NON-CONFIDENTIAL VERSION

NOTICE OF APPEAL

ENERGY LICENCE MODIFICATION

SOUTHERN GAS NETWORKS PLC

Appellants

SCOTLAND GAS NETWORKS PLC

-and-

GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

RIIO-GD2 PRICE CONTROL

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1 Introduction

1.1 Overview

(1) Southern Gas Networks plc ("**Southern**") and Scotland Gas Networks plc ("**Scotland**") (together "**SGN**" or the "**Appellants**") are, respectively, the gas distribution network operators ("**GDNs**") in the South of England and Scotland.

(2) The Appellants each hold a distribution licence under section 7(2)(a) of the Gas Act 1986 ("**GA86**") (the "**Licences**").

(3) This appeal concerns the determinations made by the Gas and Electricity Markets Authority ("**GEMA**") in respect of the Appellants as part of the RIIO-GD2 price control process (setting Revenue and Incentives to deliver Innovation and Outputs – Gas Distribution).

(4) The process will determine the terms of the pricing and services packages that GDNs across England, Wales and Scotland are expected to deliver over the course of the RIIO-GD2 price control period (which will operate from 1 April 2021 to 31 March 2026).

1.2 Request for permission to appeal

(5) The Appellants seek permission under sections 23B(1) and (3) GA86 to bring an appeal (and, if permission is granted, to bring an appeal) against the decision of GEMA to proceed with modifications to the Licences published on 3 February 2021 (the "**Decision**") under section 23(1) GA86.[1] These modifications give effect to the RIIO-2 price control, aspects of which are challenged in this Notice of Appeal.

(6) The Appellants seek permission to bring this appeal in their capacity as relevant licence holders. Section 23B(2) GA86 provides that a relevant licence holder (within the meaning of section 23(10) GA86) may bring an appeal.

(7) Under section 23(10)(b) GA86, the Appellants are holders of particular licences (as noted in paragraph (2) above) the conditions of which are to be modified pursuant to the Decision.

(8) The Appellants were named as relevant licence holders in the Decision.

(9) Accordingly, the Appellants have standing to bring this appeal. For the reasons developed below, the proposed grounds have (at least) a reasonable prospect of success.

(10) The Appellants have endeavoured to provide all their facts, reasons, documentary evidence and witness statements with this Notice of Appeal. If permission to appeal is granted, however, it may be necessary for the Appellants to file further material, particularly following receipt of GEMA's response and any disclosure.

1.2.1 The Appellants

(11) SGN delivers natural gas and green gas to over 14 million people in 5.9 million homes and businesses through the natural gas transported through its 74,000 km of gas mains and services and was voted Utility Week Magazine's Utility of the Year for 2020.

(12) SGN's Southern network delivers gas to c. 90% of the homes and businesses across south-east and central south of England, serving 4.1 million customers in densely populated urban areas in London and the south east through c.49,000 of mains and services. SGN's gas network in Scotland delivers gas to c. 75% of Scottish households and businesses, serving around 1.8 million customers across Scotland

[1] The various documents comprising the Decision are included in Exhibit NOA1 (SGN1_001 to SGN1_008).

through including main cities and across the sparsely populated rural area, through c.25,000 km of mains and services.

(13) The Scotland network has been the leading network for customer service for the last four years, and SGN has driven improvements in customer satisfaction, reducing customer complaints across its networks by 70% since the start of RIIO-GD1 in 2013.

(14) In response to customer and stakeholder ambitions on taking action to tackle to climate change, SGN connected the UK's first biomethane connection (being a form of 'green gas', i.e. a clean fuel helping the UK achieve net zero emissions) to its network in 2010. This represented an important milestone in the development and provision of renewable energy in the UK.

(15) SGN is now working with partners to deliver the UK's first 100% green hydrogen supply to domestic customers, a vital step in demonstrating the safe roll-out of hydrogen as an alternative green gas to decarbonise heat and help meet the company's decarbonisation targets.

1.2.2 Context

(16) On the 9 December 2019 SGN submitted an ambitious RIIO-GD2 business plan that was strongly supported by its customers and stakeholders, with 92% of customers in Scotland and 86% of customers in Southern finding the plan acceptable.[2] SGN considers that this strong customer support was achieved because they carefully reflected their views when balancing the competing priorities of (i) reducing cost whilst enhancing service, (ii) reducing cost whilst managing uncertainty and risk, and iii) balancing the interests of current and future customers.[3]

(17) Given its importance to SGN's customers and stakeholders, SGN's plan placed particular emphasis on both its direct environmental impact in the RIIO-GD2 period, and its central role in providing high-quality evidence to the support critical Government policy decisions on the future of heat that will need to be made in the RIIO-GD2.[4] Enhanced engagement with customers and stakeholders throughout the development of SGN's plan identified this as an issue of increasing importance to them.

(18) GEMA's aim for the RIIO-GD2 price control was to prepare energy networks transition to Net Zero, at the lowest cost to consumers with greater efficiency and lower returns.[5] However, the Appellants consider that the conclusions that GEMA has reached in the FD for RIIO-GD2 undermine consumer priorities by focusing on the short term whilst putting at risk the investment needed to deliver long term excellent service and a safe and efficient network whilst working with the UK and Scottish governments to meet the shared goal of Net Zero.

(19) GEMA has made a number of methodological and evidential errors in estimating the key components of the cost of equity. It has also failed to aim up to reflect the uncertainty in setting the CoE and asymmetric risks faced by GDNs due to possible asset stranding as the UK transitions towards Net Zero. It went further and introduced a novel "outperformance wedge", reducing the allowed return by a further 25 bps. This results in an allowed cost of equity of 4.30% (CPIH, real) – a drastic reduction from the 7.0% (CPIH, real) allowed in RIIO-GD1 (when converted to an equivalent notional gearing).

(20) There are similar issues with the determination of ongoing efficiency and frontier catch-up efficiency. GEMA has introduced an unfounded addition to an ongoing efficiency target that is already at the highest level of the range set out by their advisors. GEMA have then compounded this by an unjustified move of the efficiency benchmark from the 75th to the 85th percentile. GEMA has made material evidential

[2] SGN RIIO-2 Business Plan, page 1 (SGN1_035).

[3] SGN RIIO-2 Business Plan, page 9 (SGN1_035).

[4] SGN RIIO-2 Business Plan, page 1 (SGN1_035).

[5] FD Core Document, pages 5-6 (SGN1_009).

errors and methodological errors in estimating both the ongoing and the catch-up efficiency applied to the Appellants' business plan.

(21) These contributed to a reduction in the requested funding for gas GDNs downwards by 8.2% on average, with the Appellants' request of funding being adjusted downwards by 10.9%.[6] The product of this approach is a proposed package for the RIIO-GD2 price control period that would, the Appellants believe, lead to long-term detrimental impacts on consumers. GEMA has thus failed to have due regard to the carrying of out of its principal objective and the performance of its statutory duties

(22) The above issues have been contributed to by a broader set of procedural shortcomings with respect to cost assessment. These are set out in an accompanying witness statement,[7] which is presented by way of evidence for Ground 4. This witness statement identifies how process issues and errors undermined confidence in the accuracy of the cost assessment models, such that the Appellants strongly encouraged GEMA to republish its Draft Determination assessment prior to Final Determination. GEMA chose not to; and at Final Determination further significant errors were introduced. These procedural shortcomings seriously prejudiced SGN's ability to consider the final cost allowances in full and explain discrepancies against SGN's own view of efficient costs, albeit that falls outside the scope of this appeal.[8]

1.2.3 Scope of appeal

(23) The Appellants have focused their appeal on four discrete topics. The grounds of appeal (summarised in in Section 2) are:

(i) **Ground 1**: Cost of equity;

(ii) **Ground 2**: Outperformance wedge;

(iii) **Ground 3**: Ongoing efficiency; and

(iv) **Ground 4**: Efficiency benchmark.

(24) The Appellants believe that GEMA's Decision in respect of these grounds is wrong, has a material impact on SGN and raises important points of principle and regulatory precedent.

1.3 Key documents

(25) The Appellants have provided written evidence for this appeal, principally in the form of the Witness Statements and accompanying exhibits of as set out in the **Index of Written Evidence** on page 1.

(26) GEMA's reasoning for the Decision is contained primarily in the following documents, which (together with certain other supporting materials)[9] comprised GEMA's FD:

(i) RIIO-2 Final Determinations: Core Document (REVISED) - dated 3 February 2021 (SGN1_009);

(ii) RIIO-2 Final Determinations: Finance Annex (REVISED) dated 3 February 2021 (SGN1_011);

(iii) RIIO-2 Final Determinations: GD Sector Annex (REVISED) dated 3 February 2021 (SGN1_012); and

(iv) RIIO-2 Final Determinations – SGN Annex (REVISED) dated 3 February 2021 (SGN1_013).

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[6] FD Overview, footnote 2 (SGN1_010).

[7] Technical Witness Statement of Michael Bedford, SGN ("**SGN_CAP1**").

[8] A notable example is with respect to SGN's Southern network which in the regression results appears alongside Cadent's London network to be clearly identifiable as an outlier in GEMA's regression models. The Appellants consider that this arises from the inappropriate calibration of regional costs.

[9] See FD Overview (SGN1_010) and FD Impact Assessment (SGN1_014).

(v) The original FD Documents published on 8 December 2020 are also annexed to this Notice of Appeal.[10]

(27) Other relevant documents to which the CMA should have regard include:

(vi) GEMA Open letter on RIIO-2 framework (12 July 2017) (SGN1_015);

(vii) GEMA's consultation document on the RIIO-2 framework dated 7 March 2018 (SGN1_016);

(viii) the Appellants' response to this consultation dated 2 May 2018 (SGN1_033);

(ix) GEMA's decision on the RIIO-2 framework dated 30 July 2018 (SGN1_017);

(x) GEMA's sector specific methodology consultation ("**SSMC**") document dated 18 December 2018 (SGN1_018);

(xi) the Appellants' response to this consultation dated 14 March 2019 (SGN1_034);

(xii) Ofgem's sector specific methodology decision dated 14 May 2019 and related annexes (SGN1_019 to SGN1_022).

(xiii) Ofgem's Business Plan Guidance dated 31 October 2019 (SGN1_031);

(xiv) the Appellants' final Business Plan dated 9 December 2019 (SGN1_035);

(xv) the report published by the Appellants' Customer Engagement Group in December 2019 (SGN1_036);

(xvi) the report published by Ofgem's Consumer Challenge Group in January 2020 (SGN1_032);

(xvii) the following documents which (together with certain other supporting materials) comprised Ofgem's DD:

(a) RIIO-2 Draft Determinations – Core Document dated 9 July 2020 (SGN1_023);

(b) RIIO-2 Draft Determinations – Finance Annex dated 9 July 2020 (SGN1_024);

(c) RIIO-2 Draft Determinations – Gas Distribution Annex dated 9 July 2020 (SGN1_025); and

(d) RIIO-2 Draft Determinations – SGN dated 9 July 2020 (SGN1_026); and

(xviii) the Appellants' response to the DD dated 4 September 2020 (SGN1_037).

[10] See FD Core Document (December) (SGN1_009A); FD Finance Annex (December) (SGN1_011A); FD GD Annex (December) (SGN1_012A); FD SGN Annex (SGN1_013A).

1.4 Contact details

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2 Summary of Grounds of Appeal and Relief Sought

2.1 Overview

(28) Section 23D(4) GA86 states that the CMA may allow an appeal where it is satisfied that the decision appealed against was wrong on one or more of the following grounds:

(i) GEMA failed properly to have regard to any matter mentioned in Section 23D(2) GA86;

(ii) GEMA failed to give the appropriate weight to any matter mentioned in Section 23D(2) GA86;

(iii) the decision was based, wholly or partly, on an error of fact;

(iv) the modifications fail to achieve, in whole or in part, the effect stated by GEMA by virtue of Section 23(7)(b) GA86;

(v) the decision was wrong in law.

2.2 Ground 1: Cost of equity

2.2.1 Overview

(29) GEMA has a statutory duty to act in accordance with its principal objective to protect the interests of existing and future consumers.[11] GEMA must also have regard to "*the need to secure that licence holders are able to finance [their] activities*".[12]

(30) At the start of RIIO-2, GEMA outlined that its approach to setting the baseline allowed return "*must ensure investors in an efficiently run company can earn a reasonable level of return*". GEMA estimated the cost of equity using the Capital Asset Pricing Model ("**CAPM**") model. GEMA's estimate of the cost of equity at FD resulted in a point estimate of 4.55%, within a range of 3.8% - 5.0%.

(31) GEMA conducted a financeability assessment of whether a notionally efficient company could access finance on reasonable terms. After making several unjustified adjustments and assumptions about the notionally efficient company, GEMA applied an "in the round" assessment to conclude that all companies could "broadly" achieve a comfortable investment grade credit rating.

(32) The Appellants submit that GEMA made a number of methodological and evidential errors in estimating the cost of equity:

(i) GEMA has underestimated key components of the cost of equity by failing to have due regard to relevant evidence (in particular, the Total Market Return, Beta and Risk-Free Rate). In so doing, GEMA reached conclusions without having regard to relevant evidence (**Error 1**).

(ii) GEMA has failed to "aim up" as required when setting the point estimate for the cost of equity. 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 (**Error 2**).

(iii) GEMA's financeability assessment was based on several unjustified assumptions, which masked the true impact of its errors on the cost of equity and allowed it to conclude that the companies would be able to finance their functions (**Error 3**).

(33) The net result of these errors is that GEMA has set a cost of equity in RIIO-2 which is too low.

2.2.2 Legal consequences

[11] Section 4AA(1) GA86.

[12] Section 4AA(2) GA86.

(34) In light of the above errors, the Appellants therefore submit that:

(i) GEMA failed, under Sections 23D(4)(a) and (b) GA86, to have due regard / give appropriate weight to the performance of its duties:

(a) Section 4AA(1-1A) GA86 (the consumer duty) - The FD fails to secure sufficient investment in energy infrastructure which will negatively impact both current and future customers.

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) - The cumulative result of Errors 1-3 undermines the Appellants' ability to finance their activities.

(c) Section 4AA(5A) GA86 (the principles under which regulatory activities should be proportionate consistent and targeted only at cases in which action is need, as well as other principles of best regulatory practice) – GEMA's approach is not transparent, in particular in adopting decisions without providing the evidence underpinning its analysis.

(ii) GEMA's decision was based on the errors of fact within the meaning of Section 23D(4)(c) GA86, in particular in its interpretation of the relevant economic data.

(iii) GEMA's decision fails to achieve, in whole or in fact, the stated effect within the meaning of Section 23D(4)(d) GA86. In particular, it has failed to set an allowed return to remunerate investors for their investment in network services.[13]

(iv) GEMA's decision was wrong as a matter of law within the meaning of Section 23D(4)(e) GA86 – in particular in that GEMA has acted disproportionately reaching conclusions without having regard to relevant considerations.

