IN THE MATTER OF AN APPEAL UNDER SECTION 23B OF THE GAS ACT 1986

SOUTHERN GAS NETWORKS PLC

SCOTLAND GAS NETWORKS PLC

Appellants

-and-

GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

PR19 SUBMISSION

23 April 2021

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1 Introduction

(1) This submission is filed on behalf of Southern Gas Networks plc ("**Southern**") and Scotland Gas Networks plc ("**Scotland**") (together "**SGN**" or the "**Appellants**"), addressing the implications of the CMA's decision in the PR19 Final Report that was published on 9 April 2021 (the "**PR19 FD**"). PR19 FD is provided to the CMA as **Exhibit PR19_1.**

(2) In SGN's Notice of Appeal (the "**SGN NOA**"), SGN referred to the CMA's PR19 Provisional Findings (the "**PR19 PFs**"), where relevant, as additional evidence to support its grounds of appeal.

(3) While the PR19 FD concerns a different legal regime and sector, certain elements are clearly relevant to the CMA's consideration of SGN's grounds of appeal, recognising the importance of coherent and consistent regulation.

(4) As requested by the CMA, this submission is intended to clarify and update the case outlined in the SGN NOA. The Appellants do not consider that the substance of the SGN NOA needs to be updated given that the conclusions in the PR19 FD, where relevant, continue to support SGN's arguments. To assist the CMA, the **Annex** to this submission includes a table, updating references in the SGN NOA to the PR19 PFs and the CMA's Cost of Capital Working Papers, where the substance of the reference is retained in the PR19 FD.

(5) In the interests of brevity and to assist the CMA, this submission is limited to key areas relevant to SGN's grounds of appeal.

2 Ground 1: Cost of Equity

(6) At a headline level, SGN notes that the CMA's conclusions on cost of equity support the key arguments articulated in the SGN NOA, recognising the different legal regimes and divergences between the sectors. Notably, the CMA's cost of equity estimate in PR19 is higher than GEMA's estimate, notwithstanding the higher risk in the energy sector as explained in SGN's Notice of Appeal.[1]

(7) SGN sets out below some key observations on the PR19 FD, which explain that no changes to the SGN NOA are therefore required in respect of Ground 1.

2.1 Risk-free rate (RFR)

2.1.1 SGN submissions

(8) GEMA set the RFR by placing sole reliance on a 1-month trailing average of inflation-linked gilts (ILGs). The SGN NOA (Error 1C of Ground 1) and Section 6 of the KPMG Cost of Equity Report set out the Appellants' arguments in relation to GEMA's estimation of RFR.

(9) In brief, SGN submitted that: ILGs include distortions and do not meet the full criteria for the yield on a zero beta asset as they are not representative of the risk-free borrowing rate; GEMA's reasoning to reject placing weight on AAA-rated bonds was insufficient; the argument that AAA-rated bonds would introduce distortions, in particular inflation risk premia, ignores the fact that all available RFR benchmarks, including ILGs, are subject to some degree of distortion;[2] GEMA failed to consider the relevance of the 'borrowing RFR' – the marginal investor is an industry-wide concept, not a sector-specific concept;[3] and finally,

[1] SGN NOA, paras. 205-206.

[2] SGN NOA, para. 228.

[3] SGN NOA, paras. 225-226.

GEMA's own cross checks did not corroborate its RFR estimate based on ILGs because: (i) SONIA is not an appropriate benchmark for a long-term RFR, and (ii) yields on nominal gilts are over 50bps above ILGs.[4]

2.1.2 Observations on PR19 Approach

(10) In the PR19 FD, the CMA notes that "*ILGs are not a perfect proxy for the RFR that should be used in the CAPM for relevant market investors*"[5] and that corporate AAA-bonds are an imperfect proxy for the RFR.[6] The CMA therefore constructed a range for the RFR based on yields from ILGs and AAA-rated bonds, concluding that it was likely that the RFR sits above the return available from ILGs but below the return on AAA bonds.[7]

(11) The CMA states that the RFR needs to capture the risk-free rate for a range of market participants, not just net lenders or the UK government, and was not convinced of the need to conclude on the exact nature of the marginal investor. Instead it framed the problem as trying to calibrate the estimate of the RFR acknowledging that the ILG rate is available to all lenders but only one borrower, and that even the highest quality borrowers in the country could not access this rate.[8]

(12) The CMA recognises arguments of there being a 'convenience yield' associated with government debt, which explains that the sovereign rate is lower than an equivalently rated corporate borrower. It also recognises that AAA-rated debt could contain (albeit limited) default risk or illiquidity premium. However, the CMA chose not to adjust either the ILG or the AAA-rated debt, instead choosing a point estimate that was above the ILG and below the AAA-rated debt to prevent the risk of a "double count" of the required adjustment.[9]

(13) The CMA rejected the SONIA swap rate as a cross check on the RFR on the basis that it is inherently a short-term rate and that investors transacting in such swaps would need to post collateral, making it unsuitable as a benchmark for a long-run RFR.[10] The CMA further concluded that the yield on nominal bonds did not provide additional evidential value over and above ILGs, given the uncertainty over the size of inflation and liquidity premia distortions.[11]

(14) In summary, the CMA's conclusions are consistent with SGN's position in the SGN NOA and the KPMG Cost of Equity Report regarding GEMA's error in setting the RFR. Further, given the RFR is a market-wide parameter ("*average of the RFR of all individual investors*"[12]), the CMA's conclusions on RFR have a clear read across to the energy appeals.

