NON-CONFIDENTIAL VERSION

RIIO-GD2 PRICE CONTROL

ENERGY LICENCE MODIFICATION

SOUTHERN GAS NETWORKS PLC

Appellants

SCOTLAND GAS NETWORKS PLC

-and-

GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

SGN'S REPLY TO GEMA'S RESPONSE

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1 Introduction

(1) This is the Reply of Southern Gas Networks plc and Scotland Gas Networks plc (together "**SGN**" or the "**Appellants**") to the Response filed by GEMA on 23 April 2021 to SGN's Notice of Appeal ("**NoA**") in the above proceedings (the "**Response**"). For convenience, defined terms used in this Response have the meanings given in SGN's NoA and GEMA's Response, save where otherwise indicated.

(2) As the CMA is already aware, SGN is appealing the Decision on four distinct grounds, namely: (i) errors made in the calculation of the cost of equity; (ii) errors made in the inclusion of an outperformance wedge; (iii) errors made in setting the ongoing efficiency challenge; and (iv) errors made in setting the efficiency benchmark on a glidepath to the 85th percentile.[1]

(3) Despite its length – and the volume of documentation accompanying it – GEMA's Response fails to adequately address SGN's arguments. GEMA's approach, if endorsed, would set a damaging precedent and have negative impacts on incentives in this and future price controls.

(4) SGN is mindful of the CMA's request for brevity, and therefore has not sought to address each and every argument made by GEMA in this Reply. The fact that certain points may have been left unaddressed, however, does not mean that they are conceded.

(5) This Reply has been prepared by SGN with input from its economic advisers KPMG LLP, AGRF Ltd and Frontier Economics. It is accompanied by and should be read alongside the following documents, which form part of SGN's reply submissions:

(i) 'Targeted analysis of Ofgem's Reply on CoE' (the "**KPMG Cost of Equity Update**") that is Exhibit KPMG COE2/1 to the Joint Witness Statement of Stella Deakin and Alan Gregory (KPMG_COE2);

(ii) 'Notes on Robertson's Response' (the "**GHT Beta Report**") that is Exhibit KPMG BETA1/1 to the Witness Statement of Alan Gregory (KPMG_BETA1);

(iii) 'Relevance of MARs and the WPD transaction for setting required returns in the context of the GD2 price control' (the **"KPMG MARs Report**") that is Exhibit KPMG MARS1/1 to the Joint Witness Statement of Hylton Millar and Geoff Randall (KPMG_MARS1);

(iv) 'Reply to aspects of GEMA's response on the efficiency benchmark' (the "**Catch up Efficiency Reply Report**") that is Exhibit MR3/1 to the Third Witness Statement of Matthew Roberts (MR3);

(v) 'Impact of GEMA's approach on future incentives' (the "**Incentives Report**") that is Exhibit MR4/1 to the Joint Witness Statement of Matthew Roberts and Philip Burns (MR4);

(vi) Second Witness Statement of Michael Bedford (the "**Data Quality and Process Witness Statement**"); and

(vii) Second Witness Statement of David Handley (the "**Ongoing Efficiency Witness Statement**").

2 Overarching Issues

(6) Before turning to the individual appeal grounds, the following overarching points are addressed.

2.1 The limits of GEMA's regulatory discretion

(7) The Response includes a number of submissions on the framework of the appeals process, in particular in the section headed 'Standard of review and regulatory discretion'.[2] These are effectively designed to persuade the CMA that a very high threshold must be cleared before it can uphold any ground of appeal under Section 23D GA86. This provides the backdrop for GEMA's repeated invocation of the concepts of 'regulatory discretion' and 'regulatory judgment' – terms which appear more than 100 times across the Response to Appeals on Finance Issues and TNUoS (the "**Finance Response**") and Response to Appeals on Totex Modelling, Efficiency and Licensing (the "**Costs Response**"), which together make up

[1] Abbreviations and terminology used in the NoA are adopted unless the contrary is indicated.
[2] Section C of the Finance Response and section D of the Costs Response.

the Response – as well as its repeated invitations to the CMA to conclude that the Decision falls inside the range within which reasonable disagreement is possible (such that it might be deemed a reasonable exercise of the judgment vested in it).[3]

(8) In doing this, however, GEMA seeks to distort and subvert the relevant legal framework by replacing the applicable statutory test, which entails considering whether GEMA's decision is wrong on one of the grounds set out in Section 23D(4) GA86, with an alternative test, which entails considering whether the Decision fell outside reasonable bounds. A clear example of the distortion is found in Mr McCloskey's statement where it is suggested that it is incumbent on the appellants to identify the range within which GEMA should have operated.[4] This, however, forms no part of the applicable legal analysis. The concept of regulatory judgment does not displace the role of the CMA in determining whether the statutory grounds set out in Section 23D(4) GA86 are satisfied.

(9) GEMA's approach undermines what is otherwise common ground: that the standard of review to be applied by the CMA is more intensive than in judicial review.[5] Thus a decision may be 'wrong' even if it is not 'unreasonable'. Indeed, as stated in *SONI* (*2017)* – in a passage GEMA cites – the test is not whether the decision is 'unreasonable'.[6] This more intensive standard of review than judicial review recognises the important public interests at stake in energy regulation, as well as the CMA's own considerable regulatory expertise.

(10) What is required is a rigorous form of review which gives effect to the statutory framework. This necessitates a thorough analysis of GEMA's reasoning and evidence to ascertain whether it contains errors, whether the evidence base is sufficient and whether the Decision can or cannot stand in the light of those errors.[7] GEMA cannot make decisions without a sufficient evidential basis and then simply appeal to its regulatory discretion in the face of such shortcomings[8] – decisions should be clearly reasoned and supported by robust underlying evidence and suitably rigorous processes.[9]

(11) GEMA additionally seeks to shield its Decision from scrutiny by wrongly asserting that, in *BGT (2015)*, the CMA rejected the proposition that it must form a view on "*whether the weight given to certain considerations was appropriate or whether proper regard had been given to certain matters*".[10] On the contrary, such matters are directly relevant to the determination of an appeal under the prescribed statutory grounds. The proposition the CMA rightly rejected was that a full rehearing was required in order to determine these issues.[11] Indeed, in an exercise of great technical sophistication, it will often only be upon detailed analysis of the chain of reasoning that errors will emerge. As Green J explained: "*An error which is far from being obvious or palpable may none the less prove to be fundamental.*"[12]

(12) Further, a decision would need to be overturned if it fails to have proper regard and/or give due weight to a relevant statutory objective or reflects an error of law.

(13) In all, therefore, in order to satisfy one of the statutory grounds of appeal it is sufficient, but not necessary, to demonstrate unreasonableness.[13]

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3 Finance Response, paras. 6, 8, 60, 86, 123, 283, 284, 320 and 363; Costs Response, paras. 11, 13, 153, 226, 227, 317, 351, 368, 391, 433, 453, 456, 493 and 513.
4 First Witness Statement of PJ McCloskey, para. 196, first bullet ("**McCloskey 1**").
5 Finance Response, para. 41.
6 *SONI* (2017), para. 3.35 (SGN1_057).
7 *Everything Everywhere Ltd* (2013), para. 23 (SGN2_001).
8 *NPG* (2015), where the CMA observed that "*[i]n the absence of evidential support for the judgement, GEMA's discretion cannot, in our view, be treated as sufficient to justify the adjustment to NPG's totex that it made*", and that there is a "*limit to the discretion of regulators to make adjustments to the costs assumed in setting the price control where the consultation process has failed to demonstrate evidence in support of those adjustments*" (SGN1_124).
9 *Firmus Energy* (2017), paras. 5.146-5.147 (SGN1_125).
10 Finance Response, para. 39.
11 *BGT (2015)*, paras. 3.34-3.36 (SGN1_133).
12 *Gibraltar Betting and Gaming Association* (2015) (SGN2_002).
13 SGN NoA, para. 99.

2.2 Materiality, interlinkages and "*in the round*" decision making

(14) The Response includes various comments in relation to the materiality of the errors alleged in SGN's NoA, as well as interlinkages and "*in the round*" decision making. The applicable principles in relation to materiality, interlinkages and the appropriateness of decision making "*in the round*" are considered in detail in paragraphs 115 to 122 of SGN's NoA. SGN does, however, wish to make the following observations:

(15) First, in terms of materiality, SGN emphatically rejects any suggestion that the errors identified in its NoA are insufficiently material to merit remedial action. SGN's comments on specific issues of materiality are raised where appropriate in each ground below.

(16) Second, as regards interlinkages and "*in the round*" decision making, in the Response GEMA purports to identify interlinkages within totex for GDNs and argues that all modelling decisions should be viewed "in the round" with decisions in relation to other elements of the RIIO-2 package.[14] It also maintains that "*any change*" in the treatment of costs within the model should change the allowances for all GDNs, regardless of the scope of their appeal.[15] These assertions are fundamentally at odds with the appeal framework. Each appellant has brought its own separate appeal on defined grounds and does not stand to either gain or lose from the outcome of another appellant's appeal, to which it is not a party. Accordingly, the CMA confirmed in recent correspondence with WWU that any remedies in respect of non-joined grounds will only apply to the appellants appealing on these grounds, and not be of wider application.[16] GEMA's expansive approach clearly cuts across this, suggesting that any party's successful appeal of their own licence modification decision could impact the licences of other companies, even if they had not themselves appealed on the issue in question.[17] It is no answer that the GDNs have all submitted appeals relating to areas of GEMA's totex allowances. SGN does not accept that the errors it has identified in Grounds 3 and 4 are interlinked with those identified by other appellants. It would also severely undermine networks' rights of defence, if appellants were exposed to the outcome of third party appeals by virtue of appealing *any* component of their cost allowances. GEMA is wrong to suggest otherwise by seeking to link separate appeals.

(17) GEMA has also sought to identify "*in the round*" interlinkages in its adjustment for outperformance.[18] Again, SGN seriously objects to GEMA's elastic interpretation of the concept of interlinkages. This is plainly not a redetermination and the CMA has previously resisted pleadings for it to conduct an "*in the round*" assessment.[19]

2.3 Post appeal modifications

(18) SGN notes that GEMA has stated that it may consider it appropriate to modify licences outside the framework of the present appeal by way of a post appeals review process.[20] More recently GEMA has sought to distance itself from aspects of these statements,[21] although Mr Kaul's statement suggests that the previous assurance that any such intervention would "*not target a non-appealing licensee*" did not envisage a situation where all GDNs have brought appeals (suggesting that GEMA may still seek to "*target*" appellants with reviews relating to matters that they did not themselves appeal).[22]

(19) SGN maintains its view that any such intervention would fundamentally undermine the appeal framework. If the CMA were to decide that no relevant interlinkages exist, it would be wholly inappropriate for GEMA to change unchallenged aspects of its Decision via this route. In any event,

[14] First Witness Statement of Akshay Kaul, para. 110 ("**Kaul 1**").
[15] Kaul 1, para. 110; Wagner 1, para. 71.
[16] WWU Letter to CMA (SGN2_003).
[17] Kaul 1, para. 110; Wagner 1, para. 71. See also the observation at para. 104 of First Witness Statement of Jessica Friend (Cost of Debt) that "*An upwards adjustment for one company would be likely to trigger a downwards adjustment for others*."
[18] Kaul 1, paras. 111-113.
[19] *NPG (2015)*, para. 3.49 (SGN1_124); *BGT (2015),* para. 3.50 (SGN1_133).
[20] FD Core Document, para. 11.53 (SGN1_009).
[21] GEMA Letter to CMA (SGN2_022).
[22] Kaul 1, para. 106.

moreover, to the extent GEMA were to seek to make post-appeal modifications in this manner (and were able to demonstrate a legitimate basis for such intervention, notwithstanding that it would cut across the principles of certainty and finality), this would constitute a separate licence modification, subject to consultation, and triggering a further right of appeal to the CMA (a point acknowledged by the CMA).[23]

3 Ground 1: Cost of equity

(20) The Appellants' arguments in respect of cost of equity are set out in detail in Section 4 of SGN's NoA. In summary, the Appellants contend that GEMA made a number of methodological and evidential errors in estimating the cost of equity:

(i) GEMA underestimated the CAPM CoE. When estimating each of the key components, it failed to have regard to relevant evidence;

(ii) GEMA failed to "aim up" when selecting the point estimate for the cost of equity, wrongly dismissing evidence regarding parameter uncertainty and asymmetric risks facing GDNs; and

(iii) GEMA's financeability assessment was based on several unjustified assumptions which masked the true impact of its errors on the cost of equity.

(21) GEMA's primary response to these arguments appears to be that the cost of equity assessment is a matter of judgment, and its analysis "*should be difficult to be found wrong*".[24] However, as explained above at Section 2.1, regulatory judgment does not displace the CMA's role under the statutory merits appeal framework. As set out in SGN's NoA, GEMA made key errors in assessing the cost of equity by adopting a downward bias on each of the key parameters. These errors, individually and cumulatively, resulted in GEMA underestimating the cost of equity. The impact of these errors is compounded by GEMA's decision not to "aim up" despite the risk facing the gas sector. GEMA's decision on the cost of equity should be quashed.

3.1 GEMA has failed to rebut the arguments that it has underestimated the CAPM CoE

(22) SGN's NoA explained that GEMA has erred in its estimation of each of the key components of the CAPM CoE – Total Market Return ("**TMR**"), beta and Risk-Free Rate ("**RFR**").

(23) GEMA has reduced the allowed returns from 7.6% (real, CPIH) in RIIO-1 to 4.55% in RIIO-2, claiming it is "*abundantly clear*" that the RIIO-1 returns were set too high[25] and points to external criticism of GEMA's approach to allowed returns in RIIO-1.[26] However, GEMA's response in RIIO-2 to this criticism is extreme and unjustified by the evidence. GEMA's allowed cost of equity is materially lower than the CMA's in the PR19 FD, notwithstanding the higher risk facing the gas sector.