2.3 Ground 2: Outperformance wedge

2.3.1 Overview

(35) In RIIO-2, GEMA introduced a new and unprecedented measure to determine the allowed return on equity, which it termed the "outperformance wedge". After picking a point estimate for the Capital Asset Pricing Model (CAPM) implied cost of equity (4.55%, CPIH real),[14] GEMA reduced the licensees' allowed return on equity by 25 bps (to 4.30%) in RIIO-2.

(36) GEMA has introduced this "*novel*"[15] mechanism with a view to bridging the perceived gap between investors' expected return and the regulatory allowed return on equity. If a licensee does not outperform by more than 0.25%, it will receive an ex-post "top-up" allowance of up to 0.25% as part of the RIIO-2 close out process.

(37) The Appellants consider that GEMA erred in introducing the outperformance wedge in the following respects.

(i) The introduction of the outperformance wedge is a disproportionate and untargeted tool that undermines consistency and transparency in the regulatory regime, which is to the detriment of consumers (**Error 1**).

[13] FD Finance Annex, page 24 (SGN1_011): "*Returns to equity investors remunerate their investment in network services and comprise a baseline allowance plus performance incentives*"; SSMD Finance Annex, page 24 (SGN1_021): "*We estimate the cost of equity so that equity investors can be remunerated for the risk that they bear*".

[14] GEMA states that the CAPM describes the relationship between expected returns and the risk of investing and is used to estimate the returns that investors expect. See SSMD Finance Annex, paras. 3.8 - 3.9 (SGN1_021).

[15] FD Core Document, paras. 6.1, 6.3 and 6.8 (SGN1_009).

(ii) GEMA's decision undermines incentives for investment and performance in RIIO-2 and future price controls (**Error 2**).

(iii) GEMA's decision to introduce the outperformance wedge is not supported by adequate evidence or analysis (**Error 3**).

(iv) GEMA has wrongly dismissed concerns over the impact of the outperformance wedge on financeability (**Error 4**).

(ii) These errors mean that the introduction of the outperformance wedge is unjustified and undermines GDNs' incentives to innovate and to reduce efficient costs during the RIIO-GD2 price control period and beyond, negatively impacting consumers.

2.3.2 Legal consequences

(38) In light of the above errors, the Appellants submit that GEMA's introduction of the outperformance wedge was wrong within the meaning of Section 23D(4) GA86. In particular, the Appellants submit that:

(i) GEMA failed within the meaning of Sections 23D(4)(a) and (b) GA86 to have due regard / give appropriate weight to the performance of its duties, in particular:

(a) Section 4AA(1-1A) GA86 (the consumer duty) – GEMA's intervention is not supported by adequate evidence or analysis and has perverse incentive qualities (in this and future price controls), both of which are contrary to the interests of consumers;

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) – the outperformance wedge disincentivises investment in the sector by undermining the stability of the regulatory regime and GEMA has wrongly dismissed concerns over the impact of the outperformance wedge on financeability;

(c) Section 4AA(5) GA86 (promoting efficiency and economy) – the outperformance wedge undermines companies' incentives to invest and become more efficient; and

(d) Section 4AA(5) GA86 (the principles under which regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed, as well as other principles of best regulatory practice) – in particular as the outperformance wedge involves an untargeted and disproportionate reduction to the allowed returns to address perceived asymmetry in the price control process which undermines consistency and transparency.

(ii) GEMA's decision was based, wholly or partly, on errors of fact within the meaning of Section 23D(4)(c) GA86 – including with respect to its interpretation of historic price controls and the application of GEMA's broader regulatory tools.

(iii) GEMA's decision fails to achieve the effect stated by GEMA within the meaning of Section 23D(4)(d) GA86 – including of "*maintaining high confidence in the regulatory regime, fairness for companies and investors; and fairness for consumers*".[16]

(iv) GEMA's decision was wrong as a matter of law within the meaning of Section 23D(4)(e) GA86 – in particular by acting disproportionately, not having regard to relevant considerations and/or reaching conclusions without adequate supporting evidence.

[16] DD Finance Annex, para. 3.151 (SGN1_024). At DD, GEMA stated that "*To maintain high confidence in the regulatory regime, and given submissions from companies and their consultants, we re-considered the SSMD methodology, in search of potential improvements that could simultaneously satisfy the following three objectives: maintaining high confidence in the regulatory regime, fairness for companies and investors; and fairness for consumers*". This led GEMA to incorporate the ex-post top-up mechanism.

2.4 Ground 3: Ongoing Efficiency Challenge

2.4.1 Overview

(39) The ongoing efficiency challenge reflects GEMA's expectation that the productivity of an efficient company will improve over time, resulting in the reduction of its efficiently incurred costs.

(40) At FD, GEMA applied a headline 1.2% overall ongoing efficiency challenge (1.25% per annum on a compounding basis for opex and 1.15% per annum for capex and repex) (the "**Overall Ongoing Efficiency Challenge**").[17] This was comprised of two components:

(i) a core efficiency challenge of 1.05% for opex and 0.95% for capex/repex (the "**Core Efficiency Challenge**") based on analysis of productivity growth rates in the wider economy; and

(ii) a 0.2% innovation uplift (the "**Innovation Uplift**") intended to reflect productivity improvements resulting from historical innovation funding.[18]

(41) The Appellants contend that GEMA erred in its decision to apply an ongoing efficiency challenge of 1.2% in three respects:

(i) First, the Innovation Uplift is unjustified:

(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;

(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 used by GEMA to set allowances (**Error 1**).

(ii) Second, 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) Third, the implementation of the Innovation Uplift results in an unjustified Overall Ongoing Efficiency Challenge:

(a) The Innovation Uplift is applied on top of an already stretching Core Efficiency Challenge which is at the top of CEPA's range; and

(b) GEMA relies on inadequate and flawed reasoning to conclude that the resulting Overall Ongoing Efficiency Challenge of 1.2% is reasonable and achievable (**Error 3**).

(42) As a result of the above errors, GEMA's decision to impose the Innovation Uplift, on top of an already stretching Core Efficiency Challenge, represents an unjustified and insufficiently evidenced decision that goes beyond the limits of regulatory discretion. Over the course of RIIO-GD2, the application of the Innovation Uplift stands to result in the underfunding of SGN's allowances by £**[CONFIDENTIAL]**.[19] The application of the Innovation Uplift also risks blunting GDNs' incentives to innovate in the future.[20]

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

[18] Ongoing Efficiency Report, paras 1.1.1 (MR1/1).

[19] Supporting Calculations Removing Innovation Uplift (SGN1_123A).

[20] Ongoing Efficiency Report, paras 4.6.1 to 4.6.4 (MR1/1)

2.4.2 Legal consequences

(43) In light of the above errors, the Appellants submit that the ongoing efficiency challenge applied by GEMA is wrong within the meaning of section 23D(4) GA86.

(44) In particular, the Appellants submit that:

(i) GEMA failed, within the meaning of sections 23D(4)(a) and (b) GA86, to have due regard / give appropriate weight to the performance of its duties under:

(a) Section 4AA(1-1A) GA86 (the duty to protect the interests of existing and future consumers) – robust, evidence-based regulation is in the consumer interest;[21]

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) – the uplift underfunds GDNs' efficient costs;

(c) Section 4AA(5) GA86 (promoting efficiency and economy) – in light of the blunting of incentives to innovate; and

(d) the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed (Section 4AA(5A) GA86) – GEMA has failed to demonstrate either the need for an uplift or that it is appropriate to set such an uplift specifically at 0.2%;[22]

(ii) the Innovation Uplift was based on errors of fact within the meaning of Section 23D(4)(c) GA86: GEMA has double counted productivity improvements already captured by the Core Efficiency Challenge and in GEMA's baseline allowances derived from GDNs' business plans; CEPA's methodology to derive the level of uplift is wholly inadequate; and GEMA's cross-check for the Overall Ongoing Efficiency Challenge is flawed;

(iii) the Innovation Uplift fails to achieve its stated effect within the meaning of Section 23D(4)(d) GA86) (see paragraph (44)(i) (d) above) – at FD GEMA indicated that Innovation Uplift specifically was intended to reflect "*efficiency benefits over and above those achieved in the wider economy*" arising from "*explicit and additional innovation funding over and above general allowances, and beyond any comparator sectors, including water*",[23] however the Innovation Uplift does not do this; and

(iv) GEMA erred as a matter of law within the meaning of Section 23D(4)(e) GA86 – by breaching the duties identified in paragraph (44)(i) above and by acting disproportionately and reaching conclusions without adequate supporting evidence.

2.5 Ground 4: Efficiency Benchmark

2.5.1 Overview

(45) GDNs' allowances are set by GEMA based on its assessment of the costs that would be incurred by a notional efficient company. GEMA carries out econometric benchmarking to assess the relative efficiencies between companies and this is used to set the efficient frontier, or benchmark, to which less efficient firms are required to "catch up". In recent price controls, GEMA (and other regulators) have set the efficiency benchmark (that is to say the level at which the notional efficient company is expected to operate) at the upper quartile in its econometric modelling. However, at FD, GEMA has moved away

[21] See Firmus Energy (2017), para 5.85 (SGN1_125), where the CMA stated that it "*would expect assumptions that are major drivers of the price control to be based on robust evidence*".

[22] See the principles outlined in the Principles of Good Administration, Principles for Economic Regulation and the Better Regulation Framework, as summarised at paragraphs (85) to (91) below.

[23] See FD Core Document, para. 5.26 (SGN1_009).

from the upper quartile, setting a more stretching efficiency benchmark on a glidepath to the 85th percentile (the "**85th percentile benchmark**").[24]

(46) The Appellants submit that GEMA has erred in its approach to setting and applying the efficiency benchmark at FD in two respects:

(i) First, GEMA's decision to set the efficiency benchmark at a level higher than the upper quartile is not supported by the evidence (in particular, GEMA's modelling is not sufficiently robust to support this change) (**Ground 4A**). Specifically:

(a) there are inherent factors that limit the level of confidence that can be attached to allowances derived from the model, including the limited sample size available to GEMA;

(b) statistical testing does not provide evidence of an improvement in model robustness capable of supporting a move beyond the upper quartile (indeed, GEMA has not satisfied its own criteria for a move beyond the upper quartile); and

(c) there are data input / model calculation errors, procedural shortcomings and data quality issues affecting GEMA's modelling which undermine the confidence that can be placed in its results.

(ii) Second, in addition, GEMA has wrongly applied it to costs that have been removed from the regression model to account for regional differences (**Ground 4B**).

(47) GEMA's approach risks under-funding efficient GDNs' costs in GD2 and potentially, if not corrected, future price controls. It is poorly justified regulation, contrary to the interests of consumers.

2.5.2 Legal consequences

(48) In light of the above errors, the Appellants submit that GEMA's adoption of the 85th percentile benchmark in RIIO-2 was wrong within the meaning of Section 23D(4) GA86.

(49) In particular, the Appellants submit that:

(i) GEMA failed, within the meaning of Sections 23D(4)(a) and 23D(4)(b) GA86, to have due regard/give appropriate weight to the performance of its duties under:

(a) Section 4AA(1-1A) GA86 (the consumer duty) – this is poorly justified regulation, contrary to the interests of consumers;

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) – it risks underfunding GD2 allowances;

(c) Section 4AA(5) GA86 (promoting efficiency and economy) – by failing to apply a robust, evidence-based efficiency benchmark; and

(d) the principles under which regulatory activities should be proportionate, consistent and targeted only at cases in which action is needed, as well as other principles of best regulatory practice (Section 4AA(5A) GA86);

(ii) GEMA's decision was based on errors of fact within the meaning of Section 23D(4)(c) GA86, including a large number of model errors, data quality issues and an insufficient assurance process in GEMA's application of the GD2 model; and

[24] FD GD Annex, para. 3.15 (SGN1_012).

(iii) GEMA erred as a matter of law within the meaning of Section 23D(4)(e) GA86 – with respect to (i) above and by acting disproportionately, failing to have regard to material considerations and reaching conclusions without adequate supporting evidence.

2.6 Relief sought

(50) The Appellants request that the CMA quash GEMA's Decision under Section 23E(2)(a) GA86 and substitute its own decision under Section 23E(2)(c) GA86 to the extent necessary to remedy the errors in the Decision as outlined in this Notice of Appeal.

(51) The specific relief sought is explained in Sections 4 – 7 below. Appendix 1: Implementation of Relief (SGN1_151) and Appendix 2: Amendments to the PCFM (SGN1_152) outline provisional steps for the implementation of the Appellants' requested relief. The Appellants will provide all such assistance to the CMA as is necessary to secure the implementation of any required relief within the CMA's administrative timetable.

3 Section 3: Legal Principles

3.1 Overview

(52) In this Section, the Appellants identify the statutory framework that governs this appeal under the GA86.

(53) This Section has three parts:

(i) First, the Appellants refer to the statutory mechanism for the modification of licence conditions.

(ii) Second, the Appellants identify the statutory grounds of appeal.

(iii) Third, the Appellants identify the standard of review to be applied in determining whether to allow this appeal.

(54) The Appellants have included this Section to explain the requirements that they understand will apply under the statutory framework, and to assist the CMA by providing context for their case.

3.2 Modification of licence conditions

(55) GEMA has the power under section 7(2)(a) of the GA86 to "*grant a licence authorising any person… to convey gas through pipes to any premises in an authorised area of his…"*

(56) GEMA further has the power to "*make modifications of … (a) the conditions of a particular licence*" under section 23(1) GA86.

(57) The Decision was made under section 23(1) GA86 following the publication of the FD and the close of the subsequent licence modification consultation.

3.3 Statutory grounds of appeal

3.3.1 Right of appeal

(58) Section 23B(1) GA86 states that:

> "*An appeal lies to the CMA against a decision by [GEMA] to proceed with the modification of a condition of a licence under section 23.*"

(59) An appeal may be brought by a "*relevant licence holder*" and certain other persons or bodies (section 23B(2) GA86). The Appellants are both "*relevant licence holders*" as defined in section 23(10) GA86, as the holders of the Licences.

3.3.2 Permission to appeal

(60) Section 23B(3) GA86 states that:

> "*The permission of the CMA is required for the bringing of an appeal under this section.*"

(61) In the case of an appeal brought by a relevant licence holder, section 23B(4)(d) GA86 provides that the CMA may refuse permission to appeal only on the following grounds:

> *"… (i) that the appeal is brought for reasons that are trivial or vexatious;*
>
> *(ii) that the appeal has no reasonable prospect of success…"*

(62) Neither of these potential grounds for refusal of permission is applicable to any of the grounds raised by the Appellants in this appeal.