2.2 Total Market Return (TMR)

2.2.1 SGN submissions

[4] SGN NOA, para. 230.

[5] PR19 FD, para. 9.103 (PR19_1).

[6] PR19 FD, para. 9.152 (PR19_1).

[7] PR19 FD, para. 9.264 (PR19_1).

[8] PR19 FD, para. 9.159 (PR19_1).

[9] PR19 FD, paras. 9.235-9.240 (PR19_1).

[10] PR19 FD, para. 9.196 (PR19_1).

[11] PR19 FD, paras. 9.183-9.185 (PR19_1).

[12] PR19 FD, para. 9.263 (PR19_1).

(15) GEMA estimated a TMR of 6.5%, real CPIH, placing most weight on the long-run ex post method. The SGN NOA (Error 1A of Ground 1) and Section 5 of the KPMG Cost of Equity Report set out the Appellants' submissions in relation to GEMA's approach.

(16) In brief, SGN submitted that GEMA had underestimated the real TMR by:

(a) **Deflating historical nominal returns by placing sole reliance on an inflation series which includes a modelled (unofficial) 'back cast' of CPI data for c.40 years of the period.** GEMA failed to consider the large degree of uncertainty around the accuracy of the back cast and did not place any weight on RPI deflated returns.[13] Further, GEMA's assertion that USD returns on UK equities provide a cross-check on its choice of CPI inflation is selective – evidence from a wider range of common-law countries show materially higher returns than GEMA's TMR.[14]

(b) **Relying on a biased method to average annual returns data, failing to have regard to robust alternatives.** GEMA started with geometric average returns and applied an uplift of 1.25 percentage points at the lower end of the 1-2 percentage point range endorsed by the Wright et al Report.[15] It incorrectly relied on downwardly biased PwC analysis which suggested that an uplift of even 0.3 percentage points was supportable.[16]

2.2.2 Observations on PR19 Approach

(17) It is uncontroversial that the TMR is a *market wide* parameter used in the CAPM framework used in both RIIO-2 and the PR19 price controls.

(18) As detailed below, the PR19 FD corroborates SGN's arguments regarding the errors in GEMA's approach. There are important differences between the CMA's approach and GEMA's approach, which support SGN's submissions that GEMA made material methodological and evidential errors in estimating the TMR.

(i) Deflating historic returns

(19) The CMA considers that for the period of 1947 onwards, both the RPI and CPI series (including the CPI 'back cast') have "*relevant strengths and weaknesses in the context of estimating real historic returns*".[17] The CMA therefore placed weight on estimates calculated on the basis of both RPI and CPI inflation series.[18] This supports SGN's position that GEMA was wrong to place sole reliance on the CPI series to deflate historic returns from 1947 onwards.[19]

(20) The CMA also considered the strength of cross-checks from international comparisons. However, the CMA observes that it is difficult to draw robust conclusions from such comparisons, noting that "*while US dollar returns on the UK market could be considered as a cross-check on the CPI/RPI debate, it relies on purchasing power parity holding and we consider that to be a strong assumption*".[20] Further, it acknowledges that there is extensive

[13] SGN NOA, paras. 160-169.

[14] SGN NOA, para. 170.

[15] SGN NOA, paras. 179-181.

[16] SGN NOA, paras. 184-185.

[17] PR19 FD, para. 9.295 (PR19_1).

[18] PR19 FD, para. 9.296 (PR19_1).

[19] SGN NOA, paras. 160-169.

[20] PR19 FD, para. 9.392 (PR19_1).

literature on the benefits of common-law systems for investors, which might suggest that returns in common-law countries, including the UK, could be expected to outperform the global average. As set out in the KPMG Cost of Equity Report, if international data is to be used to inform the TMR estimate, a wider set of comparators from a range of equity markets comparable with the UK and the US should be used.[21]

(ii) Averaging deflated returns

(21) When assessing the appropriate methods of averaging deflated returns, the CMA considered that on balance, use of the arithmetic mean is preferable due to its simplicity and transparency,[22] but that there is no particular reason to focus on estimates of the arithmetic mean of *annual* returns. Therefore, the CMA considered both overlapping and non-overlapping estimators of returns over 10- and 20-year holding periods, to reflect the long holding periods of investors in UK water companies and to ensure consistency across other elements of the cost of capital. Importantly, it is the CMA's view that it is "*more appropriate to take into account all of the above estimates, i.e. both 10- and 20-year overlapping and non-overlapping estimates, in coming to a view on the range of reasonable TMR estimates, rather than to exclude some of these estimates as to do so may risk 'cherry-picking' data*."[23] This corroborates SGN's position that GEMA's reliance on a single method of averaging, namely an adjusted geometric average, was inappropriate.[24]