(24) GEMA argues that estimating the cost of equity is variously a matter of "*judgment*" and falls within "*regulatory discretion*".[27] GEMA claims that this is an exercise in the unknown[28] and pleads for the CMA to consider the "*big picture*".[29]

(25) It is not permissible for a regulator to claim that a decision is immune from challenge on the basis that the exercise is uncertain. GEMA has adopted a selective and downward bias to its assessment of the evidence. For instance, it is selective in presenting TMR evidence under approaches that are highly sensitive to input assumptions or inherently subjective, excluding results from alternative approaches.[30] GEMA's margin of appreciation does not allow it to disregard the credibility or strength of evidence. On

[23] CMA Response to WWU (SGN2_004).
[24] First Witness Statement of Simon Wilde, para. 29.1 ("**Wilde 1**").
[25] Kaul 1, para. 50.
[26] Kaul 1, para. 27 and Wilde 1, para. 33.
[27] The terms "regulatory discretion" and "judgment" appear over 25 times in the Finance Response.
[28] Finance Response, para. 59.
[29] Wilde 1, para. 29.3.
[30] Finance Response, figure on page 30. See KPMG Cost of Equity Update, para. 3.2.11 (KPMG_COE2/1) which explains that GEMA excludes results from robust alternative approaches, e.g. DMS decomposition estimate of 7.1% (real CPIH).

GEMA's logic, any TMR estimate within a c.5 percentage point range would be unappealable, purely as it sits within a range of evidence.[31] This cannot be correct. As the CMA recognised in *NPG (2015)* "*the exercise of regulatory discretion remains bounded and subject to legal principles*".[32]

(26) The impact of these errors cannot be swept away as immaterial. Even an uplift of the point estimate to the low end of the KPMG range (5.18%) would have an impact of £[redacted] over the price control period.

3.1.1 The TMR error

(27) In setting the TMR, GEMA claims to have adopted a cautious approach in light of the evidence and argues that the appellants have raised "*narrow, esoteric points, all of which concern matters of regulatory judgment*".[33] GEMA refers to particular submissions from investment managers which supported a low TMR when inviting the CMA to consider the "*big picture*".[34] However, in so doing, GEMA neglects to highlight the limited robustness of such evidence supporting the low end (which it later acknowledges as "*subjective*" and therefore of "*limited weight*").[35]

(28) GEMA indicated from the start of RIIO-2 that its preferred methodology to calculate the TMR was the long run ex post approach which relies on long run outturn data.[36] The key choices when considering historical returns are: (i) the inflation series used to deflate historical returns; and (ii) the approach to averaging. As explained in SGN's NoA, GEMA underestimated the TMR by placing sole reliance on the CED/CPI inflation series despite its flaws (the "**Inflation Complaint**") and failing to take into account alternative methods of averaging the annual returns data, while relying on erroneous methods (the "**Averaging Complaint**").[37] As set out below, GEMA's Response is inadequate.

(i) Inflation Complaint

(29) GEMA acknowledges that there is "*no perfect data series*" but justifies its decision to place sole reliance on the CED/CPI series on the basis that it is more reliable than the CED/RPI series.[38] SGN agrees that both CED/RPI and CED/CPI series have flaws. However, GEMA erred by failing to account for the flaws in CED/CPI. A balanced assessment would have placed weight on both approaches.

(30) GEMA's expert witness Mr McCloskey maintains that GEMA did not ignore RPI.[39] However, as set out in the NoA, SGN cannot identify any evidence of CED/RPI TMR estimates feeding into GEMA's decision.[40] Indeed, each of the CED/RPI estimates are materially above GEMA's 6.5% (real, CPIH).[41]

(31) GEMA submits that the "*[a]ppellants make an additional (unarticulated) leap from the use of the CED/RPI historical data series … to RPI data reflecting investors' current expectations for future inflation*", and that only when backward-looking CED/RPI and forward-looking RPI data are combined is a higher TMR achieved.[42] As set out in the KPMG Cost of Equity Report, the regulator should consider the most reliable measure of inflation to adjust historical returns.[43] GEMA has conflated this with the question of the most appropriate measure of inflation going forward (i.e. the one that should be used for indexation and to set the allowed return in real terms). SGN recognises that *if* forward-looking RPI is materially different to historical RPI then this could support an adjustment, consistent with the CMA's adjustment for the 2010 formula effect in PR19,[44] but, as explained by KPMG previously: (i) this

[31] See for example the range implied by McCloskey 1, Figure 24, page 30.
[32] *NPG (2015),* para. 4.142 (SGN1_124).
[33] Finance Response, para. 110.
[34] Finance Response, para. 113, referencing table referred to in more detail in McCloskey 1, paras. 316-317.
[35] Finance Response, para. 138.
[36] Finance Response, para. 105. This is consistent with the positions of KPMG as well as Wright et al Report (SGN1_061) that the long-run ex post approach is the most robust, and that results from alternative approaches should be interpreted with greater caution. *See* KPMG Cost of Equity Update, para. 3.2.11 (KPMG_COE2/1).
[37] SGN NoA, Section 4.4, paras. 148-186.
[38] Finance Response, para. 118.
[39] McCloskey 1, paras. 328-333.
[40] SGN NoA, para. 170.
[41] SGN NoA, Figure 1.
[42] Finance Response, para. 120.
[43] KPMG Cost of Equity Report, para. 5.4.26 (KPMG_COE1/1).
[44] PR19 FD, para. 9.296. (PR19_1).

overlooks the uncertainty in the historical data, in particular pre-1950; and (ii) PR19 demonstrates that an adjustment for the 2010 formula effect is possible, such that differences between forward-looking and historical RPI inflation are not a sufficient basis to reject the use of the CED/RPI altogether.[45]

(32) GEMA maintains that its approach is not wrong, despite the inconsistencies with the CMA's PR19 FD, instead arguing that its 6.5% figure is the same as the CMA's decision in *NATS.*[46] It is striking that GEMA has disregarded the CMA's most recent price control decision, instead relying on *NATS* where the CMA merely confirmed its provisional findings on TMR for a temporary period, explicitly stating that it had not progressed its analysis on TMR.[47]

(ii) Averaging Complaint

(33) GEMA maintains that starting from the geometric average and applying an uplift is more robust arguing that (i) the arithmetic average is an upwardly-biased measure of the true expected return; and (ii) using a geometric average is more objective and requires fewer assumptions.[48]

(34) The KPMG Cost of Equity Report explains there are a range of results from the academic literature which show that the geometric return is a downwardly-biased measure of the expected return.[49] The academic literature also shows that the arithmetic return is not upwardly-biased if the expected return is measured from the perspective of the 'discounter' (as opposed to the 'compounder'). Further, use of a geometric average does not require fewer assumptions than arithmetic averages because an uplift from the geometric average is still required, which requires similar considerations (e.g. around the holding period length, independence of returns and serial correlation).

(35) GEMA claims that no evidence has been adduced that its uplift (which it claims to be approximately 1.3-1.5%) is too low,[50] arguing it is consistent with the KPMG Cost of Equity Report.[51] The KPMG Cost of Equity Update calculates uplifts using the CED/CPI series (1.26%), the CED/RPI series (0.59%) and USD-denominated returns (1.38%) – showing that the upper end of GEMA's range is not supported by any of the approaches to inflation, with GEMA's preferred series, the CED/CPI, giving an uplift of just 1.26 percentage points.[52]

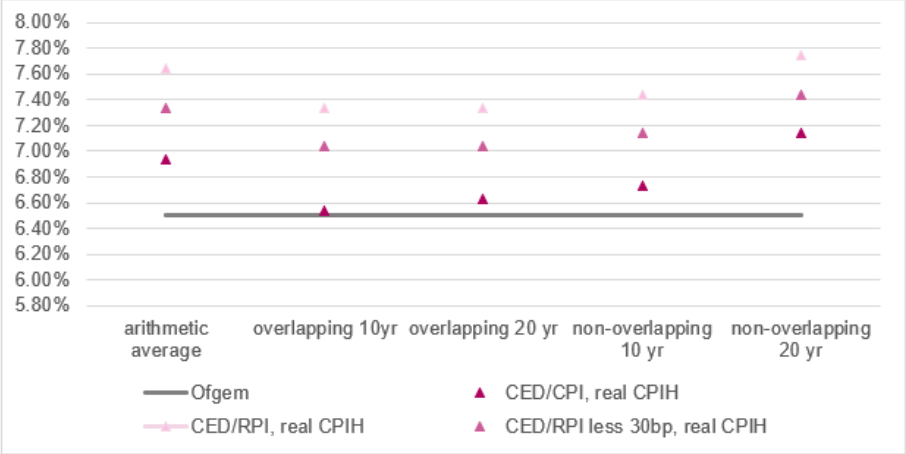
(36) GEMA claims that its uplift is "*higher than the uplift applied by practitioners (JP Morgan, for example, have used 0.82%)*" and therefore does not 'hinge' on the PwC analysis. [53] As an initial point, SGN is unable to judge the accuracy or robustness of this since the source documents presenting the JP Morgan figure have not been disclosed by GEMA. Further, evidence from practitioners in relation to the required uplift is likely to suffer from the same issues as investor surveys and practitioner forecasts for TMR more broadly (i.e. they are subjective and the results may depend on the identity and outlook of the respondents and their interpretation of survey questions).

(37) GEMA further submits that even if there was an identifiable error, alternative averaging methods would not have had a material impact on its decision.[54] GEMA's submissions in this regard are not supported. GEMA's justification relies on only a selection of the CED/CPI values the CMA considered in PR19 (both at PFs and FD). It excludes, for example, values from the arithmetic estimation method that the CMA relied upon in its PR19 FD. GEMA's 6.5% estimate is below 9 of the 10 estimates at holding periods between 10 and 20 years presented by the CMA in its PR19 PFs by up to 0.7 percentage points[55] and

[45] KPMG Cost of Equity Report, paras. 5.4.22-5.4.26 (KPMG_COE1/1) and PR19 FD, para. 9.301 (PR19_1).
[46] Finance Response, para. 123.
[47] FD Finance Annex, para. 3.94, citing *NATS (2020)*, para. 13.303 (SGN1_011). The NATS provisional findings were an interim report put out for comment by the CMA and cannot be characterised as a definitive decision. Due to the impact of Covid-19 on the sector, the findings were confirmed in the final report, albeit for a temporary period and did not reflect the responses to the provisional findings.
[48] Finance Response, para. 128; McCloskey 1, para. 341.
[49] KPMG Cost of Equity Report, Appendix 1 (KPMG_COE1/1).
[50] Finance Response, paras. 129-130; McCloskey 1, para. 340 and footnote 303. KPMG has not been able to replicate this analysis.
[51] KPMG Cost of Equity Report, para. 5.5.11 (KPMG_COE1/1).
[52] KPMG Cost of Equity Update, paras. 3.1.1-3.1.4 and Table 1 (KPMG_COE2/1).
[53] Finance Response, para. 130.
[54] Finance Response, para. 131.
[55] CMA PR19 PFs, Table 9-3 converted into CPIH terms using a 90bp RPI-CPIH wedge (SGN1_049); See SGN NoA, Figure 1, page 32.

is below all four of the CMA's estimates at holding periods of between 10 and 20 years, presented in its PR19 FD, by over 0.6 percentage points (see Figure 1 below). GEMA is wrong to contend that the choice of averaging method would not have a material impact on the final estimate.

Figure 1 CMA's FD TMR figures, using the long-run ex post approach compared with GEMA's TMR, expressed in real CPIH terms



Source: SGN analysis of the PR19 FD Table 19-3

(iii) International and long run ex ante evidence

(38) The KPMG Cost of Equity Report noted that "*a TMR based solely on UK data is likely to under-represent the historical TMR in Common Law countries*".[56] A primary driver of this analysis was GEMA's suggestion in its response to the CMA's PR19 PFs that "*the CMA considers US dollar returns as a cross-check on its estimates of TMR*".[57] It is therefore surprising that GEMA has not actually engaged with the KPMG analysis in its response, and reversed its position to say that international evidence on TMR for select countries is not informative.[58]

(39) GEMA claims that the CMA's historical ex ante estimates in PR19 are in line with its decision in RIIO-2.[59] The KPMG Cost of Equity Update explains that the CMA's historical ex ante estimates that were presented in its PR19 FD suffer from a number of flaws that should be remedied before the analysis can be relied upon.[60] Therefore, the focus should be on the long run ex post approach, which would be consistent with GEMA's own FD.

3.1.2 The beta error

(40) As explained in SGN's NoA, GEMA underestimated the beta and failed to reflect the systematic risk facing GDNs.[61] It has done this by (i) placing far too much weight on the betas of listed water companies ("**Water Company Issue**"); (ii) failing to give sufficient weight to listed energy comparators, in particular National Grid Group and National Grid UK ("**National Grid Issue**"); and (iii) disregarding evidence from European energy networks ("**European Comparator Issue**") which support betas materially above UK water companies. GEMA's approach therefore failed to take into account the higher systematic risk affecting GDNs than water companies, in particular arising from the Net Zero Agenda ("**Gas Networks Issue**").

(41) On each of these issues, GEMA has failed to adequately engage with SGN's previous submissions. While SGN acknowledges that there is no perfect pure play energy comparator, GEMA's overreliance on listed water companies has resulted in a fundamental underestimation of the risk facing the energy

[56] KPMG Cost of Equity Report, para. 5.5.21 (KPMG_COE1/1).
[57] GEMA, Response to CMA's PR19 PFs (KPMG_COE1_2_067).
[58] Finance Response, paras. 137-138.
[59] Finance Response, para. 138.
[60] KPMG Cost of Equity Update, paras. 3.2.6-3.2.11 (KPMG_COE2/1).
[61] SGN NoA, Section 4.4.2, paras. 199-209.

sector. In particular, it disregards the higher systematic risk and threats facing GDNs due to Net Zero. Table 1 below provides more detailed comments on GEMA's Response.