3.3.3 Relevant matters

(63) Section 23D(3) GA86 states that "in determining the appeal the CMA:

(a) may have regard to any matter to which the Authority was not able to have regard in relation to the decision which is the subject of the appeal; but

(b) must not, in the exercise of that power, have regard to any matter to which the Authority would not have been entitled to have regard in reaching its decision had it had the opportunity of doing so."

(64) Accordingly, the CMA may consider evidence not considered by GEMA in making its final decision.

3.3.4 Legal test on appeal

(65) Section 23D(4) GA86 states that:

"The CMA may allow the appeal only to the extent that it is satisfied that the decision appealed against was wrong on one or more of the following grounds—

(a) that the Authority failed properly to have regard to any matter mentioned in subsection (2);

(b) that the Authority failed to give the appropriate weight to any matter mentioned in subsection (2);

(c) that the decision was based, wholly or partly, on an error of fact;

(d) that the modifications fail to achieve, in whole or in part, the effect stated by the Authority by virtue of section 23(7)(b);

(e) that the decision was wrong in law."

(66) These five grounds are considered in further detail below.

(i) Section 23D(4)(a) GA86: GEMA failed properly to have regard to the matters mentioned in section 23D(2) GA86

(67) The matters referred to in section 23D(2) GA86 are GEMA's carrying out of its principal objective and the performance of its duties under sections 4AA, 4AB and 4A GA86.

(68) The key obligations imposed by these sections are considered below.

(a) The principal objective

(69) Section 4AA(1) GA86 states that:

"The principal objective of [GEMA] in carrying out their respective functions under this Part is to protect the interests of existing and future consumers in relation to gas conveyed through pipes".

(70) Section 4AA(1A) GA86 adds that:

(a) "Those interests of existing and future consumers are their interests taken as a whole, including—

(b) their interests in the reduction of gas-supply emissions of targeted greenhouse gases;

(c) their interests in the security of the supply of gas to them; and

(d) their interests in the fulfilment by the Authority, when carrying out its functions as designated regulatory authority for Great Britain, of the objectives set out in Article 40(a) to (h) of the Gas Directive."[25]

[25] Article 40(a) to (h) of Directive 2009/73/EC (the "**Gas Directive**") requires national regulatory authorities to, among other things, (1) promote a competitive, secure and environmentally sustainable internal market in natural gas, (2) ensure appropriate conditions for the

(71) Save for the fact that section 4AA(1) GA86 makes it clear that it is referring to both existing and future consumers, the term "consumers" is not defined. It is clear, however, that "consumers" in this context includes end users of gas.

(72) The practical implications of the duty to protect the interests of consumers were considered in *NPG (2015)*. In its final determination in that case, the CMA stated that:

> "*the importance of [a] policy goal cannot, in our view, negate the need for decisions [in] the price control to be justified and supported adequately by reasoning and evidence*"[26]

and

> *"we considered carefully our duty to protect the interests of consumers. We do not consider that this duty requires us to uphold, or permitted GEMA to introduce, a significant change in approach that was inadequately justified."*[27]

(73) In *Firmus (2017)*, meanwhile, the CMA observed that it "*would expect assumptions that are major drivers of the price control to be based on robust evidence*". It found, in relation to the so-called non-additionality rate that the evidence submitted by the Northern Ireland Authority for Utility Regulation ("**UR**") did "*not support its decision*" and that there was a "*significant lack of rigour"* in the approach the UR had taken. This meant that the UR had contravened its principal objective as well as *"its [other] statutory duties and the stated effect in the GD17 Decision".*[28]

(74) The principal objective is about more than keeping customers' bills low. Rather, it requires that GEMA, via a process of rigorous and evidence-based regulation, put in place a price control package which simultaneously ensures:

(i) that GDNs are able to provide a quality of service that meets customer requirements;[29]

(ii) that the price of the service reflects the efficient costs of providing such service (including the cost of capital);[30] and

(iii) that GDNs are in a position to make the necessary investments to deliver innovation and make improvements that benefit consumers in the longer term.[31]

(b) The need to secure that all reasonable demands for gas are met

(75) Section 4AA(2) GA86 provides that, in performing its duties under sections 4AA(1B) and (1C) GA86, GEMA shall have regard to:

> *(a) "the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met…"*

(76) The Appellants note that the reference to the need to "*secure*" that such demands are met. This is necessarily an onerous test, since the GEMA has to ensure that GDNs are not only able to ensure

effective and reliable operation of gas networks, taking into account long-term objectives, (3) eliminate restrictions on trade in natural gas between EU countries, including by developing appropriate cross-border transmission capacities, (4) promote system adequacy and energy efficiency, (5) promote the integration of large and small scale production of gas from renewable energy sources and distributed production in both transmission and distribution networks, (6) facilitate access to the network for new production capacity, in particular removing barriers that could prevent access for new market entrants and of gas from renewable energy sources, and (7) ensure customer protection, ensure high standards of service and protect vulnerable customers.

[26] *NPG (2015),* para. 132 (SGN1_124).

[27] *NPG (2015),* para. 141 (SGN1_124).

[28] *Firmus (2017),* paras 5.146-5.147 (SGN1_125).

[29] Gas Directive, Article 40(h).

[30] Gas Directive, Article 40(g), *see also* Article 40(a).

[31] Gas Directive, Article 40(f).

availability of gas, but also secure that they are delivered to an appropriate standard of quality and continuity. Paragraph (73) above is repeated.

(c) The need to secure that licence holders are able to finance their regulated activities

(77) Section 4AA(2) GA86 also provides that, in performing its duties under sections 4AA(1B) and (1C) GA86, GEMA shall have regard to:

> *(b) "the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under this Part, the Utilities Act 2000, Part 5 of the Energy Act 2008 or section 4, Part 2, or sections 26 to 29 of the Energy Act 2010."*

(78) Section 4AA(2)(b) GA86 implies in this appeal because the Decision is in relation to activities which are the subject of obligations imposed "*under this Part*" – that is, Part 1 GA86. Again, the reference to the need to "*secure*" that licence holders are able to finance their regulated activities implies an onerous test.

(79) In *SONI (2017)*, the CMA found numerous breaches of the financeability duty.[32] For example, it observed that:

> "*if asymmetric risks result from a framework under which SONI faces considerable risk of not recovering its efficiently incurred costs without it being compensated for these risks, in our view this would not be consistent with UR's duty to ensure SONI's financeability*";[33]

and

> "*we consider that the Dt mechanism as presently specified results in significant uncertainty for SONI and is sufficiently unworkable that it is not consistent with the UR's duty to secure SONI's financeability*".[34]

(80) It follows, therefore, that section 4AA(2)(b) GA86 requires GEMA to not only set adequate cost of capital allowances, but also sufficient allowances to cover other costs. Moreover, GEMA acts inconsistently with this duty when it relies on erroneous data, and when it relies on methodologies that lack sufficient rigour/robustness and create unwarranted asymmetric risks and uncertainty.

(d) Promoting efficiency and economy

(81) Section 4AA(5) GA86 provides that, subject to subsections 4AA(1B) and (2) GA86, and to section 132(2) of the Energy Act 2013 (duty to carry out functions in manner best calculated to further delivery of policy outcomes) GEMA shall carry out its functions under Part 1 GA86 in the manner which it considers is "*best calculated*…

> *(a) to promote efficiency and economy on the part of persons authorised by licences or exemptions to carry on any activity, and the efficient use of gas conveyed through pipes…"*

(82) The Appellants note that the language "*the manner in which [GEMA] considers is best calculated*", while it suggests a less onerous test than that provided for in those provisions which refer to the need to "*secure*", nonetheless requires GEMA to meet high standards. When faced with a range of possible approaches to an issue, GEMA's obligation is to act in the manner "*best calculated*". Accordingly, its

[32] See *SONI (2017)*, Ground 1, errors 1(a), (b) and (c); Ground 2, errors 2 and 6; Ground 3, errors 10 and 11 (SGN1_057).

[33] *SONI (2017),* para. 6.220 (SGN1_057).

[34] *SONI (2017)*, para. 6.241 (SGN1_057).

margin of appreciation does not extend to choosing an approach that is clearly inferior to another available choice.

(83) Paragraph (73) above is repeated again. The CMA in *Firmus (2017)* also observed that:

> "*[B]y setting OO connection targets on the basis of incorrect data (Ground 2A) and/or by setting the OO 25% non–additionality rate on a basis that has been so fundamentally undermined that it cannot stand (Ground 2B), the GD17 Decision on the connection incentive was wrong on the [grounds that] … (c) the UR failed properly to have regard to and/or to give appropriate weight to its statutory duty to promote the efficient use of gas and efficiency and economy in the conveyance, storage or supply of gas*".[35]

(84) The Appellants submit that there are two ways in which Section 4AA(5) GA86 is engaged in the present case. First, it is engaged on the basis that the aspects of the Decision that the Appellants are appealing undermine incentives to invest and to achieve efficiency gains. Second, it is engaged on the basis that the setting of inadequate allowances necessarily impairs the efficient and economic performance of GDNs activities (to the detriment of both companies and consumers alike).

(e) Best practice regulation

(85) Finally, section 4AA(5A) GA86 requires that GEMA, in carrying out its functions under Part 1 GA86, must "*have regard to…*

> *(a) the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed; and*
>
> *(b) any other principles appearing to him or, as the case may be, it to represent the best regulatory practice".*

(86) While GA86 does not proceed to cite any specific principles, guidance as to the scope of this duty can be drawn from:

(i) the Parliamentary and Health Service Ombudsmen's Principles of Good Administration document (the "**Principles of Good Administration**");[36]

(ii) the Department for Business, Energy & Industrial Strategy Principles for Economic Regulation document (the "**Principles for Economic Regulation**");[37] and

(iii) the Better Regulation Taskforce's Principles of Good Regulation document (the "**Better Regulation Framework**").[38]

(87) Pursuant to the Principles of Good Administration, public bodies are expected:

(i) to seek to get things right by "*acting in accordance with the law and with regard for the rights of those concerned*", "*acting in accordance with [their own] policy and guidance (published or internal)*", "*taking proper account of established good practice*" and "*taking reasonable decisions, based on all relevant considerations… and ignor[ing] irrelevant ones*";

(ii) to be customer focused by "*keeping to [their] commitments*" and "*dealing with people helpfully, promptly and sensitively, bearing in mind their individual circumstances*";

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[35] *Firmus Energy (2017)*, para. 5.154(c) (SGN1_125).

[36] The Principles of Good Administration represent a strong set of guidance that, though not legally binding, outlines a set of standards that all public bodies should seek to abide by. The Principles of Good Administration are accessible here (SGN_121)

[37] The Principles for Economic Regulation are accessible here (SGN1_122).

[38] The Better Regulation Framework is accessible here (SGN1_123).

(iii) to be open and accountable by "*being open and clear about policies and procedures*" and "*stating [their] criteria for decision making*"; and

(iv) to act fairly and proportionately by "*ensur[ing] that the measures taken are proportionate to the objectives pursued [and] appropriate in the circumstances" and ensuring generally that "decisions and actions are proportionate, appropriate and fair*".

(88) The Principles for Economic Regulation stipulate (among other things) that:

(i) regulators "*should provide a stable and objective environment enabling all those affected to anticipate the context for future decisions and to make long term investment decisions with confidence*";

(ii) regulators "*should not unreasonably unravel past decisions, and should allow efficient and necessary investments to receive a reasonable return, subject to the normal risks inherent in markets*"; and

(iii) interventions "*must be proportionate and cost-effective*" while "*decision making should be timely, and robust*".

(89) The Principles for Economic Regulation also refer to:

(i) the need to "*design regulatory frameworks that prevent unexpected changes to the rules of the game" and "increase the predictability of regulatory outcomes*";

(ii) the need to ensure that regulators "*deliver desired outcomes in the least burdensome way… imposing requirements only where necessary*"; and

(iii) the need to ensure that "*parties are able to challenge decisions taken by regulators through an appropriate and proportionate mechanism to an independent third party*".

(90) Pursuant to the Better Regulation Framework, finally, regulators are expected (among other things):

(i) to "*only intervene when necessary*";

(ii) to ensure remedies are "*appropriate*" and "*proportionate*" in view of the risks posed;

(iii) to ensure that regulation is "*predictable in order to give stability and certainty to those being regulated*";

(iv) to make provision for consultation "*before proposals are developed, to ensure that stakeholders' views and expertise are taken into account*"; and

(v) to ensure that there are "*accessible, fair and effective complaints and appeals procedures*" in place.

(91) More generally, in *E.ON*, the Competition Commission ("**CC**") found that GEMA had erred in its decision on the basis that it failed properly to have regard to the principle that regulatory activities must be transparent. This was because GEMA's decision "*was not expressed in sufficiently clear and transparent terms*".[39] It follows that section 4AA(5A) GA86) requires GEMA to express decisions in terms that are clear both as to the substantive effect that is proposed and the reasoning underpinning that decision.

(ii) Section 23D(4)(b) GA86: GEMA failed properly to give appropriate weight to the matters mentioned in section 23D(2) GA86

[39] *E.ON UK (2007)*, para. 7.14 (SGN1_131).

(92) GEMA will have failed to give appropriate weight to the obligations set out above where it has given insufficient or excessive weight to any of its obligations. The CC's interpretation of the corresponding ground in *E.ON* is expressed similarly:

> "*In relation to section 175(4)(c), it is important to note the precise language of that section. Section 175(4)(c) provides that a decision may be wrong on the grounds that GEMA failed to give the appropriate weight to one or more of the matters or purposes referred to in subparagraphs (a) and (b). Subparagraph (c) is therefore concerned with the weight given by GEMA to the relevant matters and purposes*."[40]

(iii) Section 23D(4)(c) GA86: GEMA's decision was based wholly, or partly, on an error of fact

(93) The Appellants submit that GEMA will have based its decision wholly, or partly, on an error of fact where GEMA has made a factual error in making its decision and that error materially affects the decision. The CC considered this same ground in *E.ON* and found that it had:

> *"a clear jurisdiction in respect of factual errors, and we will exercise that jurisdiction where we conclude that GEMA has based its decision on a plain error of fact".*[41]

(94) In the RIIO-ED1 appeals, the CMA adopted the CC's reliance on the Court of Appeal's decision in *Assicurazioni Generali Spa v Arab Insurance Group*[42] where an arguable error of fact is alleged, the court must "*determine whether or not this is so*." Accordingly "*it is for us if necessary to make up our* own *mind about the correctness or otherwise of any findings of primary fact or inference from primary fact that the judge made or drew and which the claimants challenge*."[43]

(95) Consistent with this, the CMA held in *SONI (2017)* that the UR's failure to address errors in the calculation of the inflation adjustment arising from the use of incorrect data amounted to an error of fact.[44] Calculation errors were notably also considered by the CMA in *Firmus (2017).* In that case, the CMA observed that the fact that there might be "*no single, correct value*" for a given target or parameter would not preclude it from finding that the UR had made a calculation error.[45] The CMA then went on to state that:

> "*In our view, as a point of regulatory principle, such data errors (and ensuing calculation errors) when making important decisions should generally be corrected. We would expect the UR to accept this as a matter of principle.*"[46]

(iv) Section 23D(4)(d) GA86: The licence modifications fail to achieve, in whole or in part, the effect stated by GEMA

(96) Under section 23(7)(b) GA86 GEMA must include in its decision to proceed with the making of licence modifications a statement regarding the effect of the modifications. Should those licence modifications fail to achieve, in whole or in part, the effect stated, then the decision may be overturned on appeal pursuant to section 23D(4)(d) GA86.