(22) The CMA also considered the PwC analysis relied on by GEMA[25] and found that the 1.2% estimate had been calculated "*using a standard variance formula which does not take into account the fact that the overlapping observations are not independent of one another*".[26] Following submission of PwC's revised analysis, the CMA observed significant fluctuation with an increase in the holding period and did not find the estimates to provide a robust basis for its assessment.[27] This supports the SGN submission and KPMG Cost of Equity Report analysis that shows that the analysis was downwardly biased due to the (incorrect) use of overlapping returns.[28]

(iii) Other observations

2.3 SGN notes a material change in the CMA's position on the weight and estimation approach to long-run ex ante estimates in the PR19 FD compared to the PR19 PFs. This change is not directly relevant to the Appellant's case about the errors made by GEMA, given that GEMA, the Appellant, and other appellants place most weight on long-run ex post rather than long-run ex ante analysis. Nevertheless, following discussions with our expert witnesses, including KPMG and Prof. Alan Gregory, we have some methodological concerns with the CMA's new approach to the long run ex ante data, and maintain our position that most weight should be placed on the long run ex post data.

2.4 Beta

2.4.1 SGN submissions

[21] KPMG Cost of Equity Report, para. 5.5.13 (KPMG_COE1/1).

[22] CMA PR19 FD, para. 9.328 (PR19_1).

[23] CMA PR19 FD, para. 9.333 (PR19_1).

[24] SGN NOA, para. 182 (PR19_1).

[25] SSMD Finance Annex, para. 3.89 and Figure 5 (SGN1_021).

[26] PR19 FD, para. 9.338 (PR19_1).

[27] CMA PR19 FD, para. 9.337 (PR19_1).

[28] SGN NOA, para. 185; KPMG Cost of Equity Report, para. 5.460 (KPMG_COE1/1).

(23) The SGN NOA (Error 1B of Ground 1) and Sections 7 and 8 of the KPMG Cost of Equity Report set out the Appellants' submissions in relation to beta.

(a) **GEMA's choice of comparators do not capture risk in the energy sector.** GEMA placed far too much weight on the betas of listed water companies, underestimating the higher systematic risk that energy companies (and GDNs in particular) face.[29]

(b) GEMA's beta estimates also contain a number of empirical errors. In particular, GEMA used data up to October 2020, failing to take due regard of the impact of Covid-19. It also placed weight on betas estimated over a 10-year period, failing to account for structural breaks.[30]

2.4.1 Observations on PR19 Approach

(24) Given that the beta is a means to measure sector-specific risk, there are limits to the relevance of the PR19 decision. In particular, the CMA's approach to comparator selection is not relevant to GEMA's approach for GDNs – the presence of listed water companies means the comparator selection is uncontentious in water and there is no read across to the Appellants' primary case on beta.

(25) The CMA has itself recognised that the "*risks associated with water are different to energy*".[31] It is also relevant to note that GEMA's estimates of beta are higher than the CMA's in PR19 (at PFs or FD), reflecting the inherent relative risk faced by the energy sector.

(26) The read across from PR19 FD is therefore limited to the approach to measurement / quantification of beta. The KPMG Cost of Equity Report submitted with the SGN NOA, includes submissions on the CMA's structural break analysis,[32] the use of rolling betas and the impact of Covid-19[33] in some detail and SGN maintains its arguments on those points.[34]

2.5 In this regard, we also note that the CMA has estimated betas which are clean of Covid-19 effects, being up to February 2020, and which include the effects of Covid-19, being up to December 2020. The CMA has then removed outlier beta estimates, which has the effect of removing outlier estimates calculated to December 2020 i.e. removing estimates distorted by Covid-19. This is evidenced by the CMA's final range of asset beta estimates of 0.28 - 0.30 (zero debt beta basis)[35] being consistent with the beta estimates calculated with a pre-Covid-19 cut-off date of February 2020. By contrast, as argued by SGN,[36] GEMA's approach places undue weight on the Covid-19 period by not adjusting the time window over which it estimated betas to account for the effects of Covid-19 on beta.[37]

2.6 Aiming up

2.6.1 SGN submissions

[29] SGN NOA, paras. 200-207.

[30] SGN NOA, para. 208.

[31] PR19 FD, para. 9.174 (PR19_1).

[32] The CMA does not take into account evidence of a structural break for UK water companies around the PR14 period, which reduces the beta estimate. PR19 FD, para. 9.467 (PR19_1).

[33] The CMA has recognised that this type of economic crisis is relatively rare and that it is likely to be over-weighted in their range of beta estimates. PR19 FD para. 9.493 (PR19_1). The CMA nevertheless continues to consider it to be a systematic risk event which cannot be fully excluded. PR19 FD, para. 9.461 (PR19_1).

[34] *See* KPMG Cost of Equity Report, Section 8 (KPMG_COE1/1); SGN NOA, para. 208.

[35] PR19 FD, Table 9-16 (PR19_1).

[36] SGN NOA, para.208(i), citing paras. 8.3.10 – 8.3.13 of the KPMG Cost of Equity Report (KPMG_COE1/1).

[37] SGN NOA, para.198(ii).