Table 1: **Reply to GEMA's Response on failure to reflect systematic risk**

Issue	Comment on GEMA's response
Water Company Issue	GEMA notes that it did not attribute "equal weights" to the observed unlevered betas of its comparators, but rather placed greater weight on National Grid than the UK water companies. Relatedly, GEMA argues that the weight it placed on water company betas in fact had no material impact on the allowed return, if the CMA accepts that GEMA was right to place greater weight on beta observations of large samples. This is because GEMA considers its point estimate for beta to be in line with its 10-year beta estimates for National Grid.[62] GEMA has failed to engage with the analysis presented by SGN and the KPMG Cost of Equity Report, which supports asset betas from energy comparators, which are significantly above water company betas (and indeed the 10-year beta estimate for National Grid). Critically, under the logic put forward by GEMA that various types of error can be avoided by relying on larger samples of data, it is unclear why a 10-year estimation window is preferable to a longer estimation window when the data is available. As set out in the KPMG Cost of Equity Update[63] and the GHT Beta Report,[64] the asset beta for National Grid using the full period of available data from 1995 is 0.40, which is significantly above the beta estimate proposed by GEMA. SGN also notes that GEMA's 0.311 unlevered beta is only in line with GEMA's 10-yr NG beta where market value of debt is used, which is a methodological point of difference between KPMG and GEMA.[65]
National Grid Issue	In its response, GEMA contends that decomposition analysis is complex and requires a large number of judgements, limiting its evidential weight. It also claims that the results of the decomposition analysis conducted by both Frontier and CEPA suggests that the observed beta of National Grid's UK business is sometimes higher and sometimes lower than the beta of the US business.[66] However, GEMA has failed to engage with the analysis presented by SGN and the KPMG Cost of Equity Report. KPMG recognises the uncertainty in the assumptions that underpin the analysis and does not propose to apply equivalent weight to its results, but considers that the decomposition analysis is an important cross-check which should be taken into account when estimating betas.[67] 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.[68]
European Comparator Issue	In its response, GEMA claims that multiple types of risk might be expected to differ between the UK and European jurisdictions, observations from European energy networks support an unlevered beta either above or below GEMA's 0.311 point estimate (under CEPA's comparator selection) and the difficulties in making beta comparisons across jurisdictions mean that GEMA was entirely justified in relying on UK beta observations.[69] GEMA has again failed to engage with the analysis presented by SGN and in the KPMG Cost of Equity Report. KPMG conducted a comprehensive assessment of listed European utilities to determine a set of European comparators having similar risk profiles to UK GDNs. 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. This provides important evidence of asset betas for GDNs that are significantly in excess of the beta estimate proposed by GEMA. GEMA should not simply disregard this evidence.
Gas Networks Issue	In its response, GEMA suggests that it carefully considered the qualitative evidence as to the relative systematic risks of gas and electricity networks – and found it inconclusive. In any event, GEMA considered that an assessed unlevered beta weighted towards long-term (10-year) estimates of National Grid's beta would mitigate concerns about risk differences between electricity and gas – as it would incorporate risks associated with National Grid's gas transmission and gas distribution businesses.[70] The over-reliance on the 10-year estimates for National Grid is explained above. GEMA considers that the evidence presented regarding Italian and Spanish betas would not have had a material impact on GEMA's assessment for a UK gas network because of: the selected gas companies having a greater proportion of unregulated business than electricity companies (implying the higher betas are driven by higher systematic risks of the unregulated business); concerns around the sample period; and the challenges of relying on non-UK data. GEMA also noted other European evidence – notably from Belgium – which suggests higher observed betas for electricity than for gas. As discussed in the KPMG Cost of Equity Report and presented in the KPMG Cost of Equity Update, GEMA's reasons for dismissing the Gas Networks Risks Issue do not explain the growing divergence in asset betas between Italian and Spanish

62 Finance Response, paras. 157-159.
63 KPMG Cost of Equity Update, para 4.2.5 (KPMG_COE2/1).
64 GHT Beta Report, page 4 (KPMG_BETA1/1).
65 KPMG Cost of Equity Update, paras 4.2.7 (KPMG_COE2/1).
66 Finance Response, para. 161.
67 KPMG Cost of Equity Report, para. 8.4.26 (KPMG_COE1/1).
68 KPMG Cost of Equity Report, Table 15 (KPMG_COE1/1).
69 Finance Response, para. 160.
70 Finance Response, para. 163.

	gas and electricity networks. This issue was, contrary to GEMA's claim,[71] raised by SGN in response to the DD where evidence comparing gas vs electricity network betas was presented in CEPA's European sample.[72] Furthermore, the evidence presented by KPMG illustrates that the divergence in asset betas between Italian and Spanish gas and electricity networks is more pronounced for more recent estimation windows. This 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.

(42) The consequences of GEMA's failure to reflect systematic risk are compounded by the range of empirical errors contained in its beta analysis: (i) failing to properly take into account structural breaks in the historical beta data ("**Sample Period Issue**"), and the impact of Covid-19 on water company betas ("**Covid-19 Issue**"), (ii) placing weight on GARCH, as well as OLS estimates ("**GARCH Issue**") and (iii) failing to address problems with the rolling averages used ("**Rolling Average Issue**").

(43) SGN submits that these empirical errors have resulted in a further downward bias in GEMA's beta estimate. In particular, GEMA purports to place great weight on a 10-year period of the National Grid data, when on GEMA's logic a longer period of available data since privatisation would have been more robust and provided a more complete picture (which is in excess of GEMA's estimate). Table 2 below should be read in conjunction with the KPMG Cost of Equity Update and the GHT Beta Report.

Table 2: **Reply to GEMA's Response on empirical errors[73]**

Issue	Comment on GEMA's response
Sample Period Issue	GEMA does not consider that any structural breaks in data wholly undermine the utility of any given sample but accepts that "careful interpretation" is required where data contains structural breaks. GEMA claims that the concern has no material impact on the beta estimate. SGN recognises the merits of placing weight on longer estimation windows. However, GEMA fails to consider the *full period* of available data for National Grid from 1995 in the absence of structural breaks – which is the logical corollary of its argumentation in the Finance Response. The KPMG Cost of Equity Update and GHT Beta Report find that the asset beta of National Grid using the full period of data (i.e. from 1995) is 0.40, which is materially in excess of GEMA's estimate.[74] GEMA cannot therefore assume away a number of the errors cited by the appellants, simply because its estimate is in line with the 10-year National Grid beta.
Covid-19 Issue	GEMA claims it was not wrong to include data that included the Covid-19 periods, because these periods are an example of systematic risk, which is therefore valuable to the beta estimation. GEMA has failed to engage with the analysis presented by SGN and in the KPMG Cost of Equity Report, which demonstrates that including data from this period is likely to place undue weight on outlier data.[75] As explained in SGN's PR19 submission ("**SGN PR19 Submission**"), this is consistent with the CMA's most recent approach.[76] It is notable that GEMA chose to discount evidence regarding European comparators on the basis that the betas appeared to be impacted by Covid-19,[77] but was unwilling to exclude Covid-19 datapoints from its own beta estimates (given the apparent risks of 'cherry picking' data).[78]
GARCH Issue	GEMA claims that placing weight on GARCH has no material impact on the estimate of the beta, and is consistent with long-term observations of National Grid's beta (and above long- and short-term observations of certain listed water companies' beta) using OLS techniques.[79] The GHT Beta Report sets out arguments as to why OLS is the superior estimator of the long run beta for regulatory purposes, including that "*OLS is guaranteed to be a consistent estimator of unconditional beta, while GARCH is not*".[80] We reiterate that GEMA's justification for its approach on the basis of the 10-year beta for National Grid is arbitrary, and that using the full period of data results in an asset beta significantly in excess of GEMA's estimate.

[71] Finance Response, para. 164; McCloskey 1, para. 296.
[72] SGN DD Response (Evidence of Systematic Risk Differential), page 13 (SGN1_041).
[73] Finance Response, paras. 167-171.
[74] KPMG Cost of Equity Update, para. 4.2.5 (KPMG_COE2/1); GHT Beta Report, page 4 (KPMG_BETA1/1).
[75] KPMG Cost of Equity Report, paras. 8.3.10-8.3.13 (KPMG_COE1/1).
[76] SGN PR19 Submission, Section 2.4.1.
[77] Finance Response, para. 164.2; McCloskey 1, para. 297.
[78] Finance Response, para. 170.
[79] Finance Response, para. 169.
[80] GHT Beta Report, para. 1 (KPMG_BETA1/1).

Rolling Average Issue	GEMA maintains that this is not a new issue yet continues to place weight on such estimates despite continued widespread criticism. The KPMG Cost of Equity Report sets out in detail why these estimators effectively place unequal weight on different observations and are only useful to indicate possible structural breaks in the data.[81] GEMA also claims that it performed its GARCH estimation in order to address the issues involved in averaging OLS estimates. As set out above, the GHT Beta Report sets out arguments as to why OLS is the superior estimator of the unconditional beta for regulatory purposes.[82]

(44) In relation to the treatment of gearing for the purposes of estimating the asset beta, GEMA states that (i) it did not reach any conclusion in the FD on whether the market value or the book value of net debt is justified, but claims that this has no material impact on its estimates; and (ii) notes that if it were to consider gross debt, unlevered beta estimates would be materially lower.[83] The KPMG Cost of Equity Report and Cost of Equity Update explain that alternative measures of gearing, such as GEMA's use of market value and gross debt, are not appropriate. This is because: (i) GEMA's use of market value of debt in the calculation of beta is inconsistent with the concept of allowing the historical yields on embedded debt in the cost of debt allowance;[84] and (ii) leverage should be measured after deducting surplus cash to derive a beta estimate for the underlying operations.[85]

3.1.3 The RFR error

(45) As explained in SGN's NoA, GEMA wrongly placed sole reliance on ILGs to estimate the RFR and failed to recognise the divergence in borrowing rates between the UK government and other risk-free investors.[86]

(i) Failure to account for shortcomings of ILGs and disregarding AAA-rated corporate bonds

(46) It is common ground that both ILGs and AAAs contain distortions. However, GEMA's argument that neither perfectly captures the RFR is inadequate and fails to recognise the point of the RFR estimation exercise. As explained in SGN's NoA (and recently endorsed by the CMA in the PR19 FD),[87] the 'true' estimate of the RFR is likely to sit somewhere between the yield of ILGs and the yield on AAA-rated corporate bonds. This does not imply that the regulator may simply prefer one proxy over the other. Rather, that weight ought to be placed on both benchmarks. GEMA's sole reliance on ILGs undeniably underestimates the RFR.

(47) GEMA argues that the practical application of CAPM does not require *all participants* to be able to issue debt at the estimated RFR, and that the distinction between lending and borrowing rates is inappropriate without considering whether marginal investors in utility companies are net lenders or net borrowers.[88] GEMA maintains that investors in energy companies are net lenders for whom the return of a zero beta asset lies very close to the ILG yield, meaning that ILGs provide an appropriate basis for estimating the RFR.[89] As previously submitted, GEMA has fundamentally misapplied the principle of the marginal investor[90] and erred in concluding that the relevant investor was a marginal investor in the utility sector.[91]

(48) GEMA rejected using the index of AAA-rated corporate bond yields that the appealing companies advocated prior to FD because it considered a "simpler" input series is preferable, and there are at least

[81] KPMG Cost of Equity Report, para. 8.3.20 (KPMG_COE1/1).
[82] GHT Beta Report, paras. 1-8 (KPMG_BETA1/1).
[83] Finance Response, para. 173.
[84] KPMG Cost of Equity Report, paras. 8.3.34-8.3.43 (KPMG_COE1/1).
[85] KPMG Cost of Equity Update, para. 4.3.2 (KPMG_COE2/1).
[86] SGN NoA, Section 4.3.2, paras. 220-236.
[87] CMA PR19 FD, paras. 9.158-9.151: "*the ILG rate available to the government is unlikely to be a perfect proxy for the RFR, and that the 'true' rate of RFR in the market is likely to be above this level"* and "*the yield on AAA nongovernment indices is likely to be … slightly above the 'true' level of the RFR"* (PR19_1).
[88] Finance Response, para. 79.
[89] Finance Response, para. 82.
[90] KPMG Cost of Equity Report, paras. 6.3.26-6.3.31 (KPMG_COE1/1).
[91] SGN NoA, para. 225.

five elements of the series (default risk; illiquidity risk; term premium; complexity premium; inflation risk premium) that would require adjustment to this rate.[92]

(49) First, as previously submitted, the ILG rate also suffers from distortions, in particular a convenience premium which is a well-documented feature of government bond pricing.[93]

(50) Second, GEMA has not demonstrated why the need for simplicity should outweigh the need for estimating RFR using robust methodology supported by CAPM theory. Further, averaging of more than one published, independent, third-party benchmark index such as the iBoxx AAA indices is comparable to GEMA's approach to cost of debt indexation in RIIO-1.

(51) Third, the other issues identified with AAA-rated bonds have been acknowledged by the CMA in the PR19 FD. The CMA did not consider that these factors require an explicit adjustment: by picking an estimate other than the 100th percentile from a range bounded at the top by AAA-yields, the regulator would be implicitly adjusting the estimate downwards.[94] Further arguments in reply to GEMA's submissions on the flaws in the AAA bond yields data are set out in the KPMG Cost of Equity Update.[95]

(52) GEMA has justified its inconsistency with PR19 on the basis that a regulator can take different decisions in differing sectors.[96] However, as explained recently by the CMA, the RFR is a market-wide parameter ("*average of the RFR of all individual investors*"[97]), not sector-dependent. This is not a matter of regulatory judgment but rather a clear and material error by GEMA, which understates the RFR.

(ii) Suitability of RFR cross-checks

(53) GEMA maintains that its nominal gilt and SONIA cross-checks support its conclusions on RFR.[98] In respect of nominal gilts, GEMA claims that "*when nominal gilts are adjusted for inflation risk premium, they produce a very similar RFR to ILGs*".[99] In this regard, SGN notes the CMA's conclusion in the PR19 FD that it does not believe it can accurately assess the presence of inflation or liquidity distortions to nominal gilts,[100] suggesting that the assumptions underpinning GEMA's cross-check are difficult to verify. Moreover, even if nominal gilts are appropriately adjusted for inflation and liquidity distortions, they do not represent the risk-free borrowing rate of the marginal investor in the market portfolio.[101]

(54) In addition, GEMA considers that objections to its SONIA swap cross-check on account of illiquidity distortions do not withstand scrutiny, citing evidence from Jessica Friend's witness statement.[102] In this regard, as set out in the KPMG Cost of Equity Report, even if liquidity concerns over SONIA swaps were resolved, the collateralisation process requires the transfer of frequent payments between transacting parties, meaning that it cannot truly represent a term risk-free instrument; a fact which Jessica Friend does not seem to have taken into account.[103]

(55) Jessica Friend argues that GEMA 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.[104] SGN requests that the CMA consider Section 5.2 of the KPMG Cost of Equity Update, which finds that the wedge should not be simply pro-rated for the 2030 transition.