(97) As regards the effect stated by GEMA in the present case, paragraph 1.1 of the Statement of Reasons and Effects accompanying the Decision states that:

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[40] *E.ON UK (2007)*, para 7.16. (SGN1_131).

[41] *E.ON UK (2007)*, para 5.16. (SGN1_131).

[42] Assicurazioni Generali Spa v Arab Insurance Group [2003] 1 WLR 577 (SGN1_132).

[43] *BGT (2015)* para 3.30 (SGN1_133).

[44] *SONI (2017),* para. 5.145 (SGN1_057).

[45] *SONI (2017),* para 5.107 (SGN1_057).

[46] *Firmus Energy (2017)*, para. 5.107 (SGN1_124).

"*We are making modifications to the licence conditions required to implement our decisions in the SSMD and the Final Determinations on the RIIO-ET2, RIIO-GT2, RIIO-GD2 and RIIO-ESO price control settlements.*"[47]

(98) The Decision also then proceeds to set out, in granular detail, the technical effects of the various proposed licence modifications. The CMA made it clear in *BGT (2015),* however, that it is "*appropriate to look beyond*" the licence modification decision itself "*in order to identify the effect that should be understood as relevant for the purposes of the statutory ground.*" The CMA added that:

"*We do not consider the absence of an identified effect in [the licence modification decision] should mean that the statutory ground under section 11E(4)(d) [(i.e. the equivalent provision to section 23(7)(b) GA86 in the Electricity Act 1989)] ceases to be applicable*."[48]

(v) Section 23D(4)(e) GA86: GEMA's decision was wrong in law

(99) GEMA's decisions will be wrong in law where, inter alia, GEMA has: (i) misdirected itself on its obligations in making its decision; (ii) made an unreasonable decision; (iii) failed to take into account relevant matters (or taken into account irrelevant ones); (iv) failed to carry out a reasonable investigation; or (v) has failed to act in a proportionate manner; or (vi) acted with procedural unfairness. Such errors of law would also be available were a judicial review standard to apply, and the case law addressing them reflects that higher standard. Given the other grounds available to SGN, as explored in the preceding sections, it is not necessary for SGN to demonstrate an error of law for its appeal to succeed, however it is nonetheless sufficient.

(100) **Misdirection on law**: As explained by Lord Diplock in *Council of civil Service Unions v Minister for the Civil Service* [1985] AC 374, 410:

"*the decision-maker must understand correctly the law that regulates his decision-making power and must give effect to it. Whether he has or not is par excellence a justiciable question to be decided, in the event of dispute, by those persons, the judges, by whom the judicial power of the state is exercisable*."[49]

(101) **Unreasonableness**: GEMA acts unlawfully where its decision is unreasonable or irrational. As the Court of Appeal stated in *SCOP v CMA*, there is an error of law where: "*the CMA has misinterpreted the law or reached an irrational conclusion on the facts*."[50] The question whether a decision is unreasonable is an objective test.[51] A decision can be unreasonable where no reasonable authority could have come to it or where there is a demonstrable flaw in the reasoning.[52] A decision is unreasonable where there is no adequate evidential foundation on the basis of which the decision-maker could reasonably have come to its decision (either because there is no evidence at all or because the evidence did not provide a basis for the decision-maker to reach the decision reasonably).[53]

(102) **Relevant and irrelevant considerations**: GEMA acts unlawfully where it takes into account matters irrelevant to its decision or refuses or fails to take account of matters relevant to its decision.[54] The

[47] RIIO-2 Licence Drafting Modifications – Reasons and Effects (SGN1_001).

[48] *BGT (2015)*, para. 6.130 (SGN1_133).

[49] Council of civil Service Unions v Minister for the Civil Service [1985] AC 374, 410 (SGN1_148).

[50] SCOP v CMA [2015] EWCA Civ 487 at 108 (SGN1_147). See similarly: R (Royal College of Nursing) v Secretary of State for the Home Department [2011] PTSR 1193, at 104 (SGN1_138), also confirming that an irrational decision amounts to an error of law.

[51] In re W (An Infant) [1971] AC 682, 718B (SGN1_146).

[52] R (Law Society) v Lord Chancellor [2018] EWHC 2094 (Admin); R (Balajigari) v SSHD [2019] 1 WLR 1649 at 98.

[53] Stagecoach v Competition Commission [2010] CAT 14 at 42 and 45 (SGN1_140).

[54] R (Alconbury Developments Ltd) v Secretary of State for the Environment Transport and the Regions [2001] UKHL 23; [2003] 2 AC 295 at 50 (SGN1_141).

matters to which regard must (and must not be) had can be identified by interpretation of the relevant statute:

> "*If, in the statute conferring the discretion, there is to be found expressly or by implication matters which the authority exercising the discretion ought to have regard to, then in exercising the discretion it must have regard to those matters. Conversely, if the nature of the subject matter and the general interpretation of the Act make it clear that certain matters would not be germane to the matter in question, the authority must disregard those irrelevant collateral matters*."[55]

(103) **Duty to investigate:** GEMA also acts unlawfully where it fails to take reasonable steps to acquaint itself with the information to enable itself to correctly answer the relevant question.[56] The duty to investigate is seen as a wider part of the doctrine of unreasonableness, such that there is an error of law if the decision-maker's approach was not one open to a reasonable decision-maker.[57] The wider the discretion conferred on GEMA, the more important it is that GEMA has all relevant material to enable it properly to exercise that discretion.[58]

(104) **Proportionality**: whereas proportionality has not yet been finally recognised as an independent ground of judicial review (i) proportionality is expressly part of the statutory considerations under GA 1986;[59] (ii) is a requirement of regulatory activity under Article 41 Gas Directive[60] (iii) is an implicit feature of the assessment on appeal to determine whether GEMA has had 'proper regard' and given 'appropriate weight' to the matters mentioned in section 23D(2),[61] and, (iv) in any event often yields the same outcome as a test of reasonableness.[62]

(105) The role of proportionality is recognised in the CMA's decision making practice in energy appeals. In *BGT (2015)* the CMA stated that a decision would be wrong in law where:

> "*the effect of the recalibration… went beyond what GEMA was seeking to achieve… and/or was disproportionate to the aim of the recalibration*."[63]

(106) **Procedural unfairness:** It is also clear from the CC's comments in E.ON that the phrase "*wrong in law*" includes the public law concept of procedural unfairness/breach of natural justice.[64] The Appellants submit that this requires GEMA, when making price control decisions, to conduct consultations prior to such decisions with an open mind, allow interested parties to make representations, and to provide clear reasons for its decision (including responding properly to any material points made by interested parties). In Balajigari, the Court of Appeal stated:

> "*46. … the question of whether there has been procedural fairness or not is an objective question for the court to decide for itself. The question is not whether the decision-maker has acted reasonably, still less whether there was some fault on the part of the public authority concerned*."

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[55] Associated Provincial Picture Houses Ltd v Wednesbury Corporation [1948] 1 KB 223, 228 (SGN1_142).

[56] Secretary of State for Education and Science v Tameside MBC [1977] AC 1014 at 1065B (SGN1_143).

[57] R (Balajigari) v SSHD [2019] EWCA Civ 673; [2019] 1 WLR 4647 at 70, i.e. it is not enough to show that further inquiries would have been sensible or desirable (SGN1_145).

[58] Regina v Secretary of State for the Home Department, Ex parte Venables [1998] A.C. 407 at 466 (SGN1_149).

[59] Section 4AA(5A) GA86.

[60] See Article 41(4)(b) which requires regulators to be empowered: "to carry out investigations into the functioning of the gas markets, and to decide upon and impose any necessary and proportionate measures to promote effective competition and ensure the proper functioning of the market."

[61] Section 23D(4) GA86.

[62] R (Youssef) v Secretary of State for Foreign and Commonwealth Affairs [2016] UKSC 3; [2016] AC 1457 at 57 (SGN1_144).

[63] *BGT (2015),* para. 6.134 (SGN1_133).

[64] *E.ON UK (2007)*, para 5.18 (SGN1_131).

3.4 Standard of review

(107) The following guidance as to the standard and nature of the CMA's review can be drawn from prior appeal decisions and the CMA's published correspondence with GEMA.

3.4.1 Merits review

(108) In the RIIO-ED1 appeals the CMA made clear that the applicable standard of review is a merits review, going beyond judicial review, stating that:

> *"We agree that we are not limited to reviewing the decision on conventional judicial review grounds and that we are not only able, but required by EA89, to consider the merits of the decision under appeal, albeit by reference to the specific grounds of appeal laid down in the statute."*[65]

(109) The CMA's determinations in the RIIO-ED1 appeals also refer to the government's response to the Department of Energy and Climate Change's ("**DECC's**") consultation on the 'Implementation of the Third Internal Energy Package' (which led to the introduction of the appeals regime), stating the government's intention that the appeals regime should "*enable the appeal body to take into account the merits of the case*".[66]

(110) Noting the approach of the Supreme Court in *BT v Telefonica O2 UK*[67] concerning the relevant appeals regime in the Communications Act 2003, the CMA also confirmed in the RIIO-ED1 appeals that it had the power to make "*certain factual judgments*"[68] and should not limit itself to considerations of errors of law or judicial review.

(111) On this basis, the Appellants submit that the CMA is required to consider the merits of the grounds raised in its appeal including making its own factual judgments where appropriate to take the merits of the Appellants' arguments into account.

3.4.2 Regulatory discretion

(112) In the RIIO-ED1 appeals, the CMA stated that:

> *"there has to be, in our view, a limit to the discretion of regulators to make adjustments… in setting the price control where the consultation process has failed to demonstrate evidence in support of those adjustments… the exercise of regulatory discretion remains bounded and subject to legal principles".*[69]

(113) The CMA held on the facts that the requisite evidence in support was not present, concluding 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".*[70]

(114) The principle that regulatory discretion can only be exercised within certain bounds and that decisions must be supported by evidence was also recognised by the Court of Appeal in *BT v Ofcom*,[71] a case cited by the CMA in BGT and NPG.

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[65] *BGT (2015)*, para. 3.24 (SGN1_133); *NPG (2015)*, para.3.23 (SGN1_124).

[66] DECC, Implementation of the EU Third Internal Energy Package: Government Response (January 2010) available here, para 2.24 (SGN1_135).

[67] *BT v Telefonica O2 UK* [2014] UKSC 42 [2014] All ER 907 (SGN1_136).

[68] *BGT (2015),* para 3.41; *NPG (2015)* para 3.40 (SGN1_133).

[69] *NPG (2015),* para 4.142 (SGN1_124).

[70] *NPG (2015),* para 4.140 (SGN1_124).

[71] The Court of Appeal noted in this case that (a) "*In considering whether the regulator's decision on [a] specific issue is wrong, the Tribunal should consider the decision carefully, and attach due weight to it, and to the reasons underlying it...*" and (b) "*When considering how*

3.4.3 Materiality

(115) In the RIIO-ED1 appeals, the CMA stated that:

> *"We understand that it was common ground between the parties that we [the CMA] should only interfere with the Decision if we consider that the error identified is material, and this approach is obviously correct.*
>
> *… an error will not be a material error where it only has an insignificant or negligible impact in relative terms on the overall level of price control that has been set by GEMA."*[72]

(116) None of the matters raised in this appeal could reasonably be characterised as insignificant or negligible and each of the Grounds advanced by the Appellants raises matters which are clearly material.

(117) The CMA has also been clear that materiality is about more than size alone.[73] In *NPG (2016)* it stated that:

> *"…Whether an error is material must be decided on a case-by-case basis taking into account the particular circumstances of each case. Relevant factors would include the impact of the error on the overall price control, whether the cost of addressing the error would be disproportionate to the value of the error, whether the error is likely to have an effect on future price controls, and whether the error relates to a matter of economic or regulatory principle. This list is not intended to be exhaustive."*[74]

(118) Likewise, the CMA observed in its open letter of 30 October 2019 that:

> *"[S]ome issues may be low value but, if they are… clear and unambiguous factual errors, then they should be corrected… [i]n other cases, what appears to be a large error may only arise due to the presentation of an aggregation of smaller and potentially immaterial errors."*[75]

(119) Finally, the CMA concluded in *Firmus, Energy (2017)* that:

> *"FE's evidence has shown that there was a clear data error in the model used by the UR in setting the GD17 connection target. In our view, as a point of regulatory principle, such data errors (and ensuing calculation errors) when making important decisions should generally be corrected. We would expect the UR to accept this as a matter of principle."*[76]

3.4.4 Interlinkages

(120) The Appellants' understanding of the position with regard to interlinkages is as follows:

(i) Interlinked parts of a price control are those aspects of the control that cannot rationally be considered in isolation from other aspects – that is to say that they are not "*in practice a separable decision*". Whether there are sufficient links between two or more parts of a price control such that they might reasonably be treated as interconnected is a matter that needs to be considered in each case having regard to all the relevant circumstances. Where a part of a price control package that is under appeal is not interlinked to any other parts of the package,

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much weight to place upon those matters… the duration and intensity of the investigation carried out by [the] specialist regulator [is] clearly [an] important factor, along with the nature of the particular issue and decision, the fullness and clarity of the reasoning and the evidence given on appeal" ([2014] EWCA Civ 133 (see here at para 87(c)-(d)) (SGN1_137).

[72] *NPG (2015),* paras 3.58-3.60 (SGN1_124); *BGT (2015), p*aras 3.60-3.62 (SGN1_133).

[73] *SONI (2017)* para 3.39 (SGN1_057); *Firmus Energy (2017)* para 3.22 (SGN1_125); *BGT (2015)* paras 3.58-3.60 (SGN1_133).

[74] *NPG* (2015), para. 3.58 (SGN1_124). See also *Firmus Energy* (2017), para. 3.25 (SGN1_125).

[75] CMA Letter on Statutory Appeals Mechanism, para. 5 (SGN1_030).

[76] *Firmus Energy (2017)*, para 5.107 (SGN1_125).

however, the CMA need only review the discrete elements of the package in respect of which the appeal has been brought.

(ii) Should GEMA wish to argue that changes to one aspect of the price control package might necessitate changes to other aspects, it is incumbent on GEMA to clearly identify and explain the relevant interlinkages.[77]

(iii) The CMA can take into account all the interlinked parts of a price control when reaching its determination on any of those parts that have been appealed.