(27) The SGN NOA (Error 2 of Ground 1) and Section 9 of the KPMG Cost of Equity Report set out the Appellants' submissions in relation to aiming up. In brief, it was submitted that GEMA wrongly decided not to aim up in setting the cost of equity, failing to have regard to material considerations that support aiming up above the mid-point: (a) parameter uncertainty, (b) the asymmetric risk faced by GDNs, (c) the value of real options, and (d) ensuring equity financeability. GEMA did not explicitly aim-up to reflect the asymmetric consequences for consumers of getting cost of equity that is too high versus too low. Neither did it reflect the asymmetric risk faced by GDNs due to Net Zero and the asymmetric design of the package or the need to aim up to ensure financeability of the notional company.

2.6.2 Observations on PR19 Approach

(28) The PR19 FD recognises the need to aim up in various circumstances including: (a) to promote investment; (b) reduce the risk of exit of capital over time from the sector; (c) to account for parameter uncertainty; and (d) asymmetry of risk. In particular, the CMA has noted that:

(a) "*expectations of insufficient investment returns based on the current cost of capital may discourage companies from identifying and proposing otherwise desirable investment projects*".[38]

(b) "*Potentially more important than the risk of under-investment in specified projects or areas of network resilience is that a low WACC over multiple periods will lead to an opex bias and a gradual reduction in investment, with limited RCV growth*".[39]

(c) "*Our primary concern in setting the point estimate in the upper half of the range is to provide sufficient incentives for incremental investment, which will earn the allowed cost of capita*l."[40]

(d) "'In our view, a package of asymmetric incentives should be considered as part of an 'in-the-round' assessment of the package, including the cost of capital. If the package includes significant asymmetric incentives, such as large penalty-only incentives, then the expected return will be lower than the allowed cost of capital."[41]

(29) The CMA's decision to aim up, given the downsides arising from one off and gradual underinvestment, is an important point of principle that is consistent with the case set out in the SGN NOA. The degree of aiming up for uncertainty and asymmetric risks may require consideration of sector-specific factors. As outlined in the SGN NOA, there is a particular need in the gas sector to meet the challenges related to Net Zero and climate change, and asset stranding risks in the sector add to the asymmetric risk faced by SGN.[42]

(30) On the basis of its assessment, in PR19 the CMA used a cost of equity point estimate of 25 bps above the middle of its range. The KPMG Cost of Equity Report, while using a slightly different methodology and accounting for risks facing the sector, proposed aiming up by 40bps, to provide a return to compensate investors for expected losses and uncertainty in the cost of equity.[43]

[38] PR19 FD, para. 9.1273 (PR19_1).

[39] PR19 FD, para. 9.1275 (PR19_1).

[40] PR19 FD, para. 9.1317 (PR19_1).

[41] PR19 FD, para. 9.1306 (PR19_1).

[42] SGN NOA, para. 257.

[43] SGN NOA, para. 278.

3 Ground 2: Outperformance wedge

(31) SGN notes that the CMA has expressed caution in the PR19 FD regarding the extent to which historical performance can be seen to provide a guide to future performance,[44] as well as recognising the benefits of incentive based regulation and outperformance more generally.[45] The CMA's position on these issues in the PR19 FD is consistent with the objections raised by SGN to GEMA's outperformance wedge in its Ground 2. No changes to the SGN NOA are therefore required in respect of Ground 2.

4 Ground 3: Ongoing efficiency

4.1 SGN submissions

(32) GEMA's FD set an overall ongoing efficiency challenge of 1.25% per annum for opex, and 1.15% per annum for capex and repex, for all network companies.[46] These figures were based on:

(a) a core challenge of 1.05% for opex and 0.95% for capex/repex, (the "**core ongoing efficiency challenge**"); and

(b) a further uplift of 0.2%, representing additional productivity growth that GEMA considers companies can deliver as a result of innovation funding provided in RIIO-GD1 (the "**innovation uplift**").

(33) Ground 3 of the SGN NOA and the Frontier Ongoing Efficiency Report set out SGN's submissions in this regard. In brief, SGN submitted that the innovation uplift was unjustified; that in any case the methodology used to calculate the uplift was inadequate and based on errors; and that the implementation of the innovation uplift resulted in an unjustified overall ongoing efficiency challenge.

4.2 Observations on PR19 approach

(34) In the PR19 FD, the CMA has set an overall ongoing efficiency challenge (referred to as 'frontier shift' in that decision) of 1% and did not go beyond this "*stretching*" challenge.[47] This is consistent with SGN's position that GEMA's core ongoing efficiency challenge of approximately 1% is already stretching, and that layering a 0.2% uplift on top of this results in an unjustified overall efficiency challenge.[48] SGN further notes that GEMA's overall ongoing efficiency challenge goes far beyond all relevant practice, including that of the CMA.[49]

(35) In considering how to weigh productivity achieved by different comparator sectors, the CMA stated that, *"We decide that a central measure of what can be achieved in competitive sectors is likely to provide a stretching target…"*.[50] This is at odds with elements of GEMA's reasoning for selecting a core efficiency challenge at the top of the range proposed by its

[44] PR19 FD, para. 9.134(b) (PR19_1), "*We are not persuaded it is consistent for Ofwat to both set new and increasingly stretching targets for PCs in PR19 and also to assume that companies will outperform against those targets*".