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92 Finance Response, para. 86.
93 SGN NoA, para. 229-232; KPMG Cost of Equity Report, paras. 6.3.11-6.3.18.
94 CMA PR19 FD, paras. 9.226-9.239 (PR19_1).
95 *See* KPMG Cost of Equity Update, Section 5.1 (KPMG_COE2/1).
96 Finance Response, para. 91.
97 PR19 FD, para. 9.263 (PR19_1).
98 Finance Response, paras. 93-99.
99 Finance Response, para. 94.
100 CMA PR19 FD, para. 9.184 (PR19_1).
101 KPMG Cost of Equity Report, Appendix 2 (KPMG_COE1/1).
102 Finance Response, para 98.
103 Second Witness Statement of Jessica Friend, para. 76 ("**Friend 2"**).
104 Friend 2, para. 91.

3.2 GEMA has failed to provide sufficient justification for its failure to aim up

(56) As explained in SGN's NoA, GEMA has failed to "aim up" when setting the point estimate for the cost of equity.[105] In doing so, GEMA wrongly dismissed the evidence regarding the uncertainty in the cost of equity and asymmetric risks faced by GDNs, due to possible asset stranding as the UK transitions towards Net Zero and the asymmetric design of the package.

(i) Aiming up for uncertainty and to maximise consumer welfare

(57) While GEMA accepts that underestimating the cost of equity risks undermining marginal decisions to invest, GEMA was not convinced that the risk was as high as suggested by some studies and believed the link between returns and investment is not especially strong.[106] GEMA did not consider aiming up for these reasons was needed on the basis that:

(i) GEMA has a "high degree of confidence" that 4.55% is unlikely to be an underestimate of the "true" costs of equity, based on market-based cross-checks, noting the indexation of the allowed return of equity;[107]

(ii) GEMA's view is that companies have reasonable expectations of outperforming the allowed return on equity by at least 0.25%;[108] and

(iii) GEMA considers that the risks of short to medium-term underinvestment are substantially addressed by other incentive mechanisms in the RIIO-2 settlement.[109]

(58) As a preliminary point, SGN notes that GEMA has highlighted (repeatedly) the uncertainty involved in estimating the cost of equity. Despite this, it is striking that GEMA nonetheless has a *high degree of confidence* that it is unlikely to underestimate the true costs of equity, negating any need to aim up.

(59) This confidence is misplaced. GEMA appears to base its conclusions on its selected cross-checks. Cross-checks are inherently imperfect comparators. While potentially helpful to determine whether a given CoE estimate lies within the extremes of relevant possibilities, they are not precise enough to derive a point estimate. Moreover, GEMA's chosen cross-checks contain a number of deficiencies (which were set out in detail in the KPMG Cost of Equity Report,[110] which it does not address) and it excluded any cross-checks that indicate a CoE materially above 5%.[111] In this regard, we note that GEMA itself placed less weight on cross-checks, when deriving a point estimate, between the DD and the FD, in light of stakeholder representations.[112]

(60) It is also stark that GEMA does not seem to have read the SGN's submissions in this regard. GEMA claims that SGN raised no objections on certain cross-checks,[113] implying that these were accepted as robust. However, SGN was clear that the GEMA's chosen cross-checks gave "*false confidence*" that the CoE had been set at the right level.[114] Detailed objections were articulated in the KPMG Cost of Equity Report.[115]

(61) Cross-checks need to be treated with caution as they are inherently imperfect comparators. GEMA acknowledged that "*no cross check is perfect*" but with the use of cross-checks is also "*confident that the risk the decision significantly underestimates the true cost of equity is very low"*.[116] In particular,

[105] SGN NoA, Section 4.5, paras. 237-278.
[106] Finance Response, para. 257.2.
[107] Finance Response, paras. 257.3-257.4.
[108] Finance Response, para. 267.2.
[109] Finance Response, para. 267.3.
[110] KPMG Cost of Equity Report, Section 11 (KPMG_COE1/1); KPMG Cost of Equity Update, Section 6 (KPMG_COE2/1).
[111] KPMG Cost of Equity Report, Section 11 (KPMG_COE1/1); KPMG Cost of Equity Update, Section 6 (KPMG_COE2/1).
[112] FD Finance Annex, para. 3.121 (SGN1_011).
[113] Finance Response, para. 193. Here, GEMA wrongly claims that SGN was one of four appellants that raised "no objection at all" to the Modigliani-Miller cross-check.
[114] SGN NoA, para. 275.
[115] KPMG Cost of Equity Report, Section 11. For instance, at para. 11.3.37, GEMA's application of the Modigliani-Miller cross-check was described as "not fit for purpose" (KPMG_COE1/1).
[116] Wilde 1, para. 64.

GEMA has relied on market-to-asset ratios (MARs) post-FD. The Response refers to the premium paid by National Grid in the WPD acquisition, going so far as to state that if the premium had been known at the time of FD, it would have "*occasioned a rethink*" of its cost of equity estimate.[117] The KPMG MARs Report considers in some detail the reliability of MARs. In particular, it notes that MARs rely on complex assumptions and there can be a range of reasonable explanations of any MARs premia.[118] KPMG also provides a decomposition analysis that explains the WPD premium under a range of reasonable scenarios which do not imply a lower cost of capital or expected outperformance in the sector.

(62) GEMA considers that its mechanism for indexing the allowed return on equity – by annually updating the RFR – gives it a relatively high degree of confidence that the allowed return on equity would not fall out of line with the true cost of equity over the course of RIIO-2, thereby reducing the need to aim up.[119] This conclusion is false. First, the indexation mechanism does not address GEMA's error to place sole weight on ILGs, which underestimates the RFR. Second, the indexation mechanism in no way guarantees that the allowed return on equity is set at the true cost of equity *at the start* of RIIO-2. As GEMA recognises, the true cost of equity is inherently unobservable, and it is highly unlikely that even an appropriately determined midpoint estimate set at inception will be equal to the true cost of equity. Third, RFR is only one component of the CAPM CoE. The allowed return on equity is hence only 'partially indexed' and is likely to differ from the true cost of equity over the course of RIIO-2, even if it were to coincide at inception.

(63) GEMA considers that other aspects of the RIIO-2 settlement provide strong incentives for investment in maintaining or improving the quality of service (such as ODIs, licence obligations and quality of service obligations) and suggesting that other mechanisms, notably Uncertainty Mechanisms, could be deployed to increase allowances to support strategic investment or innovation.[120] As KPMG has already submitted, such mechanisms help mitigate companies' cashflow issues. However, aiming up is required to address *parameter* uncertainty and guard against the risk that the allowed return is below the 'true' cost of capital.[121]

(64) Finally, SGN notes that GEMA has failed to engage with the quantitative analysis provided in the KPMG Cost of Equity Report to estimate the extent of aiming up that is required for the uncertainty in setting the CoE, nor has GEMA engaged with the qualitative argumentation around real options, which further supports the need to aim-up for GDNs.[122]

(ii) Aiming up for asymmetric risk

(65) GEMA accepts, in principle, that material net asymmetric risk in a price control settlement – including that arising from possible asset stranding – would warrant a degree of "aiming up" on the allowed return on equity. However, GEMA argues that the more appropriate way to manage gas asset stranding risk would be to seek increases in capital depreciation allowances for RIIO-2.[123]

(66) GEMA misunderstands the nature of the adjustment for aiming up for asymmetry, and the risk of Net Zero (and subsequent uncertainty around future gas volumes) in particular. Simply accelerating depreciation of the asset base today would be to recognise that a reduction in value has already occurred (i.e. that investors can be certain that a portion of the RAV is not recoverable as of now). However, it is 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 attribute a non-zero

[117] Kaul 1, paras. 126-127; Wilde 1, paras. 59-62.
[118] KPMG MARs Report (KPMG_MARS1/1).
[119] Finance Response, para. 257.4.
[120] Finance Response, para. 257.6 – 257.7.
[121] KPMG Cost of Equity Report, para. 9.3.10 (KPMG_COE1/1).
[122] KPMG Cost of Equity Report, Sections 9.3 and 7 (KPMG_COE1/1).
[123] Finance Response, para. 272.

probability as set out in SGN's NoA and the KPMG Cost of Equity Report.[124] Investors therefore require an 'insurance premium' to accept this risk on an expected basis, unless GEMA is able to demonstrate that it will safeguard investors' assets with sufficient guarantee. This is not an "either or" option and the risk of future losses which are ultimately unrecoverable needs to be priced into the cost of equity in this price control.

(67) As a final point, in pointing to the positive impact of ESG factors on availability of debt funding for energy companies,[125] GEMA continues to overlook the greater uncertainty that investors in gas networks are exposed to, as a result of the Net Zero Agenda. Following feedback from its economic advisers, SGN submits that even if ESG factors could lead to a discount to the CoE, (which we note is not consistent with much of the academic evidence),[126] it is not clear that investment in gas networks would be considered ESG-compliant, as evidenced by the ongoing EU debate on the labelling system for energy investments.[127]

3.3 GEMA has failed to meaningfully engage with the Appellants' submissions regarding GEMA's financeability assessment

(68) GEMA's response does not meaningfully engage with the arguments set out in SGN's NoA and the KPMG Financeability Report, in particular against the unjustified assumptions and adjustments made at FD to the notional financing structure.[128]

(69) GEMA claims that the financeability assessment could only be reliably used to cross-check cash flows under the RIIO-2 settlement.[129] However, SGN submits that, while GEMA should independently assess the allowed cost of capital based on available evidence, the financeability assessment is a valuable cross-check. The CMA has recently endorsed this in the PR19 FD noting that "*financeability should be a valuable cross-check when picking an appropriate point estimate from a calculated cost of capital range*".[130]

4 Ground 2: Outperformance wedge

(70) SGN submitted detailed objections to the outperformance wedge in Section 5 of its NoA. SGN explained that: (i) it is a disproportionate and untargeted tool that undermines consistency and transparency in the regulatory regime to the detriment of consumers (**Error 1**); (ii) it undermines incentives for investment and performance in RIIO-2 and future price controls (**Error 2**); (iii) it is not supported by adequate evidence or analysis (**Error 3**); and (iv) GEMA has wrongly dismissed concerns over the impact of the outperformance wedge on financeability (**Error 4**).

(71) GEMA argues that its evidence is substantively unchallenged and that outperformance due to asymmetry is, if not inevitable, probable, justifying a "*modest adjustment*" to allowed returns. However, GEMA has drawn inferences on outperformance and information asymmetry in RIIO-2 from an inadequate evidence base, erroneously using this to justify an unprecedented intervention despite the other tools at its disposal. GEMA downplays the negative impact on incentives as "*minimal*". On the contrary, the harmful effects are material in this and future price controls. These are not "*satellite*" issues, nor issues of "*reasonable disagreement*",[131] and result in a very damaging precedent. The outperformance wedge should therefore be quashed.

[124] SGN NoA, para. 265; KPMG Cost of Equity Report, paras. 7.4.22-6.4.25 (KPMG_COE1/1).
[125] Wilde 1, para. 136, referring to Environmental, Social and Corporate Governance (ESG).
[126] For example, Gregory, Tharyan and Whittaker (2014) (SGN2_005); and Gregory, Whittaker and Yan (2016) (SGN2_006) find that any valuation premium is driven by earnings growth, rather than an impact on the cost of capital. Moreover, to the extent there is a cost of capital effect, it would be limited to multi-factor models, rather than the single factor CAPM used by GEMA.
[127] Brussels faces backlash over delay to decision on whether gas is green, Financial Times (April 2021) (SGN2_007).
[128] SGN NoA, paras. 279-286; KPMG Financeability Report (KPMG_FIN1/1).
[129] Finance Response, paras. 279-280.
[130] PR19 FD, para. 9.1383 (PR19_1).
[131] Finance Response, para. 284.

4.1 The outperformance wedge has not been justified

4.1.1 GEMA is relying on an inadequate evidence base which reveals little about outperformance in RIIO-2

(72) The central plank of GEMA's case is that an outperformance wedge to address information asymmetry is justified by the evidence of historical performance.[132] GEMA claims that it has 90% confidence that outperformance will not be 0 and claims that its evidence is substantially unchallenged.[133] GEMA's claim that its evidence is substantially unchallenged is manifestly untrue, as shown by SGN's response to GEMA's DD analysis.

(i) First, GEMA makes much of its allegedly "*compelling*" historical Totex analysis of cross-sector price controls. However, these calculations were criticised during RIIO-2 and material errors that overestimate outperformance remain in the revised database exhibited to the Response.[134] Fundamentally, however, the database merely records performance across different price controls and sectors. It shows outperformance but also numerous examples of underperformance. It does not show (or seek to investigate) the reasons for outperformance, yet GEMA asserts it is "*clear that [information asymmetry] ... is a contributing factor*".[135] This evidence therefore does not support GEMA's inferences regarding information asymmetry.[136]

(ii) GEMA's second analysis purported to better reflect performance in this price control by examining RIIO-1 performance, having adjusted for the RIIO-2 framework. However, as set out in Section 6.1.15 of the KPMG OW Report, this amounted to only minor improvements on its historical analysis, as it failed to account for major RIIO-2 changes, including tools that GEMA agrees reduce the scope for information asymmetry (as is also the case for GEMA's revised analysis in PJM/080).[137]

(iii) GEMA also drew unsupported inferences from MARs of water companies and two energy companies with broader operations beyond GD2, as detailed in paragraphs 366-370 of SGN's NoA. GEMA's Response additionally justifies its decision on the basis that National Grid is acquiring WPD at a premium to RAV.[138] However, as explained in the KPMG MARs Report, a number of factors can influence MARs, and a single data-point in a complex, strategic transaction in a different sector and price control (such as WPD) says little about information asymmetry in RIIO-2 as many factors drive legitimate premia. GEMA's observation that this information would have "*occasioned a rethink"* of the allowed returns is concerning.[139]

(73) For similar reasons, conclusions on RIIO-2 outperformance (particularly expected outperformance based on information asymmetry) therefore also cannot be drawn based on financial analyst predictions of listed companies' valuations (including those in the water industry), nor from a single quote by National Grid management in 2018 (for the reasons previously explained by KPMG, and which are not addressed in GEMA's Response).[140] GEMA's (new) analysis of equity movements around the release of the DD, FD and PR-19 PFs also does not support GEMA's case.[141] GEMA effectively assumes that a post-announcement increase (or decrease) implies that the regulator has proposed returns that are too high

[132] Finance Response, para. 309, and McCloskey 1, para. 168.
[133] Finance Response, paras. 329, 342.
[134] KPMG Outperformance Wedge Report ("**KPMG OW Report**"), Section 6.1 (KPMG_OW1/1). While it has not been possible to conduct a full assessment of the revised PJM1/073 in the time available (and due to the large number of data references being to the GEMA SharePoint, internal staff emails and in some instances public documents which do not relate to the data presented) the dataset: (i) records 35% overspend for GD PCR2002 by comparing five years of allowances against three years of actual cost, whereas comparing the three years where both allowances and actuals are shown results in underperformance of 9%; and (ii) continues to exclude the final year of the PR14 price control, excluding that year results in industry outperformance of 1.6%, while including it results in underperformance of 0.8%.
[135] Finance Response, para. 314.
[136] SGN notes that GEMA also uses this database to identify a "*positive correlation between totex performance and service incentive performance*" (Finance Response, para 297). However, GD1 and GD2 incentives are very different, as per the KPMG OW Report (Section 5.5, KPMG_OW1/1) and incentives should not be compared cross-sector.
[137] Incentives Report, para. 23 (MR4/1).
[138] Finance Response, paras. 285, 317 and 353.
[139] Kaul 1, para 127.
[140] Finance Response, para. 315, Kaul 1, para. 47, and KPMG OW Report, paras. 3.5.3-3.5.6 (KPMG_OW1/1).
[141] McCloskey 1 paras. 198-205.