(121) The Appellants further note the CMA's observation in its open letter of 30 October 2019 that:

> *"The overall price control set by a regulator is the combination of a number of individual decisions, and we do not accept that it can be beyond the CMA's powers to review these individual decisions, on the basis that they need to be considered "in the round" with decisions that are otherwise unconnected parts of the regulatory settlement."*[78]

(122) The Appellants agree with the CMA that "*in the round*" assessment is neither appropriate nor necessary where unconnected components of the price control package are concerned, noting that in NPG and BGT the CMA rejected the argument that it was required to review price controls "*in the round*" or on a "*global basis*".[79] Where two or more decisions are, in practice, separable decisions, it is clear that they are capable of being – and should be – considered separately. The Appellants comment on specific interlinkages where appropriate in their detailed grounds below.

[77] CMA Letter on Statutory Appeals Mechanism, para 14 (SGN1_030).

[78] Open Letter from CMA to Ofgem dated 30 October 2019, para 16 (SGN1_029).

[79] *NPG (2015),* at para 3.49 (SGN1_124), *BGT (2015)* at para. 3.50 (SGN1_133).

4 Ground 1 – Cost of Equity

4.1 Overview

(123) GEMA has a statutory duty to act in accordance with its principal objective to protect the interests of existing and future consumers".[80] GEMA must also have regard to "*the need to secure that licence holders are able to finance [their] activities*".[81]

(124) At the start of RIIO-2, GEMA outlined that its approach to setting the baseline allowed return "*must ensure investors in an efficiently run company can earn a reasonable level of return*".[82] GEMA estimated the cost of equity using the Capital Asset Pricing Model ("**CAPM**") model. GEMA's estimate of the cost of equity at FD resulted in a point estimate of 4.55%, within a range of 3.8% - 5.0%.

(125) GEMA conducted a financeability assessment of whether a notionally efficient company could access finance on reasonable terms. After making several unjustified adjustments and assumptions about the notionally efficient company, GEMA applied an "in the round" assessment to conclude that all companies could "broadly" achieve a comfortable investment grade credit rating.

(126) The Appellants request that the CMA read the following expert reports from KPMG that are relied on in their entirety for submissions under **Ground 1 (Cost of Equity)**. Key arguments which they contain are included within this ground of appeal:

(i) Estimating the Cost of Equity for RIIO-GD2 (the "**KPMG Cost of Equity Report**") that is Exhibit KPMG_COE1/1 to the Joint Witness Statement of Stella Deakin and Alan Gregory (KPMG_COE1).

(ii) Northern Gas Networks and Scotia Gas Networks: Future of Gas (the "**KPMG Future of Gas Report**") that is Exhibit KPMG_FOG1/1 to the Joint Witness Statement of Michael Smart and Hylton Millar (KPMG_FOG1).

(iii) Financeability of SGN based on the RIIO GD2 Final Determination (the "**KPMG Financeability Report**") that is Exhibit KPMG_FIN1/1 to the Witness Statement of Hylton Millar (KPMG_FIN1).

(iv) Ofgem's RIIO-2 outperformance wedge (the "**KPMG OW Report**") that is Exhibit KPMG_OW1/1 to the Joint Witness Statement of Geoffrey Randall and Hylton Millar (KPMG_OW1).

(127) The Appellants submit that GEMA made a number of methodological and evidential errors in estimating the cost of equity:

(i) GEMA has underestimated key components of the cost of equity by failing to have due regard to relevant evidence (in particular, the Total Market Return, Beta and Risk-Free Rate). In so doing, GEMA reached conclusions without having regard to relevant considerations (**Error 1**).

(ii) GEMA has failed to adequately "aim up" in setting the point estimate for the cost of equity. 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 (**Error 2**).

(iii) GEMA's financeability assessment was based on several unjustified assumptions, which masked the true impact of its errors on the cost of equity and allowed it to conclude that the companies would be able to finance their functions (**Error 3**).

[80] Section 4AA(1) GA86.

[81] Section 4AA(2) GA86.

[82] RIIO-2 Framework Consultation, page 76 (SGN1_016).

(128) The net result of these errors is that GEMA has set a cost of equity in RIIO-2 which is too low.

4.1.1 Legal consequences

(129) In light of the above errors, the Appellants submit that GEMA's cost of equity point estimate is wrong within the meaning of Section 23D(4) GA86.

(130) In particular, the Appellants submit that:

(i) GEMA failed, within the meaning of Sections 23D(4)(a) and (b) GA86, to have due regard / give appropriate weight to the performance of its duties under:

(a) Section 4AA(1-1A) GA86 (the consumer duty) - The FD fails to secure sufficient investment in energy infrastructure which will negatively impact both current and future customers.

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) - The cumulative result of Errors 1-3 undermines the Appellants' ability to finance their activities.

(c) Section 4AA(5A) GA86 (the principles under which regulatory activities should be proportionate consistent and targeted only at cases in which action is need, as well as other principles of best regulatory practice) – GEMA's approach is not transparent, in particular in adopting decisions without providing the evidence underpinning its analysis.

(ii) GEMA's decision was based on the errors of fact within the meaning of Section 23D(4)(c) GA86, in particular in its interpretation of the relevant economic data.

(iii) GEMA's decision fails to achieve, in whole or in fact, the stated effect within the meaning of Section 23D(4)(d) GA86. In particular, it has failed to set an allowed return to remunerate investors for their investment in network services.[83]

(iv) GEMA's decision was wrong as a matter of law within the meaning of Section 23D(4)(e) GA86 – in particular in that GEMA has acted disproportionately and reaching conclusions without having regard to relevant considerations.

4.1.2 Materiality

(131) The combined effect of these errors has a material impact on the Appellants, affecting their ability to recover adequate revenue commensurate with the risks facing GDNs. Even an uplift of the point estimate to the low end of the KPMG range (5.18%) would have an impact of £**[CONFIDENTIAL]** over the price control period.

4.1.3 Relief / remedy sought

(132) The Appellants request that the CMA quash the Decision with respect to the cost of equity estimate.

(133) The Appellants request that the CMA should substitute its own decision which adopts a cost of equity point estimate within the range provided by the KPMG Cost of Equity Report of 5.18% and 6.24%, reflecting all of the errors set out within this Ground 1, including the need to aim up after selecting the midpoint. In the alternative, the CMA should adopt a higher cost of equity point estimate than identified by GEMA, insofar as it accepts any of the errors identified in this Ground 1. Further detail on the implementation of the specific relief requested is included in Appendices 1 and 2 to this Notice of Appeal.

[83] FD Finance Annex, page 24 (SGN1_011): "*Returns to equity investors remunerate their investment in network services and comprise a baseline allowance plus performance incentives*"; SSMD Finance Annex, page 24 (SGN1_021): "*We estimate the cost of equity so that equity investors can be remunerated for the risk that they bear*".

4.2 GEMA's approach

(134) The allowed cost of equity is an important component of the calculation of the Appellants' allowed revenue – it directly affects the revenue that can be recovered through customer bills, and consequently the returns that can be paid to investors to attract investment. This Ground 1 addresses the size of GEMA's cost of equity allowance, which for RIIO-2 is expressed in real CPIH terms, as a real cost of equity is applied to an asset base that is indexed to CPIH inflation after 1 April 2021.

(135) GEMA's RIIO-2 framework decision outlined that it would achieve its objectives by "*allowing network companies to **earn returns that are fair** and represent good value for consumers, properly reflecting the risks faced in* these *businesses, and prevailing financial market conditions.*"[84] In relation to the allowed cost of equity, GEMA noted in its SSMD that "*we estimate the cost of equity so that equity investors can be remunerated for the risk they bear*"[85] and similarly made clear in the FD that the purpose of setting the returns to equity investments was to "*remunerate their investment in network services and comprise a baseline allowance plus performance incentives*".[86]

(136) As the CMA will be aware, the CAPM is the established methodology for estimating the cost of equity in regulatory price controls. The three key components of the CAPM cost of equity are set out below. Each of these components is estimated over a long-run investment horizon – commensurate with the long-term nature of financing and the long-term asset lives within infrastructure networks.

(i) **Total market return** ("**TMR**"), which is the total return that a well-diversified investor expects from investing in the 'market portfolio'. TMR is not directly observable, as it is a forward-looking estimate of investors' expectations of return for taking equity market risk.

(ii) **Beta**, which reflects an asset's exposure to systematic or common risks relative to the market portfolio. The beta is therefore estimated by measuring the covariance of returns on the asset in question with the market portfolio.

(iii) **Risk-free rate** ("**RFR**"), which is the return required on a 'riskless' asset. It is a measure of the rate of return that an investor can expect to earn without taking any systematic risks, i.e. the return on a zero-beta asset. RFR is estimated by reference to the returns on suitable proxies for a riskless asset.

(137) A range for the CAPM derived cost of equity ("**CAPM CoE**") is calculated, using ranges for the aforementioned input parameters. A point estimate is then selected for the allowed cost of equity for insertion into GEMA's allowed revenue calculation.

(138) In RIIO-2, GEMA estimated the cost of equity to be 4.55% using the CAPM, after adopting the following approach to the key components:

(i) GEMA's estimate of the **TMR** is based on its specific interpretation of the 'historical ex post' approach.[87] This approach assumes that returns on the market portfolio achieved in the long-run past are a good proxy for forward-looking expectations of returns.[88] To derive an estimate in real CPIH terms (from the long-run returns observed in annual, nominal terms), a regulator is required to consider: (a) the appropriate measure of historical inflation to deflate the nominal

[84] RIIO-2 Framework Decision, page 4 (SGN1_017).

[85] SSMD Finance Annex, page 24 (SGN1_021).

[86] FD Finance Annex, page 24 (SGN1_011).

[87] SSMD Finance Annex, para. 3.104 (SGN1_021).

[88] The TMR estimate is derived by calculating average returns achieved from 1900 to the present day. The start date of 1900 is chosen simply for convenience, as it is the longest run of data that is comprehensively available across markets.

historical returns; and (b) the appropriate approach to averaging the annual return, to derive a TMR that is appropriate for a long-run investment horizon. In RIIO-2, GEMA has controlled for inflation using a composite historical inflation series which includes a 'back cast' estimate of the CPI for 40 years. It estimated the average return using the geometric average for the full 120-year period, then applied an uplift from the geometric average at the lower end of the UKRN's 1-2 percentage point range.[89] GEMA concludes on a TMR range of 6.25% to 6.75% and picks the mid-point to arrive at a point estimate of 6.5%, real CPIH.

(ii) GEMA has estimated the **beta** based on its analysis of the covariance of returns on four UK listed utilities companies (three of which are water companies) with the FTSE All Share. GEMA estimated beta using a range of estimation windows (2, 5 and 10 year) and averaging periods (spot, 2, 5 and 10 year) and daily sampling frequencies.[90] It placed the most weight on the 10-year estimation windows. GEMA did not consider there to be a significant difference in the systemic risk facing the gas distribution networks and its chosen comparators.

(iii) GEMA has estimated the **RFR** mechanistically by reference to observed yields on UK, 20-year inflation linked government bonds (index-linked gilts or "**ILGs**"). GEMA proposes to index the cost of equity allowance annually by reference to the average yield on its reference bond in the month of October. This will mean that changes in yields on ILGs over the course of the price control period will feed through directly into changes in RIIO-2 allowed revenues.

(139) GEMA then carried out cross-checks on the CAPM CoE range. It concluded that these cross-checks supported a lower cost of equity, and tightened the range accordingly.[91] However, it also acknowledged stakeholder feedback on the strength of the cross-checks and continued to rely on the midpoint of the original CAPM CoE range.

(140) Having calculated its allowed cost of equity, GEMA then reduced the allowed return by 25 bps, due to its expectation that companies would outperform by 0.25% of RoRE. This is dealt with in detail in **Ground 2 (Outperformance Wedge)**.

(141) GEMA did not "aim up" above the mid-point to account for estimation uncertainty or asymmetric risk.[92] It did not consider there was a need to aim up in the energy sector to maximise consumer welfare, secure additional investment, address asymmetry in the package or address financeability constraints.[93] GEMA did, however, claim that its FD was "*arguably consistent with a degree of aiming up*", since it did not revise its CoE point estimate on the basis of the cross-checks, and used the "minimum value" of 25 bps for the outperformance wedge.[94]

(142) GEMA then carried out a financeability assessment to "*check that all components of [its] Final Determination,* when *taken together, allow a notional efficient operator to generate cash flows sufficient to meet its financing needs*". GEMA acknowledged continued investment in a stable and well-functioning network would support energy supply at efficient costs, which would benefit customers.[95]

(143) The FD relies on several assumptions about the notionally efficient company. The significant changes from RIIO-GD1 included: (i) assumed outperformance of 0.25% of RoRE; (ii) gearing of 60% (reduced from 65%); (iii) notional dividend yield of 3% (reduced from 5%); and (iv) index-linked debt of 30%

[89] This is the compound rate of return if an investor held UK equities for the whole 120 years.

[90] FD Finance Annex, Table 10 (SGN1_011).

[91] FD Finance Annex, paras 3.120-3.121 (SGN1_011).

[92] Albeit GEMA did consider that its decision not to adjust for cross-checks effectively meant it had aimed-up. *See* FD Finance Annex, para. 3.186 (SGN1_011) "*Our final view in these FDs is arguably consistent with a degree of aiming up*."

[93] FD Finance Annex, paras 3.179-3.185 (SGN1_011).

[94] FD Finance Annex, para. 3.186 (SGN1_011).

[95] FD Finance Annex, page 73 (SGN1_011).

(increased from 25%). Additionally in RIIO-GD2, GEMA has implemented a full transition from RPI to CPIH for the purpose of calculating RAV indexation and allowed returns.

(144) GEMA applied an 'in the round' financeability assessment which targeted the notional company "*broadly achieving a comfortable investment grade credit quality*".[96] It considered whether the company would meet the metrics consistent with a credit rating two notches above investment grade (i.e. Baa1 or equivalent) but took the view that a lower rating from one or more rating agencies would not make the company unfinanceable. It was able to conclude on that basis that all licensees were financeable.

4.3 Errors in GEMA's approach

(145) There is inherent uncertainty in relation to each of the components of the CAPM model. As set out in detail below, rather than adopting a balanced view of the evidence in light of this uncertainty, the Appellants believe that GEMA has adopted a downwardly biased approach across each of the key components. In so doing, GEMA has failed to act in accordance with its principal objective and its duty to have regard to ensuring that licence holders can finance their regulated activities.

(146) **GEMA has underestimated the CAPM cost of equity**. In RIIO-2, GEMA made a series of errors in calculating the material cost of equity parameters. GEMA consistently picked point estimates that are below the permissible range. These errors, individually and cumulatively, have caused GEMA to underestimate the cost of equity. GEMA's final point estimate of 4.55% is below the range of market evidence set out in the KPMG Cost of Equity Report.