[45] PR19 FD, para. 9.1334 (PR19_1), "*Incentives are part of normal regulation and operational outperformance is a desirable outcome. If companies are able to outperform, this delivers benefits to customers both from the actual improvements and from Ofwat being able to use the evidence in its comparisons in future periods*."

[46] FD Core Document, para. 5.20 (SGN1_009).

[47] PR19 FD, para. 37(a), 4.616-7 (PR19_1).

[48] SGN NOA, para. 41(iii) and section 6.5.

[49] SGN NOA, paras. 504 – 505; Frontier Ongoing Efficiency Report, para. 4.4.19 (MR1/1).

[50] PR19 FD, para. 4.522 (PR19_1).

consultants, CEPA, where it stated that *"the lack of competitive pressure [faced by regulated sectors] means [GDNs] should be able to place greater management focus on driving high efficiency gains."*[51] The CMA's reasoning is consistent with the arguments set out in the SGN NOA and the Frontier Report and further undermines the legitimacy of the innovation uplift and the overall ongoing efficiency challenge.[52]

(36) In short, the CMA's conclusions support SGN's conclusions and no changes to the SGN NOA are therefore required in respect of Ground 3.

5 Ground 4: Efficiency Benchmark

5.1 SGN's submissions

(37) In its RIIO-GD2 FD, GEMA moved away from using the upper quartile as the efficiency benchmark on which cost allowances are based, instead setting a more stretching efficiency benchmark on a glidepath to the 85th percentile (the **"85th percentile benchmark"**). The SGN NOA disputes Ofgem's decision to apply a catch-up efficiency benchmark higher than the upper quartile given the inherent limitations in the econometric modelling (Ground 4A).[53] SGN also disputes Ofgem's application of an efficiency cut to costs that have been removed from the regression model to account for regional differences (Ground 4B). Further submissions were set out in the Frontier Efficiency Benchmark Approach and the Cost Assessment Process Statement.

5.2 Observations on PR19 Approach

(38) The SGN NOA made various references to the PR19 PFs, where relevant.[54] The CMA's substantive conclusion and supporting reasoning has not changed in its PR19 FD, in which the CMA confirmed that Ofwat's decision to move beyond the upper quartile was not justified. Accordingly, the CMA's final decision does not affect the arguments in the SGN NOA or the conclusions set out in the Frontier Efficiency Benchmark Report.

(39) In particular, the FD is supportive of SGN's arguments in the following areas:

(a) The **link between model robustness and the level of the efficiency benchmark.** We note the limitations of the econometric modelling appear to have been a key factor for the CMA in determining the level of the benchmark, noting that it placed "*little or no weight*" on the other factors it considered: "*we decide that the upper quartile is the appropriate level of the efficiency benchmark. This balances our objective of setting a challenging benchmark <u>while acknowledging the limitations of the econometric modelling</u> (and the consequent risk that the company will have insufficient revenue…)" [emphasis added]*[55]

The CMA also notes: *"We found that it was more appropriate to set the efficiency challenge based on our assessment of the quality of the econometric modelling, rather than seek specific outcomes*."[56] As explained in the SGN NOA, the principles

[51] FD Core Document, para. 5.21(SGN1_009).

[52] SGN NOA, paras. 450 and 451; and Frontier Ongoing Efficiency Report, para. 4.2.35 (MR1/1).

[53] For the avoidance of doubt, this Ground 4 does not concern GEMA's choice of models or Composite Scale Variable, which is out of scope for these purposes. Rather, GEMA is wrong to suggest that its modelling is sufficiently robust to support setting the efficiency benchmark at a level higher than the upper quartile. SGN NOA, para. 546.

[54] SGN NOA, paras. 540, 550, 554, 584, 586, 587.

[55] PR19 FD, para. 4.494 (PR19_1). See also paras. 4.365 – 4.366 and 4.403.

[56] PR19 FD, para. 4.493 (PR19_1).

of the CMA's assessment (i.e. the link between model robustness and the level of the efficiency benchmark chosen by the regulator) clearly has cross-sector applicability.[57]

(b) **The link between sample size and model robustness.** The PR19 FD also supports SGN's assessment that model robustness is limited by the sample size used for econometric benchmarking. The CMA noted that a small sample size is linked to less precise estimates.[58] The CMA also noted that its dataset had a "*relatively small*" sample size.[59] The sample included a cross-section of 17 licensees in wholesale water and 10 licensees in wholesale waste-water. This is a larger cross-section than that available in gas distribution, where there are 8 GDNs (and 4 operationally independent groups), as explained in the Frontier Efficiency Benchmark Report.[60]

(40) In summary, the CMA's conclusions regarding Ofwat's decision to move beyond the upper quartile remain relevant to and support the errors outlined in SGN's Ground 4A. No changes to the SGN NOA are therefore required to SGN's Ground 4.

[57] SGN NOA, para. 557.

[58] PR19 FD para. 4.38 (PR19_1). The CMA noted stating (emphasis added) "*Additional explanatory variables, **combined with the small size**, also reduced the degrees of freedom in the model, leading to less precise estimates*."