(or low). This is only true if the starting point for the pre-announcement valuation was that returns would be set at the actual cost of equity. However, there is no reason to suspect that is the case; GEMA has long trailed that returns would be lower in RIIO-2.

(74) GEMA points to external criticism of its approach to allowed returns in RIIO-1, and Akshay Kaul suggests GEMA would "*arguably be failing in its primary duty*" if it failed to act to address a perceived gap between expected and allowed returns.[142] However, GEMA's response is unjustified, and it cannot side-step its obligations to make decisions which are founded on robust evidence. GEMA's analysis ultimately reveals little about the scope for outperformance in RIIO-2.

4.1.2 GEMA still fails to take account of the impact of alternative tools at its disposal

(75) As set out above, GEMA's evidence from historical price controls has little relevance for the scope for outperformance in RIIO-2, and GEMA's analysis fails properly to take account of the RIIO-2 framework and the tools at its disposal. GEMA's Response is seemingly that the outperformance wedge is nonetheless necessary as other measures do not eliminate information asymmetry.[143] GEMA recognises the range of steps it has taken to tighten and calibrate the price control in RIIO-2, yet labels Appellants' arguments over the need for the outperformance wedge in this context as "*unreal*" or "*no answer*".[144]

(76) However, GEMA is required to act in a manner "*proportionate to the objectives pursued [and] appropriate in the circumstances*".[145] Regulators have a range of alternative tools that do not suffer the same undesirable side-effects of the outperformance wedge, and GEMA's assessment should fully recognise that RIIO-2 already utilises other tools that avoid the outperformance wedge's perverse effects.[146] GEMA has acted disproportionately, contrary to its statutory duty, given this context.

(77) Further, GEMA's analysis of alternative tools in its Response fails to deal with points made by SGN, or to otherwise adequately recognise or quantify the asymmetry GEMA alleges remains, as summarised in Table 3 below. In considering Table 3, the CMA is reminded that GEMA's adjusted analysis of RIIO-1 performance (discussed in paragraph 71(ii) above) did not adjust for any of these tools.

Table 3: GEMA's assessment of alternative tools at para. 321 of the Finance Response

Measure	Comment on GEMA's response
Business Plan Incentive (BPI) (para. 321.1)	GEMA concedes that the BPI was specifically "*designed to encourage ambition from companies on cost efficiency and to discourage inflated spending plans*", but maintains that "*some degree of information asymmetry is likely to continue*" as it will continue to rely on licensees' views. GEMA does not substantiate/quantify the remaining asymmetry.
Uncertainty Mechanisms (para. 321.2)	While recognising that uncertainty mechanisms "*may reduce the impact of information asymmetry to some extent*", this does not recognise SGN's evidence that, historically, re-openers represent asymmetric risk against companies (and it is noted that, while this is not focused upon in GEMA's Response, part of GEMA's stated justification for the outperformance wedge at FD was alleged asymmetries in re-openers).[147]
Benchmarking methods (para. 321.3)	GEMA states that its "*tweaks to these existing tools for RIIO-2 may help to address some of the impacts of information asymmetry, but given the scale of past outperformance they are extremely unlikely to eliminate it*". However, GEMA's conclusion is not substantiated by evidence. However, material changes have been made to benchmarking tools (certain elements of which are the subject of this appeal), being just one of the numerous changes that reduce the scope for outperformance at RIIO-2
Business Plan scrutiny (para. 323.4)	GEMA states that "*business plans have always been extensively and rigorously tested and information asymmetry has never been eliminated completely*". GEMA's Response seemingly affords no weight to the changes GEMA made in RIIO-2 to the business plan assessment that are described in SGN's NoA at para. 373(ii).[148]

[142] Kaul 1, paras. 27 and 32, and Wilde 1, para. 33.
[143] Finance Response, paras. 320 and 323.
[144] Finance Response, paras. 322 and 326.
[145] Principles of Good Administration (SGN1_121).
[146] SGN NoA, paras. 328-330.
[147] KPMG OW Report, paras. 5.4.1-5.4.6 (KPMG_OW1/1) and FD Core Document, para. 3.138 (SGN1_009).
[148] SGN notes that it makes various criticisms of GEMA's approach to data gathering in the Data Quality and Process Witness Statement - in particular with regard to the measures it has taken (or, indeed, failed to take) to ensure consistency, transparency and comparability of data as between companies. These are distinct matters from the issue of information asymmetry.

PCDs (para. 321.5)	GEMA concedes that PCDs may reduce the impact of information asymmetry, but that information asymmetry will persist. Again, GEMA does not substantiate/quantify the remaining asymmetry, and does not recognise the KPMG OW Report evidence that in the vast majority of cases, PCD structures create a negative asymmetry against GDNs (and it is, again, noted that while not focused upon in GEMA's Response, alleged asymmetries in PCD design were also part of GEMA's stated justification for the outperformance wedge at FD).[149]
Duration (para. 321.6)	GEMA concedes that "*the shorter duration of the price control is likely to reduce the impact of information asymmetry to some extent*" yet concludes that outperformance "*remains likely*" by relying on its historical dataset, (which includes examples of five-year controls). However, as above, GEMA's historical database does not support the inferences GEMA seeks to draw relating to outperformance from information asymmetry in RIIO-2.
ODIs (para. 321.7)	GEMA states that "*ODIs are intended to be broadly symmetrical*". This is not, however, the reality of the FD, where GEMA stated that ODIs are worth "*-0.7% to +0.3% in gas distribution*". ODIs in GD2 therefore show an asymmetric downside risk weighting, as was explained in the KPMG OW Report.[150]

(78) SGN notes Mr Witcomb's evidence that, despite initial concerns that the outperformance wedge was treating the "*symptom rather than the disease*", he considered it the "*least-worst*" and "*appropriate*" measure to address information asymmetry.[151] SGN respectfully disagrees. It is not open to GEMA to deliver a poorly targeted mechanism which carries significant negative effects by relying on inadequate evidence as explained above. The outperformance wedge is not a cure – it has negative effects that far outweigh the perceived harm it is seeking to address.

4.1.3 GEMA's actions fail to uphold regulatory principles

(79) GEMA argues that novel tools are not subject to heightened standards. However, the CMA has held (rightly) that departures from regulatory precedent must be "*satisfactorily explained and well justified*".[152]

(80) The outperformance wedge introduces an arbitrary overlay on GEMA's assessment of cost allowances. It applies at an aggregate level to allowed returns (rather than in a targeted manner to the building blocks giving rise to concerns over perceived asymmetries) and to all companies indiscriminately, with negative consequences for incentives. Section 5.4 of SGN's NoA explains in detail how this is a disproportionate, untargeted tool that undermines consistency and transparency.

(81) While Simon Wilde's evidence suggests that GEMA considered if the outperformance wedge was "*not well targeted*",[153] the negative effects that flow from this are not acknowledged, and GEMA describes the Appellants' submissions on regulatory principles as "*little more than assertions*".[154] Compliance with regulatory principles is a vital consideration, and the CMA should closely consider SGN's submissions on these points. This is not least because, if the principles underpinning the outperformance wedge are endorsed, this will set a worrying precedent for future price controls across sectors.

4.1.4 The size of the outperformance wedge provides no answer to GEMA's case

(82) GEMA's Response frequently seeks to justify the outperformance wedge on the basis that it is smaller than it was at SSMD, or smaller than certain stakeholders wished it to be.[155] However, GEMA has not evidenced that an adjustment of any size is justified, as explained above.

[149] KPMG OW Report, para. 5.3.3 (KPMG_OW1/1) and FD Core Document, para. 3.138 (SGN1_009).
[150] FD Core Document, page 6 (SGN1_009), and KPMG OW Report, Section 5.5 (KPMG_OW1/1).
[151] Witcomb 1, paras. 16-17.
[152] *NIE (2014)*, para. 13.191 (SGN1_062), and *Bristol Water (2010),* para 9.2.1 (SGN1_127).
[153] Wilde 1, para. 196(b), which states that GEMA took into account a range of considerations, including "*if there is a risk that in being a 'top-down' adjustment, it is not well targeted*", and Witcomb 1, para. 16, that "[u]*sing a financial instrument to solve an engineering/economic problem seemed inappropriate at first sight*".
[154] See also Finance Response, para. 342.
[155] Finance Response, paras. 333 and 342; Wilde 1, paras. 192.1 and 207.2; McCloskey 1, paras. 196-197; and Witcomb 1, para. 18. It is additionally noted that McCloskey 1 (para. 161) states that the outperformance wedge is smaller than the GD1 IQI tool "*suggesting that the RIIO-2 approach is a proportionate one*". Whether the outperformance wedge is proportionate must be judged in the context of GD2 as a whole, not in comparison to one GD1 mechanism. Indeed, the BPI (which GEMA acknowledges decreases the scope for information asymmetry) is largely intended as a substitute for the IQI by incentivising efficient business plans – GEMA's direct comparison of the IQI and the outperformance wedge ignores this.

(83) In any event, the outperformance wedge is not "*small*" (nor can it be reasonably construed as "*aiming-up*", as previously explained).[156] It is equivalent to a c.[redacted]% reduction in SGN's totex allowance, or to the vast majority of the total potential upside on ODI rewards.[157] Nor is it "*conservative*". GEMA's analysis crucially does not reflect other major changes in RIIO-2 as explained above. Labelling 0.25 bps as "*conservative*" in this context is at best misleading.

(84) Finally, labels such as "*small*" and "*conservative*" ignore (in addition to the insufficient evidence base for this intervention) the huge significance of the outperformance wedge for regulatory precedent, which sees a regulator reduce allowed returns from the level deemed necessary in a calibrated process to account for *ex ante* expectations that (as GEMA accepts) are not linked to "*individual decisions on totex, incentives and efficiency*".[158] Indeed, GEMA already hints at its intention to use the outperformance wedge again, potentially with a larger adjustment, as it states that "*0.25% ... reflects GEMA's conservative approach to its first use of this novel tool*".[159]

4.2 The outperformance wedge has a negative impact on incentives

(85) Incentive-based regulation has brought significant benefits to UK customers, as per paras. 318-319 of SGN's NoA. GEMA's Response continues to fail to recognise the harms caused to these incentives.

(86) Within the deadband, GEMA acknowledges some impact on incentives but dismisses it as "*minimal*"; an analysis that is based in part on the assumption that "*outperformance of 0.25% reflects information asymmetry rather than effort*" so can be achieved "*as a matter of course*".[160] As above, GEMA has failed to substantiate this with evidence. Similarly, GEMA claims with spurious accuracy that licensees have just a 7% probability of falling within the deadband, and that the impact on incentives should be assessed in this context. However, this figure is based on its historical database, which is plainly uninformative of RIIO-2.[161] GEMA also claims that aggressively late spending in the price control would not harm consumers. Yet, this is only the case if spending is efficient, and KPMG has explained how the deadband creates incentives for inefficient spending.[162]

(87) Meanwhile, GEMA's assertion that there "*remains very strong incentives to outperform well in excess of 0.25%*" fails to adequately engage with SGN's arguments on the impact on efficiency and service quality incentives.[163] In particular, networks will not know what their ultimate RIIO-2 performance will be when deciding whether or not to make efforts to improve performance. These negative effects are not addressed by the top-up mechanism, as the potential or risk of ending up in the deadband will still distort these incentives even if the company does ultimately end up performing outside of the deadband.[164] This will weaken incentives for companies to improve performance, contrary to the consumer interest.

(88) Similarly, incentives to invest work on a marginal basis, and will not be remunerated at the cost of equity as a result of the outperformance wedge (including with the top-up mechanism).[165] As with the deadband, uncertainty over end of period performance means that investment incentives will be harmed even if outperformance is less than 0.25%.[166] Overall, this will incentivise companies to minimise or delay investment which is again, harmful to consumer interests.

(89) In addition to RIIO-2 incentives, GEMA has a statutory duty to have regard to the interests of future consumers. GEMA dismisses concerns over a "*Ratchet Effect*" as the "*feedback loop*" is allegedly much

[156] SGN NoA, para. 276.
[157] SGN NoA, para. 298.
[158] Kaul 1, para. 113.
[159] Finance Response, para. 333.
[160] Finance Response, paras. 356-357.
[161] Finance Response, para. 355 and McCloskey 1, para. 192.
[162] KPMG OW Report, para. 4.4.35 (KPMG_OW1/1).
[163] Finance Response, para. 351.
[164] KPMG OW Report, para. 4.4.38 (KPMG_OW1/1).
[165] KPMG OW Report, paras. 4.4.10-4.4.20 (KPMG_OW1/1).
[166] KPMG OW Report, paras. 4.4.18 (KPMG_OW1/1).

weaker in respect of information asymmetry across individual licensees.[167] However, this fails to recognise that: (i) GEMA has not adequately evidenced its conclusions on RIIO-2 outperformance resulting from information asymmetry; (ii) incentives (and therefore efforts) are reduced by the outperformance wedge *across* licensees regardless of whether there is in fact any information asymmetry; and (iii) the tool sets an adverse precedent for future price controls and incentive-based regulation. GEMA is therefore wrong to consider the Ratchet Effect "*unpersuasive*".[168]

(90) GEMA has also failed to address a number of other criticisms raised by SGN. GEMA does not comment on SGN's argument regarding the short-termist incentives the measure is likely to promote and the impact on re-openers (and therefore the ability to achieve Net Zero targets).[169]

(91) Given these many inadequacies, the absence of a meaningful assessment of the long-term impact on incentives of the outperformance wedge is surprising. While GEMA argues it has "*considerable discretion as to how an impact assessment is carried out*", for an impact assessment to be remotely credible, it must assess the positive and negative impacts of a measure and weigh these carefully.[170] This has simply not been done.[171] The argument that "*Stakeholders have had ample time to anticipate and plan for the quantitative impact of GEMA's proposals*" is no answer to failing to adequately investigate what the impact is, particularly given the clear and present negative effects outlined above.[172]

(92) GEMA argues that the *ex-post* adjustment provides comfort that the 0.25% return will be received and downplays the impact on cashflows and credit ratings.[173] GEMA accepts that rating agencies may not take into account the additional equity return in their ratio calculations, but merely claims that agencies can use their discretion to apply ratings, and asserts that the backstop mechanism offers "*some*" benefit in terms of credit quality without meaningful evidence.[174] SGN has already presented arguments against this in its NoA.[175] GEMA fails to take due account of the importance of timing of cashflows on credit quality. It is the predictably and stability of cashflows that allows GDNs to maintain solid investment grade ratings and access debt finance at relatively low rates. It is not a matter of rating agency discretion to place weight on cashflow timing. It is, instead, entirely consistent with their well-established ratings methodology.