(147) The Appellants submit that, in particular, GEMA has made the following errors:

(i) **Error 1 (the underestimation error)**: GEMA underestimated the CAPM CoE. When estimating each of the key cost of equity components, it reached conclusions without having regard to relevant evidence. In particular:

(a) **Error 1A (the TMR error)**: GEMA has underestimated the real TMR by: (a) deflating historical returns through placing sole reliance[97] on an inflation series which includes a modelled (unofficial) 'back cast' of CPI data for c.40 years of the relevant period; and (b) relying on a biased method to average annual returns data, failing to have regard to robust alternatives.

(b) **Error 1B (the beta error)**: GEMA has placed too much weight on the betas of listed water companies, when estimating the systematic risks facing RIIO-2 companies. This understated the systematic risk faced by the gas sector, compared to the water sector. Energy companies and GDNs in particular face higher systematic risk than water companies, which GEMA has not appropriately priced given its reliance on water company betas.

(c) **Error 1C (the RFR error)**: GEMA has placed sole reliance on UK government bonds (or index-linked gilts ("**ILGs**"), incorrectly disregarding evidence that ILGs suffer from distortions that undermine their ability to proxy a 'risk-free' asset. The RFR should reflect the risk-free borrowing and lending rates available to all market participants. GEMA has failed to consider the extensive academic and empirical literature which shows that the government can borrow at rates far lower than those rates for even the highest rated non-government participants. ILGs also suffer from material distortions which depress

[96] FD Finance Annex, para. 5.22 (SGN1_011).

[97] The term 'sole reliance' is used here to refer to GEMA's decision not to use RPI to deflate historical returns and to rely on only the composite CPI series.

the yield - in particular a convenience premium arising from high demand to meet regulatory requirements.

(ii) **Error 2 (the aiming up error)**: GEMA has wrongly decided not to aim up in setting the cost of equity, notwithstanding evidence supporting the need to aim up. Setting aside the robustness of the CAPM CoE range, GEMA's selection of the mid-point fails to have regard to material considerations that support aiming-up above the mid-point for: (a) parameter uncertainty; (b) asymmetric risks faced by GDNs; and (c) the value of real options. GEMA has therefore failed to appropriately balance the risks between setting the cost of equity too high or too low. It has similarly failed to account for the asymmetric asset stranding risks faced by GDNs as the UK transitions towards Net Zero.

(iii) **Error 3 (the financeability error)**: GEMA's financeability assessment does not provide an adequate cross-check on its cost of equity. GEMA has relied on a series of unjustified adjustments about the notional company in order to conclude that all companies are financeable "in the round" since they could "broadly" achieve a comfortable investment grade rating. While the Appellants do not contest that appropriate adjustments can be implemented to address financeability constraints, the number and scale of adjustments applied by GEMA mean that its financeability assessment no longer represents a meaningful cross-check on the calibration of the price control, including the cost of equity.

4.4 Error 1: GEMA has failed to take into account relevant factors, and reached conclusions without having regard to relevant evidence, when calculating the components of the CAPM cost of equity

(148) The Appellants submit that GEMA has failed to take into account relevant factors when calculating the CAPM cost of equity.

(149) As set out above, the CAPM model is an established methodology where the cost of equity is calculated in relation to the RFR (risk free rate), the TMR (expected return on a market portfolio) and the beta (a measure of investors' exposure to systematic risks). There is inherent uncertainty in relation to each of the components of the CAPM model.

(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.*"[98] However, rather than adopting a balanced view of the evidence in light of this uncertainty, the Appellants submit that GEMA has underestimated each of the key components, by failing to have regard to relevant evidence.

4.4.1 Error 1A: GEMA has underestimated the real TMR

(151) The KPMG Cost of Equity Report, at Section 5, provides an assessment of GEMA's approach to setting the TMR on which the Appellants rely. The TMR is a measure of the return that equity investors expect for investing in the market portfolio. There are different ways of estimating the TMR, with the historical ex post approach being the preferred approach by GEMA, the CMA and the UKRN. It is also the primary method used in the KPMG Cost of Equity Report.

(152) The historical ex post approach assumes that returns on the market portfolio achieved in the long-run past are a good proxy for forward-looking expectations of long-run returns. An estimate of the forward-looking TMR is therefore derived by calculating average returns (dividends and share price appreciation) achieved over the very long run, being 1900 to the present day.[99] Where historical returns are used to estimate TMR, KPMG notes that there are two key methodological considerations when deciding to derive a return in real CPIH terms: (i) how to measure historical inflation for the period 1900 to the

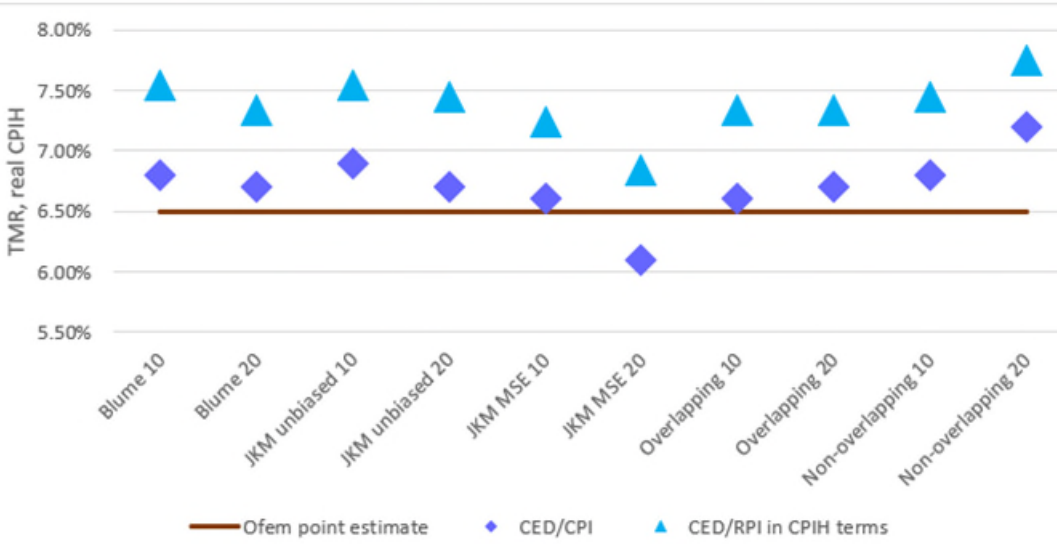
[98] CMA PR19 Cost of Capital WPs, para. 21 (SGN1_049).

[99] See KPMG Cost of Equity Report, para. 5.2.2 (KPMG_COE1/1). The start date of 1900 is chosen simply for convenience, as it is the longest run of data that is comprehensively available across markets.

present day; and (ii) the appropriate method used to average the annual historical returns.[100] As set out below, GEMA has erred on both counts, leading it to underestimate the TMR.

(153) Figure 1 below plots GEMA's TMR point estimate (brown line) against the point estimates supported by differing by the two different methods of accounting for historical inflation (represented by the blue triangles and purple diamonds) and the different averaging techniques (x-axis). This shows that GEMA's estimate of 6.5% is below all but one of the potential options for estimators at the appropriate investment horizon.

Figure 1 TMR estimates across different techniques



Source: KPMG

(i) GEMA has failed to use sufficiently robust evidence to arrive at its TMR estimate, and did not give sufficient regard to the flaws in the CED/CPI inflation series

Overview

(154) The historical nominal returns used to estimate TMR are contained in the Dimson Marsh and Staunton Yearbook (DMS). DMS is widely accepted as the most reliable source of UK and international stock market data. The latest publication at the time of the FD, dated February 2020, contains 120 years of historical data on nominal returns for the UK market, from the start of 1900 to the end of 2019.

(155) There is no perfect measure of inflation from 1900 to 2019. As the KPMG Cost of Equity Report explains, there are two main alternatives to estimating historical inflation and therefore a benchmark for the real TMR in CPIH terms:

(i) '**The CED/CPI approach**': This uses the outturn CPI inflation series from 1988 onwards, a modelled 'back cast' (or estimate) CPI series between 1948 and 1987, and CED for the period between 1900 and 1947. CPI is then assumed to be broadly equivalent to CPIH.

(ii) '**The CED/RPI approach**': This uses the actual RPI inflation series from 1947 onwards, and the CED for the years prior to that. The TMR in real RPI terms is then converted to real CPIH terms, using the forward-looking RPI-CPIH wedge.

(156) Both approaches use the CED for the first half of the twentieth century. The main difference in the approaches is therefore deciding on whether to rely on RPI or the composite CPI series from 1947.

[100] See KPMG Cost of Equity Report, para. 5.2.6 (KPMG_COE1/1).

(157) The CED/CPI approach assumes that changes in the CPIH are well-approximated by CPI. The CED/RPI approach requires further adjustment by using a forward-looking RPI-CPIH wedge.

GEMA's approach

(158) GEMA considers that the CPI is the superior measure of historical inflation, explaining "*it is correct to interpret the historical returns data using the best available measure of inflation, including the CPI*".[101] It cross referred to its SSMD where it had noted that "*investors would today consider the CPI or CPIH the best proxy for inflation expectations in assessing a real return*". It considered that this was supported by issues highlighted since 2010 on the use of RPI as an inflation statistic.[102] GEMA seems to imply that the RPI is not as suitable to deflate the historical data because it has not been a National Statistic since 2013.

(159) GEMA concluded that it is appropriate to use the "*best information available*" for the purposes of the historical ex post approach,[103] and believes the CED/CPI approach "*avoid[s] an over-reliance on any one measure such as RPI*".[104] The CED/CPI approach does not consider RPI deflated returns. GEMA considers that its decision to use CED/CPI is supported by a cross check using US dollar returns on UK equities.[105]

Errors in GEMA's approach

(160) As explained in detail in the KPMG Cost of Equity report, GEMA has erred in placing sole reliance on the CED/CPI approach when deflating nominal returns in GBP. This is highly material. Analysis in the KPMG report shows that the TMR estimated using purely CED/CPI is 70bps lower than the TMR estimated using CED/RPI.[106] The choice of inflation series therefore has an impact of over 50bps on the estimated cost of equity.

(161) GEMA has failed to consider the large degree of uncertainty around the accuracy of the CED/CPI series, despite the material impact of the choice of approach.

(162) An official CPI series is only available from 1988. GEMA acknowledged that "*CPI did not exist in its current form for the* majority *of those 100 years*".[107] As a result, for the 40 years before 1988 (i.e. a significant duration of the 120-year period of nominal returns considered), there are only back-casts (estimates) from the Office for National Statistics ("**ONS**").

(163) The CPI back-cast is of unknown accuracy. The ONS has itself cautioned against placing undue weight on the series noting that "*[t]hese estimates are for analytical purposes only and are not intended for official uses*".[108] The modellers who created the series similarly note that "*these modelled estimates can only be considered as broad indications of the level of the CPI series at best and caution should be exercised when using these series*".[109]

(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.[110] In addition to these

[101] FD Finance Annex, para. 3.87 (SGN1_011).

[102] SSMD Finance Annex, para. 3.75 (SGN1_021).

[103] SSMD Finance Annex, para. 3.75 (SGN1_021).

[104] FD Finance Annex, para. 3.87 (SGN1_011).

[105] FD Finance Annex, para 3.91 (SGN1_011).

[106] *See* KPMG Cost of Equity Report, page 50, Table 4: Results from historical ex post data – CED/CPI deflated TMR is 6.7%, while CED/RPI deflated TMR is 7.4%.

[107] SSMC Finance Annex, para. 3.81.

[108] ONS Historical Estimates for CPIH and CPI (2019) available here (SGN1_047)

[109] ONS Modelling a Back Series for CPI (2013), page 7 (SGN1_048).

[110] CMA PR19 PFs, para. 9.160 (SGN1_049).

public caveats, it is also relevant that the underlying models on the basis of which the back cast was estimated are not available. It is a breach of GEMA's duty to ensure that its regulatory activities are transparent and accountable[111] to make a methodological choice which has such a large impact on equity returns on the basis of a model of unknown accuracy. GEMA was wrong to place sole reliance on the CED/CPI approach in light of these intrinsic flaws in the CPI series.

(165) Whilst the RPI series is imperfect given the change in formulation over time, in particular in 2010, it is based on actual reported data over 70 years. The reported RPI inflation series was the UK's preferred measure of inflation, based on its view of consumer behaviour at the time. It was used to construct UK Government financial instruments (e.g. index-linked gilts; National Savings Products). As such, RPI was the measure of inflation in the UK upon which business and investment decisions were made. To impose today's view on inflation back over time therefore serves to impose a different measure of inflation on the UK economy than was being reported and acted upon during a majority of the historical period considered. If reported inflation had been measured differently in the past, investors may have made different asset allocation decisions which in turn could have impacted returns.

(166) Further, RPI was a National Statistic until 2013 – the last seven years comprise a relatively small period in the context of 120 years of historical data. These relatively contemporaneous concerns should not result in the CED/RPI approach being wholly rejected as a measure of historical inflation. 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*".[112]

(167) GEMA's criticisms of RPI and preference for CPI appear to be based on contemporaneous evidence on the best way to deflate returns going forward. As set out above, GEMA considered this issue in most detail in the SSMD where it concluded: "*We also consider that investors would today consider CPI or CPIH the best proxy for inflation expectations in assessing a real return. This is supported by evidence from investors and issues highlighted since 2010 on the use of RPI as an inflation statistic*."[113]

(168) In using forward-looking considerations to reject/accept alternative inflation series, GEMA appears to be conflating the question of the most appropriate measure of inflation going forwards and the most appropriate measure of inflation for deflating observed historical returns in the past 120 years.

(169) GEMA has wrongly failed to take into account the levels of historic returns produced using both measures of inflation,[114] 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. Instead, GEMA has placed excessive reliance on an unofficial series, which the ONS cautions against using for official purposes and which has materially downwardly skewed its TMR estimate.

(170) While, GEMA has argued that its approach "*avoids an over-reliance on any one measure, such as RPI*", in effect it places sole reliance on the composite CPI series for the period after 1947.[115] GEMA's conclusion that the US dollar returns on UK equities provides a cross-check on its choice of CED/CPI inflation is selective.[116] Evidence from a wider range of countries with comparable corporate governance shows that both US dollar and GBP returns are materially higher than GEMA's TMR. Evidence in the

[111] Sections 23D(a) and (b) GA86.

[112] CMA PR19 PFs, para. 9.160(e) (SGN1_049).

[113] SSMD Finance Annex, para. 3.75 (SGN1_021).

[114] CMA PR19 PFs, para. 9.161 (SGN1_049).

[115] FD Finance Annex, para. 3.87 (SGN1_011).