[59] PR19 FD, para. 4.38 (PR19_1).

[60] Frontier Efficiency Benchmark Report, para. 4.3.13 (MR2/1).

6 Statement of Truth

Based on the information that has been provided to us by our expert advisors and our knowledge of the PR19 process, the Appellants believe that the facts stated in this submission are true.

Signature of Authorised Representative

Name of Authorised Representative: Michael Bedford

Date: 23 April 2021

Signature of Authorised Representative

Name of Authorised Representative: David Handley

Date: 23 April 2021

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

Annex Updating references in the SGN NOA

In order to assist the CMA, the table below sets out references in the SGN NOA to the PR19 PFs and the CMA's Cost of Capital Working Papers, providing an updated reference where the substance of the reference is retained in the PR19 FD.

No	SGN NOA Ref	Reference to PR19 PFs / Cost of Capital Working Papers	Updated Reference to PR19 FD
1	Page 31, para. 150	As the CMA has noted: "*We consider the best approach to doing so is to use the capital asset pricing model (CAPM) but note that the use of this model comes with parameter uncertainty*." CMA PR19 Cost of Capital WPs, para. 21 (SGN1_049).	"*We consider that the best approach to doing so is to use the CAPM in order to estimate the appropriate returns to equity. However, we note that use of this model comes with parameter uncertainty*." CMA PR19 FD, para. 9.1238 (PR19_1).
2	Page 33, para. 164	Further, as the CMA recently acknowledged in the PR19 PFs, despite the sophisticated econometric modelling used, it is "*impossible to know*" how reliable the backcast figures are. CMA PR19 PFs, para. 9.160 (SGN1_049).	"*it is impossible to know how accurate*" the 'back cast' figures are. CMA PR19 FD, para. 9.295(d) (PR19_1).
3	Page 34, para. 166	The CMA's PR19 PFs recognised there remain data issues with the RPI series, but also acknowledged that "*the relevant data has been collected and actual RPI figures [were] produced for the whole of the last 70 years, providing greater certainty over the actual figures*". CMA PR19 PFs, para. 9.160(e) (SGN1_049).	"*the relevant data has been collected and actual RPI figures produced for the whole of the last 70 years, providing greater certainty over the actual figures*". CMA PR19 FD, para. 9.295(e) (PR19_1).
4	Page 34, para. 169	GEMA has wrongly failed to take into account the levels of historic returns produced using both measures of inflation, which would have provided a less biased estimate of the real TMR and would have been more consistent with the CMA's (provisional) approach in the PR19 PFs.	"*Therefore, in interpreting the results of our analysis, we have taken into account the level of historic returns produced using both measures of inflation*." CMA PR19 FD, para. 9.296 (PR19_1).

No	SGN NOA Ref	Reference to PR19 PFs / Cost of Capital Working Papers	Updated Reference to PR19 FD
		CMA PR19 PFs, para. 9.161 (SGN1_049).	
5	Page 43, para. 214	This is currently being tested by the CMA as part of the water redeterminations. Here, the CMA has provisionally placed weight on both ILGs and the yield on AAA rated corporate bonds in recognition of the fact that yields on ILGs are likely to sit below the "*true*" risk-free rate. CMA PR19 PFs, para. 9.137 (SGN1_049).	"*On balance, the CMA has accepted arguments and evidence that 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*." CMA PR19 FD, para. 9.158 (PR19_1).
6	Page 46, para. 226	The CMA recognised this in the PR19 PFs where it noted that "*yields on these instruments demonstrate that the UK government can borrow at rates significantly lower than other market participants*". CMA PR19 PFs, para. 9.134 (SGN1_049).	"*analysis of the current and historic yields associated with these instruments demonstrates that the government can borrow at rates significantly lower than would be accessible by even the highest-rated private investor*." CMA PR19 FD, para. 9.92 (PR19_1).
7	Page 46, para. 228	The Appellants believe GEMA should have placed greater weight on the yield on AAA-rated non-gilts which, as the CMA has noted, "*closely but imperfectly*" matched the key requirements of the RFR within the CAPM model. CMA PR19 PFs, para. 9.135 (SGN1_049).	"*Returning to the key characteristics for the RFR highlighted in paragraph 9.91, we note that non- government bonds with the highest possible credit rating provide an input that is both very close to risk free (issuers with a higher credit rating than the UK government, but with some inflation and default risk) and is at least closer to representing a rate that is available to all (relevant) market participants*". CMA PR19 FD, para. 9.160 (PR19_1). "*we consider the yield on AAA-rated non-government bonds to be a suitable input into our estimate of the RFR*." CMA PR19 FD, para. 9.162 (PR19_1).
8	Page 46, para. 228	The CMA has also recognised that the yield on ILGs is likely to sit below the 'true' estimate of the RFR, while the yield on	"*On balance, the CMA has accepted arguments and evidence that the ILG rate available to the government is unlikely to be a perfect proxy for*