(93) GEMA's claim that the outperformance wedge is a justified response to information asymmetry therefore cannot stand in light of its serious adverse implications for this and future price controls in other regulated sectors. This is an unjustified measure with serious adverse potential implications for future charge controls in this and other regulated sectors. SGN respectfully asks the CMA to quash it.

5 Ground 3 – Ongoing Efficiency

(94) The Appellants' arguments in respect of ongoing efficiency are set out in detail in Section 6 of the NoA (paragraphs 398 to 520). In summary, however, the Appellants contend that:

(i) The Innovation Uplift is unjustified because:

(a) GEMA had insufficient basis on which to conclude that historical innovation funding should lead to higher productivity in the sector relative to the wider economy, in comparator sectors, and beyond the range indicated by EU KLEMS;

[167] Finance Response, para. 348.
[168] KPMG OW Report, paras. 4.4.41-4.4.45 (KPMG_OW1/1). See also Incentives Report, paras. 14, 27 (MR4/1).
[169] KPMG OW Report, paras. 4.3.12; 4.21-4.22 and 4.28 for these arguments (KPMG_OW1/1).
[170] Finance Response, para. 362. See also KPMG OW Report, para. 4.4.45 (KPMG_OW1/1).
[171] See also Burns, Incentive implications of outperformance wedge, where Philip Burns also recognises that "*Ofgem has not evaluated the outperformance wedge from an incentive perspective*" (SGN2_008).
[172] Finance Response, para. 362.
[173] Finance Response, para. 359-361.
[174] Wilde 1, para 179 and Finance Response, para. 359.
[175] SGN NoA, paras 387-393, referencing the KPMG OW Report and the KPMG Financeability Report.

(b) GEMA failed to assess the extent to which there was double counting with the Core Efficiency Challenge; and

(c) GEMA failed to assess the extent to which there was double counting with productivity improvements already captured in company business plans (together, **Error 1**).

(ii) Irrespective of Error 1, the methodology used to derive the level of the Innovation Uplift is wholly inadequate and based on a number of demonstrably false and/or inappropriate assumptions (**Error 2**).

(iii) Further, the implementation of the Innovation Uplift results in an unjustified Overall Ongoing Efficiency Challenge (**Error 3**).

(95) GEMA states in its Costs Response that it has addressed each of these arguments and accordingly invites the CMA to dismiss the Appellants' appeal on ongoing efficiency. The reality, however, is that GEMA has failed to address critical arguments raised by the Appellants and effectively confirmed that the allegations made in the NoA are (in at least substantial part) correct.

5.1 GEMA has conceded that the level of the Innovation Uplift is unevidenced

(96) GEMA has again stated that the 0.2% figure is not an estimate of the savings that it expects to arise from the historical innovation funding provided to network companies, but rather a view on "*the level of efficiency savings which would constitute a reasonable return for consumers*".[176] GEMA also:

(i) does not indicate that it has factored in the level of return that has already been delivered to customers during the course of GD1;[177] and

(ii) suggests (again) that its decision to adopt the Innovation Uplift is predicated on the expectation that further savings which cannot be identified or quantified at the present time will "*come to light*" over the course of GD2.[178]

(97) In doing so, GEMA has effectively conceded that the methodology used to derive the level of the Innovation Uplift lacks any evidential basis.[179]

(98) More generally, GEMA accepts that CEPA's analysis on the potential for an innovation uplift is "*broad*", "*high level*", based on "*simplifying assumptions*", and "*consciously simplifying*".[180] The Costs Response also makes statements that directly contradict the assumptions made by CEPA for the purpose of its analysis. For example, CEPA assumes that the only benefits arising from innovation funding are cost reductions; however, GEMA recognises that there are also benefits from an environmental, service quality, safety and customer experience perspective.[181] Conspicuously, GEMA does not seek to address the fact that other, non-financial benefits can and do arise from innovation funding, or how this has been accounted for in the modelling. Nor does it seek to respond to Frontier's observation that various other assumptions underpinning CEPA's analysis are incorrect.[182]

(99) The Witness Statement provided by Mr Keane of CEPA ("**Keane 1**") and the Second Witness Statement of Dr Wagner ("**Wagner 2**") contain similar observations (and likewise fail to engage with the issue of the assumptions underpinning CEPA's analysis).

[176] Costs Response, para. 155(4).
[177] Cost Response, paras. 155 and 166-167. As explained at para. 4.3.25 of the Ongoing Efficiency Report (MR1_1), there is evidence that companies have already delivered significant savings from innovation during GD1. GEMA was advised of the need to consider this in the CEPA Draft Determinations Report at page 26 (SGN1_116).
[178] Costs Response, para. 106.
[179] Appellants' NoA, paras. 460-467 and 492-496.
[180] Costs Response, paras. 155(5), 155(6) and167, and Wagner 2, para. 142.
[181] Wagner 2, para 27 and Figure 2. Note that the document from which Figure 2 has been extracted (which was published by Ofgem in May 2020 at around the same time as CEPA's DD report) also refers to "£600m - £1.2bn of carbon abatement benefits" from LCNF funding – see GEMA Innovation and Network Price Controls, May 2020, pg.11 (SGN2_009).
[182] Ongoing Efficiency Report, paras. 4.3.6-4.3.25 (MR1_1).

(100) With regard to the former, Mr Keane notably acknowledges "*the absence of robust evidence for establishing a firm quantitative relationship between* innovation *funding in RIIO-1 and the scope for frontier efficiency improvements in the energy network sector*", and that CEPA's analysis involved "*judgements being made in multiple area [sic]*".[183] Moreover, while he states that CEPA "*tested the robustness of the overall conclusion to different assumptions*",[184] he does not seek to deal with the fact that Frontier showed that under equally (or more) plausible assumptions, CEPA's calculations gave an innovation uplift five times smaller, at 0.04%, and so the conclusion is therefore highly sensitive to the assumptions used.[185]

(101) With regard to the latter, while Dr Wagner describes at length the process followed by GEMA in setting the ongoing efficiency challenge, insofar as the Appellants' criticisms of the Innovation Uplift are concerned he simply states:

> "*We acknowledged that it is challenging to estimate with precision the exact impact of innovation funding on efficiency. Hence CEPA approached it from the perspective of adequacy of returns to consumers who provide this funding. This approach required some simplifying assumptions, which CEPA deemed appropriate for the level of accuracy that could be delivered through the exercise. But given the benefits of innovation funding that the companies themselves have acknowledged and its unique character, the assumptions required in this calculation would not in Ofgem's view render the innovation uplift unjustified.*"[186]

(102) This response is plainly inadequate. It not only reinforces the conclusion that GEMA's methodology to derive the level of the Innovation Uplift lacks evidential basis, but also emphasises again that it was based on assumptions that SGN has shown to be false.

(103) Finally, GEMA has not engaged with the critical matters raised at paragraphs 486 to 491 of the NoA (and corresponding sections of the Ongoing Efficiency Report), namely the list of caveats accompanying CEPA's analysis for GEMA's consideration.[187] Some of these caveats are repeated in Keane 1.[188] These caveats highlighted a series of key issues that needed to be addressed if GEMA was to lawfully conclude that an uplift to account for historical innovation funding was justified and, if so, at what level. CEPA's FD report also contained (at footnote 7) the statement "*If Ofgem wants to apply a specific top-up for innovation to the figures presented in this report, then it should take that into account when setting the OE challenge based on the figures presented in the report to ensure that innovation benefits are not counted twice*." GEMA's failure to consider these matters (or to engage in any detailed analysis with respect to them) represents a serious flaw in its approach.

(104) It follows from the foregoing that the implementation of the Innovation Uplift cannot stand. The reasoning and evidence basis put forward by GEMA is insufficient to justify the uplift over and above the Core Ongoing Efficiency Challenge. Consistent with the CMA's decision in respect of the SGBs appeal,[189] it is not an adequate response on GEMA's part to simply appeal to its regulatory discretion in the face of glaring evidential shortcomings.[190]

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[183] Keane 1, paras. 201-202.
[184] Keane 1, para. 202.
[185] SGN NoA, para. 473; Ongoing Efficiency Report, paras. 1.19, 4.3.27-4.3.29 (MR1_1).
[186] Wagner 2, para. 142.
[187] The matters that CEPA suggested GEMA take into consideration included (1) the importance of benefits to consumers other than cost savings – such as environmental benefits and quality of service; (2) if benefits from innovation funding in RIIO-GD1 could fully feed through to benefit consumers before the end of the RIIO-GD2 price control period (noting that, if so, this would result in a lower uplift being required to provide a reasonable ""return" pursuant to CEPA's methodology); (3) if benefits from innovation create cost savings for consumers beyond 20 years into the future (noting that, if so, this would result in a lower uplift being required to provide a reasonable "return" pursuant to CEPA's methodology); and (4) the extent to which any productivity improvements driven by innovation funding in RIIO-GD1 might already be embedded in the baseline spending included in the GDNs' business plans. For further information on these caveats, see the CEPA Draft Determination Report at pages 23-36, 35 and 36.-37 (SGN1_116). Page 29 also references additional issues CEPA advises GEMA to consider pertaining to the RIIO-ED1 Smart Grid Benefits appeal.
[188] Keane 1, para. 41.3.
[189] See *NPG* (2015), para. 142, where the CMA stated that "*there has to be, in our view, a limit to the discretion of regulators to make adjustments to the costs assumed in setting the price control where the consultation process has failed to demonstrate evidence in support of those adjustments*" (SGN1_124). See also the observations made by the CMA in *Firmus Energy* (2017), at paras. 5.146-5.147, as referenced at para. (10) above (SGN1_125).
[190] See Costs Response, para. 167. See also the Appellants' observations on GEMA's regulatory discretion more generally at paras (7) to (13) above.

5.2 GEMA has failed to demonstrate that it has addressed the issue of double counting with productivity improvements already captured in company business plans

(105) GEMA acknowledges in its Costs Response, as it did at FD,[191] that companies have baselined some savings from past innovation projects in their plans.[192] The Ongoing Efficiency Report explained that the inclusion of the Innovation Uplift must therefore lead to some double counting with savings already built into company allowances.[193]

(106) GEMA asserts that it has addressed this issue by stripping out companies' embedded ongoing efficiency assumptions.[194] However, this conflates two separate issues. As explained in the Ongoing Efficiency Report, while stripping out these assumptions may address any double count in relation to companies' own ongoing efficiency assumptions, it does not address the double counting of savings which have already been made in GD1 and were built into the baseline costs which companies submitted in their GD2 business plans.[195]

(107) GEMA also contends that any remaining double-counting is the fault of companies, stating that "*although GEMA requested* companies *to report on innovation impacts within their business plan[s], the companies did not provide clear information on the extent that these planned efficiencies had been included in their business plan forecasts.*"[196] The suggestion that companies were requested to provide information on the extent to which planned efficiencies arising from RIIO-1 innovation funding had been included in their business plan forecasts but that they did not do so, however, is incorrect. The Appellants note in this regard that, as explained in the Ongoing Efficiency Witness Statement:

(i) While there was a reference in the 9 September 2019 and 31 October 2019 iterations of the Business Plan Guidance ("**BPG**") to companies providing information regarding "*interactions with innovation funding*", this was vague and non-specific.[197] In circumstances where the primary purpose of the business plans was for companies to provide detailed forecasts of the costs they expected to incur, if GEMA also wanted companies to provide detailed forecasts of the costs they expected to avoid as a consequence of RIIO-1 innovation funding, it should have clarified this. It did not do so, however.

(ii) In any case, the BPG suggested that the provision of information regarding "*interactions with innovation funding*" was optional. Such a conclusion is reinforced by the fact that the BPG was clear that only one new minimum standard – completely unrelated to the provision of information regarding innovation funding – was introduced in the 9 September 2019 and 31 October 2019 iterations of the BPG.[198]

(iii) No attempt was made by GEMA to follow up with the companies following the submission of their business plans to obtain the information in question, despite it having ample opportunity to do so (and despite it asking over 1,000 supplementary questions on other aspects of companies' submissions as paragraph 61.4 of the Fifth Witness Statement of Dr Wagner ("**Wagner 5**") points out).

(108) The alleged shortcomings in companies' data submissions do not justify GEMA adopting a measure which lacks evidential basis. This is particularly so in circumstances where (i) it failed to request the relevant data from companies and (ii) it failed to follow up with any supplementary questions on the

[191] FD Core Document, para. 5.26 (SGN1_009).
[192] Costs Response, para. 159.
[193] Ongoing Efficiency Report, paras. 4.2.37-4.2.46 (MR1_1).
[194] Costs Response, para. 160. Wagner 2, paras. 88, 104.
[195] Ongoing Efficiency Report, para. 4.2.42 (MR1_1).
[196] Costs Response, paras. 161-165. Wagner 2, paras. 45-49 and 73-83.
[197] RIIO-2 Business Plan Guidance, paras. 2.62-2.63 (SGN1_031).
[198] See RIIO-2 Business Plan Guidance, page 67, which provides that "*The only new requirement that companies have been asked to meet since the Business Plan Guidance was updated in June, is to produce a plan that incorporates a planning scenario of net zero carbon emissions targets by 2050 (2045 for Scotland). This has already been communicated to the companies in a letter dated 8 August 2019 and this Guidance has been updated to reflect this. Otherwise, this updated Guidance does not introduce new minimum requirements on the companies*" (SGN1_031).

point. If GEMA wished to consider adopting such a measure, it was incumbent upon it to gather the evidence basis necessary to substantiate it.