[116] FD Finance Annex, paras. 3.90-3.91 (SGN1_011).

KPMG Cost of Equity Report demonstrates that the average real TMR from the international evidence is 7.4% to 7.7%, real CPIH.[117]

(171) Figure 1 above demonstrates the resulting downward bias graphically. GEMA's point estimate of 6.5% is lower than the estimates derived using the CED/RPI approach, and lower than all but one of the estimates derived using the CED/CPI approach.

(ii) GEMA has failed to take into account alternative methods of averaging the annual returns data when estimating TMR and has relied on biased analysis

Overview

(172) A second key methodological consideration when estimating the TMR is the appropriate method used to average historical returns. The KPMG Cost of Equity Report, which the Appellants rely on, considers this in detail in Section 5.4(II).

(173) The mean annual return can be calculated as an arithmetic average (simple average of annual returns) or a geometric average (annualised compound rate of return achieved over the 120 years). The former is the best estimate over a one-year period, while the latter shows the average annual return for holding a portfolio of equities over the full 120-year period.

(174) Nominal returns from the latest DMS publication deflated using GEMA's CED/CPI approach show a geometric average return of 5.2% and arithmetic average of 7.0%, i.e. a difference of 1.8 percentage points. This shows that the choice of averaging method is a material consideration (independent of the choice of inflation series).

(175) When setting the cost of equity, regulators have considered the appropriate averaging approach to derive a TMR over 10 to 20 year holding periods, consistent with the long-run investment horizon when setting the weighted average cost of capital (**"WACC"**) for regulated infrastructure.

(176) If annual returns are independent and there is no predictability in equity returns over time (i.e. returns are not serially correlated), then the arithmetic average will provide an unbiased estimate of TMR for 10- and 20-year investment horizons.[118] However, if there is some predictability (i.e. serial correlation) in returns, the real return on a 10-20-year investment horizon will lie somewhere between the geometric and arithmetic average.

(177) As set out in more detail in the KPMG Cost of Equity Report, there are varying approaches to calculate the average return over different investment horizons. The regulatory precedent set by the CMA to date (and used by KPMG) is to adopt a range of averaging techniques to directly estimate the return over long-run investment horizons of 10 and 20 years. The average uplift from the geometric average from these approaches is 1.5 percentage points.[119]

(178) A 2018 report by Wright et al prepared for the UKRN (the "**Wright et al Report**") did not advocate analysing a broad range of methodologies. Rather, the authors concluded that an uplift of 1-2 percentage points from the geometric average was appropriate.[120]

GEMA's approach

(179) GEMA considers the appropriate method of averaging is to start with geometric average returns and add an uplift to arrive at an appropriate TMR for a long-run investment horizon.[121] GEMA's range and

[117] KPMG Cost of Equity Report, page 54 (KPMG_COE1/1): Table 7: Results from the different estimation approaches.

[118] Cooper (1996), pages 157-167 (SGN1_051).

[119] *See* KPMG Cost of Equity Report, Appendix 1 (KPMG_COE1/1).

[120] Wright et al Report, page 48 (SGN1_061).

[121] FD Finance Annex, para. 3.88 (SGN1_011); SSMD Finance Annex, para. 3.89 (SGN1_021).

point estimate imply an uplift from the geometric average (5.24%) of 0.75 to 1.75 percentage points, with a point estimate of 1.25 percentage points.[122]

(180) GEMA took the view that adjusting geometric means upwards is established precedent.[123] It has noted that "*most investment professionals focus on the geometric return over the investment horizon*" and that it was unconvinced that arithmetic averaging is more reliable than adjusting the geometric means upwards.[124]

(181) In its SSMD, GEMA considered that evidence from the Wright et al Report supported an uplift of 1-2 percentage points, and that regulatory precedent, (on average) supported an uplift of 1.5 percentage points.[125] However, GEMA also noted that analysis by PwC for the Civil Aviation Authority supported an upward adjustment of 0.4-1.3 percentage points. Ultimately, GEMA effectively uplifted the geometric average by 1.25 percentage points on the basis that it was consistent with the lower end of the 1-2 percentage point range endorsed by the Wright et al Report.[126]

Errors

(182) As demonstrated by Figure 1 above, GEMA's point estimate of 6.5% is lower than all but one of the estimates derived from the averaging techniques used in CMA precedent (even on the basis of the CED/CPI approach). GEMA's approach ignores evidence from alternative, robust, averaging techniques. Details of the averaging approaches applied to historical TMR data (JKM, Blume, overlapping and non-overlapping returns) are set out in Appendix 1 of the KPMG Cost of Equity Report. These methods have been consistently applied by the CMA in recent cases including *NIE (2014)*, and the PR19 Provisional Findings.

(183) Applying a 1.5 percentage point uplift to the geometric returns, which is supported by regulatory precedent, the Wright et al Report, and analysis in the KPMG Report, would result in a TMR estimate of 6.75% (even when solely relying on the CED/CPI approach to deflation). However, as set out at paragraph (179) above, GEMA has only allowed for an uplift of 1.25 percentage points, which is materially below the 1.5 percentage point uplift.

(184) GEMA's decision to use an uplift of 1.25 percentage points appears to hinge on the PwC analysis presented in its SSMD, which supported much lower uplifts from the geometric average.[127]

(185) However, since the publication of the FD, Ofwat's latest submission to the CMA as part of the PR19 redetermination process shows that the PwC analysis was downwardly biased due to the (incorrect) use of overlapping returns. Ofwat provided an updated range of 0.9 to 1.8 percentage which corrected for this issue.[128] As set out in the KPMG Cost of Equity Report, overlapping returns are rolling averages of the historical ex post TMR series, such that each subsequent data point contains a large number of common data points with the last. It is therefore unsurprising that PwC found a high degree of predictability - the underlying input data would be correlated by design. This led to PwC's uplifts being downward biased.[129]

(iii) Conclusion on the TMR error

[122] 5.24% CED/CPI deflated geometric average less 6.5%-point estimate 1.25pp. 6.0% lower end less 5.24%~75pp and 7.0% upper end less 5.24% ~1.75pp.

[123] SSMD Finance Annex, para. 3.83 (SGN1_021).

[124] DD Finance Annex, para. 3.15 (SGN1_024).

[125] SSMD Finance Annex, para. 3.89 (SGN1_021).

[126] FD Finance Annex, para. 3.68 (SGN1_011) *See also* SSMD Finance Annex, para. 3.89 (SGN1_021).

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

[128] Ofwat Response to CMA Cost of Capital WPs, para. 2.54 (SGN1_052).

[129] KPMG Cost of Equity Report, para. 5.4.60 (KPMG_COE1/1).

(186) GEMA's TMR estimate of 6.5%, real CPIH is not reflective of a balanced interpretation of the evidence. As shown in Figure 1 above, GEMA's decision to place sole weight on the CED/CPI approach and apply an averaging adjustment materially below the evidence and regulatory precedent has led to a downwardly biased TMR estimate. Correcting for the averaging error in isolation, i.e. retaining 100% weight on CED/CPI results in a TMR of 6.75%.[130] When a balanced approach is taken to the evidence regarding the CED/CPI and CED/RPI historical series and the approach to averaging, this results in a range for TMR of 7% to7.2% as set out in more detail in the KPMG Cost of Equity Report".[131]

4.4.2 Error 1B: GEMA has incorrectly estimated the beta

(187) The beta estimate within the CAPM framework is meant to reflect an asset's exposure to systematic or common risks relative to the market portfolio. GEMA's FD assessment of beta is informed by evidence of four UK listed utilities companies (three water companies and National Grid).

(188) The Appellants believe that GEMA has wrongly placed far too much weight on water company betas, which have lower systematic risk than GDNs. GEMA's analysis fails to give sufficient weight to listed energy comparators, in particular NG Group, NG UK (i.e. the beta of NG's UK operations) and European energy networks, which support betas materially above UK water. GEMA's estimate therefore fails to take into account the increased systematic risk for GDNs compared to water companies, and in particular arising from the Net Zero Agenda. In addition, GEMA's analysis of beta fails to properly take into account the impact of Covid-19 on water company betas and structural breaks in the historical beta data.

Overview

(189) The KPMG Cost of Equity Report at Sections 7 and 8 provides an assessment of GEMA's approach to setting the beta, on which the Appellants rely. The beta is meant to reflect the specific company's (or strictly the relevant activities') exposure to systematic risks. Unlike the TMR and RFR which are market-wide parameters, the beta is asset specific.

(190) Betas are estimated by analysing the covariance of returns on listed stocks with the market portfolio. There is no listed pure-play GDN in the UK. A key decision when estimating betas for GDNs is therefore what listed stocks are suitable comparators, based on an assessment of the relative risks faced by investors in the possible comparators and GDNs.

(191) As well as the decision regarding suitable comparators, outturn beta estimates can vary over time and with the choice of econometric technique (e.g. sampling frequency). Regulators therefore need to consider appropriate time windows and econometric techniques when deciding on a point estimate for beta.

GEMA's approach

(192) In RIIO-2, GEMA's assessment of beta is informed by beta evidence for four UK listed utilities companies: National Grid, Pennon, Severn Trent and United Utilities (the latter three being water companies).[132] The precise weighting is unclear.

(193) GEMA stated that National Grid is an imperfect proxy for a pureplay UK energy company (given its US operations) but concluded that it captured systematic risk levels across the Gas Distribution, Gas

[130] 6.75%~ 5.24% geometric average plus 1.5 percentage points uplift consistent with the Wright et al Report and past CC/CMA precedent. 6.7% is also the simple average of the various estimators used by CC/CMA and in the accompanying expert report on the CoE, over a 20-year investment horizon and deflated using CED/CPI.

[131] 7.32% is the upper end of the CMA's range in the recent water determination and the simple average of the various estimators used by CC/CMA and in the accompanying expert report on the CoE, if greater weight is placed on CED/RPI.

[132] FD Finance Annex, Table 10, page 41 (SGN1_011) GEMA has disregarded SSE-based betas due to its retail and generation activities.

Transmission and Electricity Transmission sectors.[133] While GEMA noted responses to the DD that highlighted the differences in long-term revenue risk between the gas and water sectors (with gas facing greater risk because of the Net Zero Agenda), it considered that the listed water companies and NG remained good proxies for gas distribution companies.[134]

(194) Within the energy sector, GEMA noted that it was "*not clear … whether individual energy sectors will hold materially different levels of systematic risk*" although it went on to conclude that there was lack of quantitative evidence to draw upon, and the qualitative arguments were not conclusive.[135] It considered that while some sectors may be exposed to greater risks, there were offsetting issues, e.g. GDNs have greater exposure to over/underspending than most transmission licensees (ET and GT), but also benefit from allowances set with greater certainty.

(195) GEMA also considered whether there were increased levels of systematic risk in the gas distribution sector, in particular:

(i) In relation to whether there was higher asset stranding risk in the gas sector, it concluded that "[*i*]*t did not seem … that asset stranding risk is* ***perfectly*** *systematic, although we did see some basis for it being asymmetric. We also considered the protection afforded to network companies on stranding risks. For example, as recognised by Cadent, network companies can seek and obtain changes to depreciation policies at each price control review*."[136]

(ii) GEMA noted evidence from international comparators undertaken by CEPA but concluded that the results were not sufficiently different from the betas derived from its chosen sample.[137]

(196) As GEMA's decision does not recognise any individual energy sector as holding materially different levels of systematic risk than others, it uses the same beta estimate for GDNs and transmission (ET and GT).

(197) Separately, GEMA considered whether there were structural breaks in the National Grid beta at the time it divested its gas distribution business. GEMA did not identify a structural break(s) and therefore found no strong evidence that gas distribution had materially different risk than transmission.[138]

(198) In terms of the chosen measurement approach, GEMA does the following

(i) Estimates betas using various econometric approaches (rolling estimates, spot estimates, GARCH, OLS, and a range of time windows).

(ii) GEMA does not adjust the time window over which it estimated beta to account for the effects of the Covid-19 pandemic on beta. It noted that "*there seems no sound rationale to exclude some periods, such as the [Global Financial Crisis] or COVID-19*" and that doing so "*without firm rationale could introduce cherry picking risks*".[139]

(iii) GEMA estimates the unlevered betas (betas with the effect of gearing removed) using both market values and book values of data.[140]

[133] FD Finance Annex, para. 3.69 (SGN1_011).

[134] FD Finance Annex, para. 3.69 (SGN1_011).

[135] FD Finance Annex, para. 3.75 (SGN1_011).

[136] FD Finance Annex, para. 3.76 (SGN1_011).

[137] FD Finance Annex, para. 3.79 (SGN1_011).

[138] FD Finance Annex, para. 3.78 (SGN1_011).

[139] FD Finance Annex, page 158 (SGN1_011).

[140] FD Finance Annex, Table 10 (SGN1_011).

(iv) GEMA places most weight on larger samples of data, such as the 10-year estimation window or the 10-year average of the smaller windows.[141]

Errors

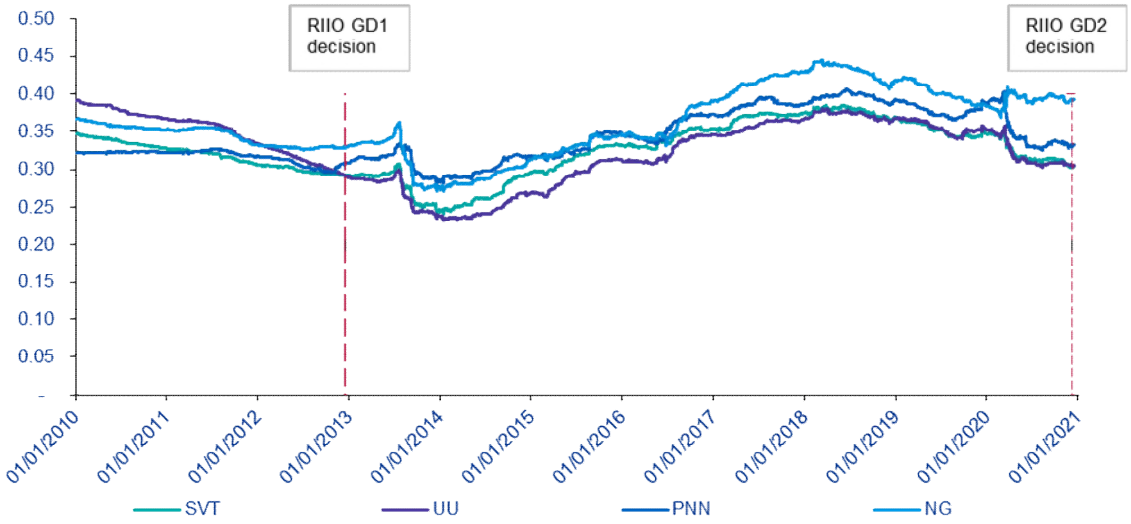
(199) The Appellants submit that GEMA's selection of comparators and choice of time window results in an underestimate of the systematic risk faced by investors in GDNs. As a result, there is unpriced systematic risk, which GEMA's cost of equity does not capture.