No	SGN NOA Ref	Reference to PR19 PFs / Cost of Capital Working Papers	Updated Reference to PR19 FD
		AAA-rated non-government bonds is likely to sit above the 'true' estimate of RFR. CMA PR19 PFs, para. 9.137 (SGN1_049).	*the RFR, and that the 'true' rate of RFR in the market is likely to be above this level*." CMA PR19 FD, para. 9.158 (PR19_1). "*That said, we acknowledge that illiquidity premiums, some default risk and the unavailability of a 'perfect match' average maturity benchmark all suggest that the yield on AAA nongovernment indices is likely to be a) an imperfect proxy for and b) slightly above the 'true' level of the RFR*." CMA PR19 FD, para. 9.151 (PR19_1).
9	Page 47, para. 235 and footnote 177	Indeed, GEMA's final point estimate (before the outperformance wedge) of 4.55% is: Approximately 30 basis points below the CMA's revised provisional cost of equity estimate in the ongoing water redeterminations of 4.83% , despite investors in GDNs facing higher risk than investors in water, particularly in light of the uncertainty associated with the future of gas as the UK transitions towards Net Zero. Footnote 177: CMA PR19 PFs, Table 9-26 (SGN1_049) contains a point estimate for the Cost of Equity in real CPIH of 5.08%, which includes an aiming-up allowance of 50bp. The CMA PR19 Cost of Capital WPs (SGN1_050) reduces aiming-up from 50bp to 25bp (see para. 18a and 117). 5.08%-0.25% = 4.83%, real CPIH.	CMA PR19 FD, Table 9-37 (PR19_1) contains the CMA Final Determination for the Cost of Equity which includes aiming up of 25 bps.
10	Page 48, para. 237	The CMA has recently had to consider this issue as part of the PR19 Water Redeterminations noting "*the use of this model [the CAPM] comes with parameter uncertainty*".	"*However, we note that use of this model comes with parameter uncertainty*." CMA PR19 FD, para. 9.1238 (PR19_1).

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		CMA PR19 Cost of Capital WPSs, para. 21 (SGN1_050).	
11	Page 48, para. 239	An approach of picking a point estimate above the midpoint (i.e. aiming up) has been considered by UK regulators in the past. See for example NIE (2014), paras. 13.187-13.189 (SGN1_062). CMA PR19 Cost of Capital WPs, pages 3-4 summarise the approach taken by Ofwat in previous price controls. (SGN1_050).	CMA PR19 FD, para. 9.1226 (PR19_1) summarise the approach taken by Ofwat in previous price controls.
12	Page 48, para. 239	Most recently, the CMA has considered the need to aim up on cost of equity in the PR19 redetermination process. CMA PR19 PFs, paras. 9.663-9.673 (SGN1_049).	Most recently, the CMA has considered the need to aim up on cost of equity in the PR19 FD. CMA PR19 FD, paras. 9.1269-9.1274 (PR19_1).
13	Page 49, para. 243	As set out below, the CMA has recently recognised underinvestment in the energy sector can lead to extreme adverse events with extreme societal risks CMA PR19 Cost of Capital WPs, para. 44 (SGN1_050).	"*They stress the difference between the risks associated with lack of investment in the water sector and other sectors like the energy sector, pointing to a lack of similar societal risks arising from extreme adverse events, like those associated with 'blackouts' and other extreme events in the energy sector*." CMA PR19 FD, para. 9.1271 (PR19_1).
14	Page 50, para. 249	The CMA has also acknowledged that the CAPM methodology "*comes with parameter uncertainty*". CMA PR19 Cost of Capital WPs, para. 21 (SGN1_050).	"*However, we note that use of this model comes with parameter uncertainty*." CMA PR19 FD, para. 9.1238 (PR19_1).
15	Page 50, para. 250	However, the Appellants note that the CMA itself has recently noted that these risks may be particularly acute in the energy sector, given the societal impact arising from extreme adverse events like 'blackouts' and other extreme events.	"*They stress the difference between the risks associated with lack of investment in the water sector and other sectors like the energy sector, pointing to a lack of similar societal risks arising from extreme adverse events, like those associated with 'blackouts' and other extreme events in the energy sector*."