(109) For completeness, to the extent it is suggested that the information that was provided in the Appellants' Business Plan supports the implementation of the Innovation Uplift, this is emphatically rejected. As further explained in the Ongoing Efficiency Witness Statement, the statement in the Appellants' Business Plan that RIIO-1 innovation funding generated "*savings of over £125m in GD1 which will be passed on to customers in full in GD2*" related to savings which are fully reflected in SGN's baseline cost projections, and were not included in SGN's headline 0.83% ongoing efficiency target. Some further savings from RIIO-1 innovation which were not yet implemented by the time of the Appellants' business plan were incorporated in the embedded productivity figure of 0.83%. As paragraphs 18 and 23 of the Ongoing Efficiency Witness Statement observe, this should have been clear to GEMA from the information SGN provided to them.

5.3 GEMA's rebuttals fail to demonstrate that it had sufficient basis on which to conclude that historical innovation funding should lead to higher productivity in the sector relative to the wider economy, in comparator sectors, and beyond the range indicated by EU KLEMS

(110) In the Ongoing Efficiency Report, Frontier observed that "*even if it were true that energy networks spend more on R&D than comparator sectors within EU KLEMS… it is not possible to conclude that the networks can achieve greater overall productivity than those sectors as a result*."[199] It also observed that "*GEMA has… been clear in the past that R&D spending in the network sectors is likely to be lower than comparator sectors absent specific innovation funding (e.g. because periodic price control reviews dampen incentives to undertake R&D projects with longer pay-back periods)*."[200]

(111) GEMA has sought to rebut these points with the observations that:

(i) historical innovation funding through the RIIO framework was "*entirely unique*" to the network companies because – unlike funding for innovation in competitive sectors – it was funded by consumers without risk to the business;[201]

(ii) such funding was "*over and above*" any investment which the network companies might themselves have made to drive innovation. Although the incentives of networks to invest in innovation may differ from those of companies in competitive sectors, networks can and should still invest from their retained profits;[202] and

(iii) network companies are required to share the results of successful innovation projects for the benefit of the whole sector, meaning that the efficiency gains are shared more widely or more quickly than in competitive sectors.[203]

(112) None of these arguments provides a sufficient or evidenced basis on which to apply the Innovation Uplift, or to justify its quantum.

(113) With respect to paragraph (111)(i), it is not clear why the risk profile of the historical innovation funding through RIIO should result in it delivering productivity growth over and above comparator sectors. Further, it is not clear that this different risk profile makes the funding "*entirely unique*" – many competitive sectors have access to government R&D funding, which may also present no risk to the companies receiving the funding. ONS data from 2018 shows that the government and research councils provided £1.7bn in R&D funding to the business enterprise sector in 2018.[204]

[199] Ongoing Efficiency Report, para. 1.1.3(a) (MR1_1).
[200] Ongoing Efficiency Report, para. 1.1.3(b) (MR1_1).
[201] Costs Response, para. 155(1), also Wagner 2, paras. 29, 116-118 and 124.
[202] Costs Response, para. 155(2), also Wagner 2, para. 117.
[203] Costs Response, para. 155(3), also Wagner 2, paras. 120-122.
[204] ONS Gross domestic expenditure on R&D (April 2020), figure 4 (SGN2_010).

(114) With respect to paragraph (111)(ii), GEMA previously explained that the rationale for introducing innovation funding was to fill a gap that existed because monopoly network companies generally undertake less than optimal levels of innovation – not to gift companies funds to carry out innovation "*over and above*" comparator sectors.[205] This is confirmed by Kaul 1, which recognises that network companies "*had poor incentives to invest in innovation*" and that "*by 1999, spending on research and development… had fallen to its lowest level since privatisation*".[206]

(115) With respect to paragraph (111)(iii), the Appellants agree that learnings from network innovation funded projects do have to be shared quickly among licensees. However, GEMA has provided no evidence that the resulting efficiency benefits from that funding will lead to higher productivity growth than achieved in comparator sectors in EU KLEMS.

(116) As noted at paragraph (104) above, consistent with the decision in the SGBs appeal, it is incumbent on GEMA to adduce evidence in support of the adjustments it proposes to make. Adjustments made without such evidential justification cannot be permitted to stand. The foregoing matters demonstrate a further fundamental flaw in the evidence and analysis advanced by GEMA.

5.4 GEMA's attempts to justify the level of the Overall Ongoing Efficiency Challenge are unfounded

(117) Further, GEMA relies on erroneous reasoning and implausible assumptions to justify the unprecedented Overall Ongoing Efficiency Challenge of 1.2% that results from the inclusion of the Innovation Uplift.

(118) First, GEMA argues that its decision was justified "*given the material outperformance of the network companies* against *actual* allowances *at RIIO-1*."[207] Particular emphasis is placed on this at paragraph 142 of the Costs Response, where it is suggested that "*under the extreme assumption that all of the companies' significant underspend against RIIO-1 allowances was attributable to efficiency improvements",* the implied annualised efficiency gains achievable by the companies would be 3.14% for gas distribution and 4.35% for transmission.[208] However, this extreme assumption is demonstrably false and therefore irrelevant for the purpose of justifying the level of ongoing efficiency challenge.

(119) Underspend against actual allowances at RIIO-GD1 was driven by a multitude of factors, including how the RPE allowances were set. It cannot therefore be assumed that all totex underspend was due to efficiency improvements, or suggested that the figures of 3.14% or 4.35% are in any way relevant comparators for the RIIO-2 ongoing efficiency. Nor can GEMA rely upon the assertion that because "*some*" of the underspend can be attributed to efficiency improvements (without any sense of how much), this supports imposing an extremely challenging (unevidenced) ongoing efficiency target. Notably, GEMA's reasoning at DD and FD on ongoing efficiency made no reference to past outperformance. Criticisms of relying on past performance to justify other parts of the price control can be seen in the KPMG Outperformance Wedge Report and the Incentives Report.

(120) Second, GEMA suggests that the CMA's OE challenge of 1% for PR19 supports its headline challenge of 1.2%, noting that the water sector has not received historical innovation funding equivalent to the funding that is said to justify the Innovation Uplift.[209] This reasoning does not hold, however:

(i) It does not remedy or override GEMA's lack of evidential basis for the Innovation Uplift or its quantum, for the reasons referred to above.

[205] Paras. 4.2.26-4.2.29 of the Ongoing Efficiency Report explore the rationale behind the introduction of historical innovation funding in further detail (MR1_1). The report recognises that some comparator sectors may also invest less in innovation than is optimal.
[206] Kaul 1, paras. 17-19.
[207] Costs Response, paras. 74(2), 8(2) and 139-142. Wagner 2, paras. 19 and 130-132.
[208] Costs Response, para. 142.
[209] Costs Response, para. 156. See also para. 75, and Wagner 2, paras. 29 and 119.

(ii) In coming to its decision on the 1% OE challenge for PR19, the CMA made reference to the £200m innovation fund that Ofwat is introducing in PR19.[210] In one of its submissions to the CMA, Ofwat explained that this fund was a measure designed "*to provide increased scope for companies to improve performance and efficiency*."[211] Therefore the CMA's 1% OE challenge appears to already account for efficiency benefits from innovation funding. As we have explained in our previous submissions, innovation funding can, and does, deliver benefits during the same price control period that it is spent.[212]

(121) It is also important to be aware of the incentive impacts that this reasoning, if upheld by the CMA, could have in the water sector – see in this regard paragraph 10 of the Incentives Report.

(122) Third, GEMA continues to rely on its analysis of NGN's historical productivity performance as a "*cross-check*" of its 1.2% headline ongoing efficiency challenge.[213] GEMA's only defence to criticisms of this analysis is a statement that the analysis "*does not appear to be seriously in dispute*". This is not the case. Frontier sets out a number of high-level criticisms of the analysis in the Ongoing Efficiency Report, which GEMA has not engaged with and/or does not appear to dispute.[214] As Frontier noted,[215] GEMA has, in any event, not provided its full analysis, and so it has not been possible for either Frontier or the Appellants to assess this. The Appellants note in this regard that the CMA clearly stated at paragraph 4.570 of its PR19 FD that it is inappropriate to rely on historical productivity growth estimates when setting ongoing efficiency challenges.[216] GEMA's use of historical productivity to justify an unprecedentedly high challenge is clearly inconsistent with this.

(123) Finally, the Appellants note that GEMA's arguments with respect to the Core Ongoing Efficiency Challenge (upon which its attempted justification of the Overall Ongoing Efficiency Challenge, inclusive of the Innovation Uplift, is in turn based) are spurious.

(124) At a general level, GEMA's argument that it has relied on regulatory judgment and taken a qualitative and "*in the round*" approach, so it is not possible to infer what assumptions it has made, is a superficial response and does not adequately engage with Frontier's expert critique of its approach.[217] The limits of GEMA's regulatory discretion are considered in Section 2.1 of this reply. GEMA's claims that it has given material weight to: (i) GO measures (as well as VA), (ii) the targeted comparator set (as well as the economy-wide set) and (iii) TFP measures (as well as LP) meanwhile are logically incoherent in circumstances where it has set the Core Ongoing Efficiency Challenge at the top end of CEPA's recommended range at DD and FD (and thereby implicitly relied on the assumptions and evidence that support the top end of that recommended range). As previously noted, the figures are above the highest EU KLEMS estimates calculated by CEPA, and those top-end estimates are indisputably based purely on VA measures, an economy-wide comparator set, and (for opex) LP measures.

(125) SGN maintains its contention that the addition of the Innovation Uplift to an already stretching Core Ongoing Efficiency Challenge results in an unjustified Overall Ongoing Efficiency Challenge.

[210] PR19 FD, paras. 4.537 and 2.125 (PR19_1).
[211] Ofwat Response to PR19 SOCs (May 2020), para. 2.12 (SGN2_011).
[212] Paras. 481-483 of the NoA and paras. 4.3.21-4.3.25 of the Ongoing Efficiency Report (MR1_1).
[213] Costs Response, paras. 139-142, Wagner 2, paras. 128 and 162.
[214] Ongoing Efficiency Report, para. 4.5.14 (MR1_1). Specifically, Frontier noted that (i) many of the ongoing efficiency gains NGN achieved in GD1 were driven by changes that are not repeatable, (ii) NGN's shareholders provided funding at GD1 (outside totex allowances and the regulatory ringfence), which may not be available going forward, and (iii) GEMA appears to have adopted an overly simplistic way of looking at productivity.
[215] Ongoing Efficiency Report, para. 4.5.14 (MR1_1).
[216] The CMA stated as follows (emphasis added): "*We decide not to place weight on these historical estimates of productivity growth in the water industry. This is because these estimates are unlikely to be reliable for the purposes of projecting future productivity gains. The high productivity growth in the early years may at least partially be explained by efficiency catch-up after privatisation meaning the estimates will be biased upwards. Similarly, for the more recent data the Frontier Economics report noted that quality improvements had not been fully accounted for. This means that the more recent data should be viewed more cautiously due to downwards bias. Even if we assume these data issues are immaterial, benchmarking to a competitive benchmark is more appropriate to prevent any potential periods of underperformance being established as a future target*."
[217] Costs Response, para. 161.

6 Ground 4 – Efficiency Benchmark (85th percentile)

(126) In its NoA, SGN submitted that GEMA erred in its approach to setting and applying the efficiency benchmark at FD in two respects: First, GEMA's modelling is insufficiently robust to support the level of benchmark (**Ground 4A**). Second, GEMA has wrongly applied the benchmark to costs that have been removed from the regression model to account for regional differences (**Ground 4B**).[218]

6.1 Ground 4A

(127) GEMA contends that setting a "*tough*" efficiency target is within the scope of GEMA's regulatory discretion,[219] and downplays the relevance of model robustness, noting that (i) it was one of a range of factors (fifth in the list) which it took into account;[220] and (ii) its confidence in the model was "*principally driven by the materially improved data*" since GD1.[221]

(128) SGN maintains that the GD2 model is not sufficiently robust for GEMA to impose an efficiency frontier beyond the upper quartile. Neither GEMA's regulatory discretion nor the additional factors which GEMA relied upon, including GEMA's desire to set a "*tough*" challenge, address or compensate for this error. GEMA's increased confidence in the models is not supported by the evidence it relies upon.

6.2 Inherent limitations in the model

(129) **GEMA concedes that the models cannot perfectly identify relative efficiency between companies, that there are imperfections in the models[222] and recognises that model robustness is a relevant factor in determining the efficiency benchmark**.[223] Yet GEMA simultaneously asserts that it could, in fact, have set the efficient frontier benchmark using the costs of the first placed company.[224] This is plainly wrong. Doing so would guarantee that some of the "catch-up" challenge imposed by GEMA was not a reasonable or legitimate estimate of managerial inefficiency but rather included a component of normal statistical error.[225] This is precisely why regulators, including GEMA, have typically set the efficient frontier no higher than the level of the upper quartile company and why appropriately recognising model limitations is so critical in setting the level of catch-up challenge.[226]

(130) **GEMA accepts that using a longer time series does not overcome the inherent limitations of a small cross-sectional sample size, yet relies on it as evidence of model robustness**.[227] As Frontier explains[228] and Dr Wagner accepts,[229] extra years of data cannot overcome the limitations of a small sample size. However, as explained in the Frontier Efficiency Benchmark Report, GEMA in fact had a similar number of years of data available at GD1 (12 years of data) as it does in GD2 (13 years of data).[230] At GD1, however, GEMA concluded that using fewer years of forecast data than it had available actually enhanced its model robustness. It is therefore incorrect for GEMA to suggest that availability of an additional year of data now will automatically enhance the robustness of the model. In any event, as explained by Frontier, only a limited amount of additional information is added when additional years of data are included in the benchmark model.[231]

[218] SGN NoA, para. 46. Costs Response, para. 313.
[219] Costs Response, para. 256.
[220] Costs Response, para. 271.
[221] Costs Response, para 261(1).
[222] Costs Response, paras. 287 and 261(3).
[223] Costs Response, para. 287.
[224] Costs Response, para. 257.
[225] Catch Up Efficiency Reply Report, para. 10 (MR3_1).
[226] Catch Up Efficiency Reply Report, para. 11 (MR3_1), Frontier Catch-up Efficiency Report, paras. 4.2.1-4.2.2 (MR2_1).
[227] Costs Response para. 295. See also paras. 271(ii), and 281.
[228] Frontier Catch-up Efficiency Report, para. 4.3.16 (MR2_1).
[229] Wagner 5, para. 87.
[230] Frontier Catch-up Efficiency Report, para 4.3.27 and footnote 79 (MR2_1).
[231] Catch Up Efficiency Reply Report, para. 22 (MR3_1), Frontier Catch-up Efficiency Report, paras. 1.1.6 and 4.6.2 (MR2_1).

