances faced by GEMA in respect of the RIIO-2 price controls, we did not find that these implied that GEMA needed to aim up.[1307]

5.1066 We determine that GEMA was not wrong in its assessment of financeability or its application of the finance duty.[1308]

Cost of equity - our final determination

5.1067 On the basis of the evidence presented throughout this appeal, we are not persuaded that GEMA has erred in its approach to, or estimate of, the cost of equity. As a result, we determine that GEMA's allowed cost of equity of 4.55%[1309] was not wrong. Accordingly, we dismiss this joined ground of appeal.

[1306] See paragraph 5.748.
[1307] See paragraph 5.940.
[1308] See paragraph 5.1059.
[1309] At 60% notional gearing.