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		CMA PR19 Cost of Capital WPs, paras. 44, 47 (SGN1_050).	CMA PR19 FD, para. 9.1271 (PR19_1).
16	Page 51, para. 254	The CMA recently recognised that "*the effects on customers if there is an actual reduction in investment over time are likely to be higher because investment can bring additional benefits*". CMA PR19 Cost of Capital WPs, para. 49 (SGN1_050).	"*The effects on customers if there is an actual reduction in investment over time are likely to be higher, because investment can bring additional wider benefits*." CMA PR19 FD, para. 9.1276 (PR19_1).
17	Page 55-56, para. 281	The CMA has recently acknowledged that "*WACC is the primary factor in the redetermination ensuring that an efficient firm can finance its functions*" and "*credit ratio analysis plays a supporting role: it provides cross-checks to help consider whether the allowed return is in practice high enough to be consistent with the investment-grade credit quality*". CMA PR19 PFs, paras. 10.58-10.59 (SGN1_049).	"*WACC should be the primary factor in the redetermination in determining whether an efficient firm which meets its cost and outcome targets can finance its functions*." "*credit ratio analysis plays a supporting role: it provides cross-checks to help consider whether the allowed return is in practice high enough to be consistent with the investment-grade credit quality*" CMA PR19 FD, paras. 10.89-10.90 (PR19_1).
18	Page 57, para. 288	Similarly, while considering the need to aim up in the PR19 redetermination process, the CMA noted that "*The long-term investors in infrastructure that the companies need to attract to support a long-term low cost of capital will not be attracted if there are frequent sharp changes to the way regulators determine the cost of capital. An approach which is both cautious in responding too quickly to market fluctuations and is consistent over time should ultimately deliver benefits to both investors and, through a low cost of capital, to customers*." CMA PR19 Cost of Capital WPs, para. 103(a) (SGN1_050).	"*The long-term investors in infrastructure that the companies need to attract to support a long-term low cost of capital will not be attracted if there are frequent sharp changes to the way regulators determine the cost of capital. An approach which is both cautious in responding too quickly to market fluctuations and is consistent over time should ultimately deliver benefits to both investors and, through a low cost of capital, to customers*." CMA PR19 FD, para. 9.1388 (PR19_1).

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19	Page 64, para. 319	The benefits of an incentive-based structure have also been recognised by the CMA, which has recently stated that: *"[i]ncentives are part of normal regulation and operational outperformance is a desirable outcome*". CMA PR19 Cost of Capital WPs, para. 81(a) (SGN1_050).	"*Incentives are part of normal regulation and operational outperformance is a desirable outcome*." CMA PR19 FD, para. 9.1334 (PR19_1).
20	Page 69, para 352	As the CMA has recently recognised, *"[i]f companies are able to outperform, this delivers benefits to customers both from the actual improvements and from [the regulator] ... being able to use the evidence in its comparisons in future periods*". CMA PR19 Cost of Capital WPs, para. 81(a) (SGN1_050).	"*If companies are able to outperform, this delivers benefits to customers both from the actual improvements and from Ofwat being able to use the evidence in its comparisons in future periods*." CMA PR19 FD, para. 9.1334 (PR19_1).
21	Page 99, para 540	In PR19, in its provisional findings released in September 2020, the CMA proposed to set the benchmark at the upper quartile despite Ofwat having sought to set a challenge that was more stretching. CMA PR19 PFs, para. 4.296 (SGN1_049).	"*Taking these factors into account, we decide that the upper quartile is the appropriate level of the efficiency benchmark*." CMA PR19 FD, para. 4.494 (PR19_1).
22	Page 101, para 554	In PR19, in its provisional findings released in September 2020, the CMA stated: "[*W]e provisionally decide that the upper quartile is the appropriate level of the efficiency benchmark, as this balances our objective of setting a challenging benchmark while acknowledging the limitations of the econometric modelling (and the consequent risk that the company will have insufficient allowed revenue to ensure a base level of service)* CMA PR19 PFs, para. 4.296 (SGN1_049).	"*Taking these factors into account, we decide that the upper quartile is the appropriate level of the efficiency benchmark. This balances our objective of setting a challenging benchmark while acknowledging the limitations of the econometric modelling (and the consequent risk that the company will have insufficient allowed revenue).*" CMA PR19 FD, para. 4.494 (PR19_1).

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23	Page 101, para. 554	*First, we focused on whether there had been substantial improvements in the econometric modelling. The changes we made to the econometric modelling are set out in the section on base costs modelling. These changes, whilst appropriate, did not result in substantial improvements in the econometric modelling… We placed little or no weight on the other factors we considered…*" CMA PR19 PFs, para. 4.294 (SGN1_049).	"*We considered the overall model effectiveness and whether there had been substantial improvements in the econometric modelling compared to the models used by Ofwat. The changes we made to the econometric modelling are set out in the section on base costs modelling. These changes, whilst appropriate, did not result in substantial improvements in the statistical performance of the econometric modelling… We placed little or no weight on the factors below…*" CMA PR19 FD, paras. 4.492-4.493 (PR19_1).
24	Page 107-108, para. 584	First, as a matter of principle, as noted by the CMA in the context of PR19, the efficiency challenge should be based on the assessment of model quality rather than seeking specific outcomes based on past outperformance: "*We found that it was more appropriate to set the efficiency challenge based on our assessment of the quality of the econometric modelling, rather than to seek specific outcomes*." CMA PR19 PFs, paras 4.294 to 4.295 (SGN1_049).	"*We found that it was more appropriate to set the efficiency challenge based on our assessment of the quality of the econometric modelling, rather than to seek specific outcomes*." CMA PR19 FD, para. 4.493 (PR19_1).
25	Page 108, para. 586	As the CMA has recently stated in the PR19 provisional redetermination: *"[it] is not persuaded that it is consistent … to both set new and increasingly stretching targets" and "also to assume that companies will outperform against those targets*". CMA PR19 Cost of Capital WPs, para. 81(b) (SGN1_051).	"*We are not persuaded it is consistent for Ofwat to both set new and increasingly stretching targets for PCs in PR19 and also to assume that companies will outperform against those targets*." CMA PR19 FD, para. 9.1334 (PR19_1).