(131) In any event, one additional year of data available in GD2 cannot have had any meaningful bearing on model robustness. Accordingly, GEMA was wrong to rely on extra years of data to overcome the accepted limitations in cross-sectional sample size, and its reasoning does not stand up to scrutiny.

(132) **GEMA also ostensibly accepts the limitations of a small cross-sectional sample size on explanatory variables**,[232] effectively reinforcing SGN's argument, namely that the cross-sectional sample is so small that significant compromises (such as using a CSV rather than more variables) have had to be made and that those compromises naturally limit the confidence that can reasonably be placed in the model (in addition to the sample size itself being confidence-limiting).

6.3 GEMA's appeal to data quality cannot overcome the inherent limitations in the model and is, in any event, unsupported

(133) GEMA repeatedly cites improved data quality as its key reason to believe it had a more robust model at GD2 than GD1.[233] SGN agrees that there have been some improvements in the data over time, however strongly disagrees that GEMA has sufficient basis on which to conclude that data quality was a "*key material distinction*" in its cost modelling relative to GD1.[234] GEMA's claims are largely assertions, are not supported by actual comparisons between GD1 and GD2 data and, for the reasons set out in the Data Quality and Process Witness Statement, are disputed by SGN.[235] This includes GEMA's attempt to paint its GD2 error correction process as a reason to have increased confidence in its models, rather than evidencing their lack of robustness.

(134) GEMA has emphasised a significant number of judgments it has had to make in determining how to interpret data, apply normalisations and adjustments to the data, or specify the regression model.[236] Such judgments are required because there is a degree of ambiguity and therefore necessarily a margin of error. This is a further reason to view the model's output with caution and reflect the model's limitations when setting the benchmark.

(135) In any event, "*improved data quality*" is a general, vague and nebulous concept. It is hard to see how such improvements could be deemed "*material*" as opposed to marginal or incremental. There is no evidence that data quality had so substantially improved that GEMA was now able to have "*a high degree of confidence in the data which was inputted into its regression analysis*", or which entitled GEMA to assert that this data "*was apt to lead to more robust results*" relative to GD1.[237] Moreover, data improvements alone could not overcome the inherent limitations in the model described above.

6.4 GEMA's assessment of statistical testing and other aspects of model robustness is partial and flawed

(136) Frontier has reviewed GEMA's additional evidence and reasoning in relation to statistical testing and other aspects of model robustness and concludes that GEMA's response does not change any of the conclusions in its previous report, namely that the model is not sufficiently robust to move beyond upper quartile.[238] See the Catch Up Efficiency Reply Report, which address GEMA's submissions on the following:

(i) GEMA's comparison of the DD and FD models;[239]

[232] Costs Response, para. 298.
[233] Costs Response, paras. 276, 286, 302.
[234] Costs Response, para. 276.
[235] Data Quality and Process Witness Statement, paras. 9-19 (SGN_CAP2). See also SGN NoA, paras. 579-581 and Cost Assessment Process Statement (SGN_CAP1).
[236] Costs Response, paras. 456, 307, 376, 438, 388, 349, 350, 351(3).
[237] Costs Response, para. 277.
[238] Frontier Efficiency Benchmark Report (MR1_1).
[239] Catch Up Efficiency Reply Report, paras. 25-27 (MR3_1).

(ii) GEMA's efficiency score variability test in the GD1 and GD2 models;[240]

(iii) GEMA's reliance on normalisations and pre-model adjustments;[241]

(iv) GEMA's reliance on improvements in cost-driver specifications;[242] and

(v) GEMA's misunderstanding of Frontier's argument on the increased risk of using both historical and forecast data for model robustness.[243]

6.5 GEMA's appeal to "a range of other factors" to justify its decision is flawed and does not compensate for the limitations in the model

(137) **GD1 Outperformance**. GEMA lists past outperformance by GDNs[244] to be of "*particular relevance*" in setting the efficiency benchmark and provides updated analysis comparing actual vs. allowed and GD1 business plan submitted (forecast) spend in its Table 1,[245] noting that every GDN is forecast to outperform against GD1 allowances and their original GD1 *forecast* costs[246] and that "*outperformance should be possible [in GD2] notwithstanding the measures that have been put in place at GD2 to mitigate it*".[247]

(138) First, companies earn returns according to their performance against their allowances, not against their business plan forecasts/projections. Therefore, the original GD1 BPDT forecast costs have no bearing on the reasonableness of the GD2 benchmark.

(139) Second, GEMA has introduced a significant number of changes elsewhere in the cost setting process for GD2 which represent a significant tightening relative to GD1 (even before the application of the 85th percentile). As explained in Incentives Report, [248] GEMA's analysis appears to account for just two of the changes that will directly affect the scope for totex outperformance in GD2 relative to GD1. Despite only adjusting for these two policy changes, the consistent and material outperformance GEMA says was present in RIIO-1 in fact disappears. This further undermines GEMA's reliance on GD1 outperformance as a justification for the arbitrary reductions in allowances.

(140) Third, GEMA cites outdated RPEs analysis produced at the mid-point of the price control, based largely on forecasts, to support its point. However, GEMA's own up-to-date figures show RPEs represented c.50% of GD1 outperformance rather than the c. 33% (i.e. 4% out of 12% total) which GEMA cites.[249]

(141) In summary, SGN disputes the notion that GD1 outperformance should have had a material bearing on GEMA's decision. Even if GD1 performance were relevant, GEMA's analysis is partial and therefore does not justify a move beyond the upper quartile.

(142) **Companies' stated ambitions**: GEMA states that the second primary factor which influenced its decision was the fact that all or most GDN(s) had expressed a desire in their Business Plans to operate at the efficiency level of the frontier network company.[250]

(143) However, companies' efficiency ambitions in their business plans can have no material bearing on the specific benchmark that GEMA set at FD in circumstances where the statements were made prior to GEMA setting allowances that made material reductions to business plans, and before companies had

[240] Catch Up Efficiency Reply Report, paras. 28-32 (MR3_1).
[241] Catch Up Efficiency Reply Report, paras. 33-36 (MR3_1).
[242] Catch Up Efficiency Reply Report, paras. 37-41 (MR3_1).
[243] Catch Up Efficiency Reply Report, paras. 42-44 (MR3_1).
[244] Costs Response, paras. 261(2)(a) and 287.
[245] Costs Response, page 102.
[246] Costs Response, para. 266.
[247] Costs Response, para. 267.
[248] Incentives Report, para. 23 (MR4/1).
[249] Incentives Report, para. 12 (MR3_1).
[250] Costs Response, paras. 261(2)(b), 268 and 286.

sight of GEMA's models (and therefore deemed relative efficiency). SGN therefore maintains that GEMA erred in placing material reliance upon this factor to support an efficiency frontier at the 85th percentile.

(144) **Proxy for a competitive market**. GEMA further attempts to justify the benchmark as designed to "*ensur[e] monopoly companies have the same incentives to deliver efficiency savings as they would in a competitive market*".[251] However, (i) GEMA does not demonstrate that the 85th percentile is a more accurate proxy for the competitive market than the upper quartile; (ii) it is a meaningless comparison as there is no benchmarked cost allowance in a competitive market; and (iii) *incentives* to deliver efficiency saving in regulated sectors is entirely independent of the *level* at which cost allowances are set.[252]

(145) **Comparison with GD1 benchmark in absolute terms**. Finally, GEMA adduces new evidence that its GD2 benchmark was not materially more challenging than the RIIO-GD1 benchmark when considered in absolute terms (and therefore within a reasonable range of previous benchmarks).[253] Frontier explains why this comparison and reasoning is flawed:[254]

(146) First, GEMA was wrong to take comfort from its analysis as a matter of principle. The *appropriate* absolute level of catch-up may differ between price controls.

(147) Second, the analysis appears to contain a data error. Once corrected, all the GD1 benchmark efficiency scores are above the GD2 benchmark score.

(148) Third, the analysis uses the February 2021 error-corrected FD models (*after* GEMA's decision to move to the 85th percentile). The equivalent GD2 DD and FD values are substantially below any benchmark levels at GD1, and contrary to Dr Wagner's suggestion, could not have provided comfort to GEMA at the *time* GEMA decided to move to the 85th percentile.[255]

(149) Fourth, GEMA's reasoning is internally inconsistent. GEMA states its use of the 85th percentile was intended to be "*tough*", using "*a higher percentile than was used in the previous price control*"[256] in order to "*set a challenging efficiency target in GD2 which would not be easily outperformed*."[257] However, GEMA performed the cross-check designed above to ensure its benchmark was "*not materially more challenging than the benchmark set at RIIO-GD1*", a result from which GEMA "*took comfort*".[258] This reasoning does not support GEMA's choice of benchmark. Rather it suggests that the upper quartile in fact already met GEMA's objective of setting a "*tough*" challenge (without creating the additional risks of moving it higher in light of modelling limitations).

(150) GEMA also submits in various parts of its response that the introduction of the glidepath mitigated these risks and resulted in an "in the round" decision that was fair.[259] However, SGN contends that any move beyond the upper quartile is not justified due to the modelling limitations, a point which the glidepath does not remedy.

(151) Overall, GEMA's reliance on "a wide range of factors" cannot compensate for the limitations in the model, the critical factor for setting the efficiency benchmark.

6.6 Ground 4B

(152) SGN contends that GEMA wrongly applied an efficiency cut to costs that were removed from the regression model to account for regional differences.[260]

[251] Costs Response, para. 270. See also 286 (v).
[252] Catch Up Efficiency Reply Report, footnote 14 (MR3_1).
[253] Costs Response, paras. 261(4),10(3), 273, 288 and 302 and Wagner 5, para. 79.
[254] Catch Up Efficiency Reply Report, paras. 45-53 (MR3_1).
[255] See Wagner 5, para. 80 and Frontier Efficiency Benchmark Report, paras. 4.5.16-4.5.18 (MR1_1).
[256] Costs Response, paras. 256-258.
[257] Costs Response, para. 287.
[258] Wagner 5, para. 79
[259] Costs Response, paras. 297, 308 and Wagner 5, paras. 14.4, 22.2 and 83(d).
[260] SGN NoA paras. 589-593.

(153) SGN disagrees with GEMA's statement that the purpose of regional factor adjustments is to "*adjust modelled industry average costs*".[261] Rather it removes costs from the data for specific companies prior to undertaking the comparative analysis, where they are non-controllable and therefore unsuitable for comparison.

(154) GEMA has accepted that these additional, atypical costs are non-controllable[262] yet now speculates (but does not evidence) that companies **may** nevertheless be able to achieve efficiencies with respect to these costs by doing work using less labour, or adopting certain working practices.[263] Dr Wagner makes similar assertions.[264]

(155) Dr Wagner also asserts that the efficiency estimate relates to total submitted costs,[265] despite the fact that the regression analysis (by necessity) calculates efficiency scores using normalised costs, and therefore does not directly reveal anything about whether or not the normalised-out regional costs are efficient or otherwise.

(156) In short, GEMA's defence in relation to Ground 4B is incoherent and unsupported. Both the Response and Dr Wagner's testimony amount to no more than assertions that GEMA did indeed apply an efficiency cut to non-controllable regional factors – no specific justification is provided for *why* that was reasonable or achievable in practice, beyond the highly speculative statement that the GDNs "*may*" be able to reduce non-controllable costs.

6.7 Materiality

(157) GEMA contends that SGN's grounds should be dismissed on the basis of low materiality,[266] citing the same arguments which it has raised previously.

(158) SGN challenged GEMA's representations on materiality in its letter to the CMA of 24 March 2021,[267] and reiterated that the issue is one of economic or regulatory principle which could have an even more significant impact on future price controls. The CMA agreed that "*SGN has raised concerns regarding an important and material part of GEMA's decision*".[268]

(159) GEMA itself clearly sees the GD2 decision as establishing a precedent for future price controls, citing the GD2 decision as a "*continuum*"[269] from the upper quartile at GD1 to the 85th percentile by the end of GD2.[270] While SGN disagrees that its decision represents a natural progression over time, it is clear from these statements that GEMA proposes to 'lock-in' the 85th percentile as the starting point for future price controls – a damaging precedent (on both Grounds 4A and B) should the CMA allow GEMA's decision to stand.

[261] Costs Response, para. 310(4). Wagner 5, para. 103.
[262] Costs Response, paras. 27, 261(1)(ii), 278(6) and 489. See also Wagner 5, para. 100.
[263] Costs Response, para. 310(2).
[264] Wagner 5, para 102.
[265] Wagner 5, para. 100.
[266] Costs Response, para. 313.
[267] SGN Response on GEMA Representations on Permission to Appeal (SGN2_012). See also SGN NoA, paras. 525-529. SGN has been unable to replicate Dr Wagner's calculation of quantum (Wagner 5, paras. 79 and 89). As regards Ground 4A Frontier calculates that using the upper quartile would result in a c.£[redacted] increase in allowances for SGN. As regards Ground 4B, an update to the calculation of quantum of this error is provided in the Appendix to Frontier 2.
[268] CMA decision on permission to appeal, para. 10 (SGN2_013).
[269] Costs Response, para. 264. See also Wagner 5, para. 11.
[270] Catch Up Efficiency Reply Report, para. 53 (MR3_1).

7 Statement of Truth

The Appellants believe that the facts stated in this Reply are true.

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Signature of Authorised Representative

Name of Authorised Representative: David Handley

Date: 10 May 2021

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Signature of Authorised Representative

Name of Authorised Representative: Michael Bedford

Date: 10 May 2021

for and on behalf of Southern Gas Networks plc and Scotland Gas Networks plc