(200) GEMA has considered beta evidence from four utilities companies that are demonstrably imperfect proxies for a pure-play energy company.[142]

(i) GEMA's beta estimate is far too heavily weighted towards water companies. However, as set out in the KPMG Cost of Equity Report, this ignores the higher systematic risk faced by investors in GDNs compared to water companies. In particular, investors in GDNs have experienced a paradigm shift in risk exposure and uncertainty in terms of expected future payoffs.[143] A more detailed discussion of the future scenarios is presented in the accompanying KPMG Future of Gas Report.[144]

(ii) The KPMG analysis demonstrates that the systematic risk faced by investors in water companies is lower than the systematic risk of energy companies. This is illustrated by KPMG analysis at below, which plots the National Grid beta and water betas over time. It is evident that over the last 5-year period the NG beta has been above the betas of water. Table 10 of GEMA's FD further demonstrates this point empirically.

Figure 2 5Y daily rolling asset betas for UK utilities



Source: Refinitiv DataStream, KPMG analysis, cut off: 29 January 2021.

Note: uses debt beta of 0.075. Reference index: FTSE All-share

(iii) GEMA has acknowledged that National Grid's beta "*may be an imperfect proxy for a pure-play energy network, given for example its US operations*" but concluded that it captured systematic

[141] FD Finance Annex, para. 3.74 (SGN1_011).

[142] SSE is excluded in recognition that it is more difficult to interpret the evidence from SSE as relevant for pure-play energy networks, given SSE's significant exposure to (non-regulated) electricity wholesale and a large portfolio of generation assets. KPMG Cost of Equity Report, Section 7.3 (KPMG_COE1/1).

[143] *See* KPMG Cost of Equity Report, Section 7.4 (KPMG_COE1/1).

[144] *See* KPMG Future of Gas Report, Section 6 (KPMG_FOG1/1).

risk across all sectors (GD, GT and ET) and that it is therefore comfortable that National Grid is a good proxy. The Appellants note that GEMA's reasoning does not adequately account for the impact of National Grid's US operations on the beta. As set out in the KPMG Cost of Equity Report, given the US operation is regulated under a different framework the company is exposed to a lower risk on US assets relative to the risk on UK assets. Decomposition of the National Grid beta would isolate the systematic risk of UK activities, removing the downward pressure arising from the US operations. The National Grid UK beta would then still reflect a blend of GD, GT and ET risk. The KPMG Cost of Equity Report includes National Grid beta decomposition analysis, which isolates the beta of the UK business, and demonstrates that the UK-NG beta is between 0.49 to 0.51.[145]

(201) Significantly, the Appellants believe that GEMA's comparators also do not capture the heightened systematic risks faced by GDNs, due to the uncertainty around the future of gas networks as the UK transitions to Net Zero.

(202) Gas distribution networks presented GEMA with significant evidence that investors perceived higher risk for gas networks (compared to electricity) arising from the Net Zero Agenda, due to heightened uncertainty and operational risks as well as a systematic component to asset stranding.[146] The KPMG Future of Gas Report, submitted as an exhibit to the Joint Witness Statement of Michael Smart and Hylton Millar, sets out an independent assessment on the future of gas in Great Britain, particularly in context of the RIIO-2 FD.

(203) GEMA's FD acknowledged that there was asymmetric risk facing GDNs but ultimately disregarded the systematic risk of asset stranding for the gas sector on the basis that it is not 'perfectly systematic'.[147] The Appellants believe this to be an illogical and insufficient basis on which to disregard the risk entirely - investors require a commensurate return for accepting the increase in systematic risk arising from the net zero agenda, regardless of whether the risk itself is *perfectly* systematic.

(204) Further, GEMA considered that the asymmetric risk from asset stranding could be captured by fast tracking depreciation at a future date as set out in paragraph (195) above and further discussed below in Error 2.

(205) The KPMG's Cost of Equity Report sets out a number of reasons why it is likely that the uncertainty surrounding the Net Zero Agenda gives rise to higher systematic risk than that faced by water companies and electricity networks, which are summarised below. Note, this paradigm shift in risk exposure also requires consideration when aiming up for asymmetry and real options, which is discussed under Error 2 below.

(i) First, investments in GDNs have a much greater degree of uncertainty in terms of expected future returns. This risk is inherent in the sector given the Net Zero Agenda. It is also evident from the discussion in the accompanying KPMG Future of Gas Report. It would be unusual for this risk to be perfectly non-systematic. Rather, it is likely to carry some systematic component.

(ii) Second, long-term demand risk arising from the Net Zero Agenda is linked to factors that are correlated with the wider economy, via the regulatory review process. For example, the risk of asset stranding may be greater in an economic downturn as the regulators may be less likely to bring forward depreciation and increase prices.

[145] KPMG Cost of Equity Report, para. 7.4.39 (KPMG_COE1/1).

[146] FD Finance Annex, para. 3.57 (SGN1_011); See ENA, Investor views of risk for Gas Distribution Networks under RIIO-GD2 (2020), pages 2-3 (SGN1_053).

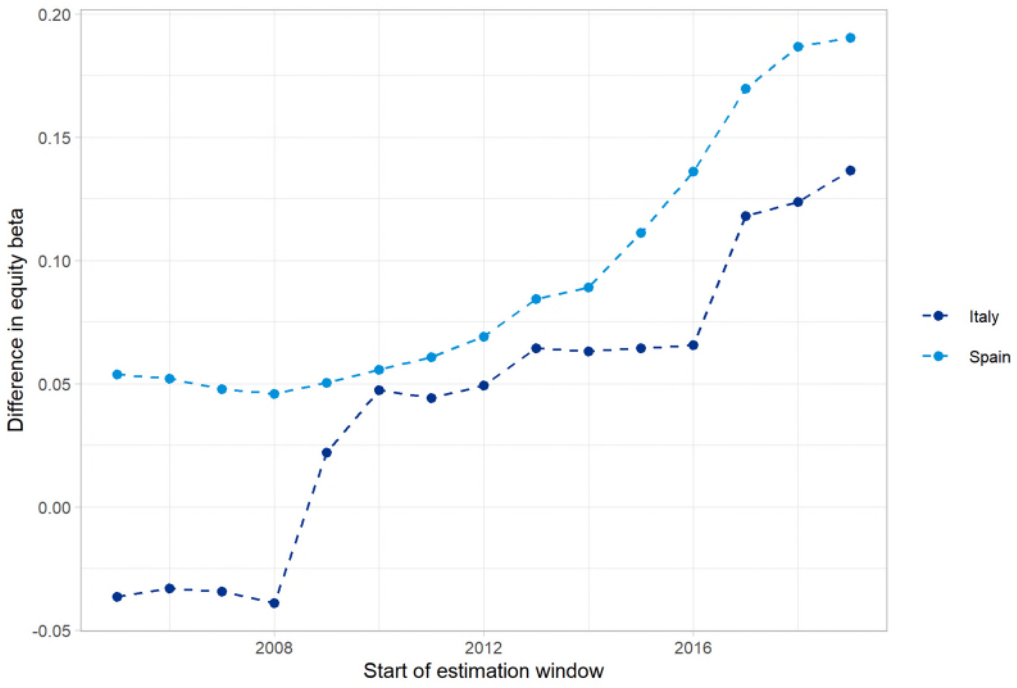
[147] FD Finance Annex, para. 3.76 (SGN1_011).

(iii) Third, material uncertainty on new investments gives rise to real options which are likely to increase the beta of GDNs relative to electricity and water.[148]

(206) Empirical evidence, which reflects the heightened systematic risk in gas networks can be obtained by widening the beta comparator sample to include European regulated energy networks. In this regard, GEMA wrongly dismissed the relevance of international energy networks, because it relied on analysis by CEPA which claimed that the results were not significantly different from the betas using GEMA's comparator set.[149] However, as the KPMG Cost of Equity Report states, this conclusion is not supported by the following:

(i) CEPA, and therefore GEMA, have not taken into account the informational value in the relative betas of gas and electricity networks in the European sample. Analysis in KPMG's Cost of Equity Report demonstrates that the asset betas of GTs lie materially above the asset betas of ETs. This is evident from comparing the Spanish and Italian GT betas with the ET betas. The 5-year asset beta for Enagas is 0.06 above Red Electrica. Similarly, the 5-year asset beta for Snam is 0.05 above Terna. This point is also illustrated graphically in Figure 3 below, which compares the equity betas of GTs and ETs in Spain and Italy. It is evident that there is a material divergence, which has increased over time. The divergence between GT and ET betas is consistent with long-term demand risk (including possible asset stranding) and uncertainty around future pay-offs that exist in gas, causing higher systematic risk exposure for gas networks.[150]

Figure 3 Difference between raw equity betas of gas and electricity networks over time



Source: KPMG analysis – Figure 8 of the KPMG Cost of Equity Report

(ii) Issues with CEPA's sample selection. CEPA's analysis of comparators is likely to be downward biased because it includes comparators that have different risk profiles, relative to UK GDNs. For example, CEPA included Elia the Belgian ET, which has 45% state ownership, This significant level of public ownership suggests that Elia's risk exposure is likely to understate the

[148] KPMG Cost of Equity Report, paras. 7.4.31-7.4.35 (KPMG_COE1/1).

[149] CEPA, RIIO-2: Beta estimation issues, page 51 (SGN1_054), FD Finance Annex, pages 145 and 166 (SGN1_011).

[150] KPMG Cost of Equity Report, paras. 7.4.60-7.4.61 (KPMG_COE1/1).

risks faced by UK energy networks.[151] KPMG demonstrates that a more balanced approach to European comparator inclusion/exclusion results in an asset beta for a portfolio of European regulated energy stocks of 0.42-0.43, which is materially above GEMA's point estimate of 0.35.[152]

(207) The Appellants therefore believe that GEMA was wrong to rely solely on the evidence from UK listed water companies and NG group, since they were exposed to lower systematic risks than UK GDNs. Instead, GEMA should have broadened its sample to include evidence from European energy networks, including gas networks and the beta for NG's UK operations.

(208) Finally, GEMA's beta estimates contain the following empirical errors:

(i) GEMA's betas are estimated using data up to October 2020, thus including a substantive portion of the impact of Covid-19 on the data, without discussion of how this period might have affected the beta estimates. Including the Covid-19 period within the sample of data will place undue weight on this period into the estimates, which are otherwise intended to reflect the long-run pricing of risk. For example, a 5-year beta assumes that a similar global pandemic will happen about once in every 7.5 years in the future.[153] GEMA should have either excluded the Covid period or weighted the results appropriately based on plausible assumptions around forward-looking frequency of pandemics. For a fuller discussion of this issue see paragraphs 8.3.10-8.3.13 of the KPMG Cost of Equity Report.

(ii) GEMA places most weight on betas estimated over a 10-year period. However, betas should be estimated over the longest run of data free of structural breaks. For water companies, in particular, there is a structural break in the data in September 2014. Averaging over structural breaks is not econometrically sound and serves to downwardly biased the betas estimated for GEMA's water company comparators. For a fuller discussion of this issue see paragraphs 8.3.6-8.3.9 of the KPMG Cost of Equity Report.

(iii) GEMA estimates unlevered beta using both market-value and book-value of debt. However, use of market values is inconsistent with the regulatory cost of debt allowance, which reflects historical yield at issuance and not current yields. For a fuller discussion of this issue see paragraphs 8.3.34-8.3.43 of the KPMG Cost of Equity Report.

(iv) GEMA places weight on GARCH, as well as OLS estimates. However, there is neither academic consensus, nor regulatory precedent that GARCH estimates improve the ability to estimate beta risk vs standard OLS tools, whilst adding considerable complexity. For a fuller discussion of this issue see paragraphs 8.3.21-8.3.25 of the KPMG Cost of Equity Report.

(v) GEMA has used rolling averages of beta estimates, which are not econometrically sound because the approach overweighs certain observations in the sample. For a fuller discussion of this issue see paragraphs 8.3.14-8.3.20 of the KPMG Cost of Equity Report.

(209) The Appellants submit that correcting for errors in GEMA's beta sample selection and adopting robust beta measurement techniques, including the appropriate treatment of Covid and structural breaks in the data, results in an asset beta range of 0.36 to 0.40, compared to GEMA's point estimate of 0.35.[154] The mid-point of the 0.36 to 0.40 range is 0.38, which reflects weight on the range of comparators forming the range (EU energy, NG decomposition and UK water). We note that the 0.38 mid-point is consistent with placing significant weight on NG Group.

[151] KPMG Cost of Equity Report, para. 7.4.49 (KPMG_COE1/1).

[152] KPMG Cost of Equity Report, page 112, Table 13 Evidence from the chosen sample of European comparators (KPMG_COE1/1).

[153] Assuming the effects of Covid on beta started in March 2020.

[154] *See* KPMG Cost of Equity Report, para. 8.5.5 (KPMG_COE1/1). All asset betas are presented assuming a debt beta of 0.075.

4.4.3 Error 1C: GEMA 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

Overview

(210) The Appellants submit that GEMA has erred in placing sole reliance on ILGs to estimate the RFR. The KPMG Cost of Equity Report at Section 6 sets out the assessment of GEMA's approach to RFR on which the Appellants rely.

(211) The RFR is an estimate of the return required on a riskless asset within the CAPM. It is the measure of return that an investor can expect to earn without taking any systematic risks or the return on a "zero beta" asset. The RFR should reflect the risk-free borrowing and lending rates.

(212) Since there is no perfect proxy for a riskless asset, regulators ordinarily consider various benchmarks as proxies for a 'risk-free' investment rate.

(213) Prior to the Wright et al Report,[155] UK regulators considered index-linked and nominal gilts and then set a point estimate above the prevailing yields, in recognition of possible distortions in government bond yields and a concern that the spot yields may not be representative of the long-run RFR.

(214) However, since the Wright et al Report in 2018, sector regulators moved to current yields on ILGs as the RFR benchmark. 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.[156]

GEMA's approach

(215) The FD estimates the RFR based on 1-month of ILG yield rates, which at the time of FD results in an RFR of -1.58% (compared to -1.48% at DD). It proposed that allowances during RIIO-2 would be updated to reflect the outturn ILGs, capturing changes that were not anticipated.[157] The RFR will be indexed in line with the average yield on a 20-year ILG benchmark in October of each price control year.

(216) The FD noted the CMA's assessment in PR19 that "*ILGs closely **but imperfectly match** the key requirements of the RFR [risk-free rate] within the CAPM model.*" GEMA interpreted this to mean that reliance on ILGs was "*not* necessarily *wrong, in the CMA's view*".[158]

(217) GEMA took the view that "*the overwhelming weight of academic evidence and of suggested practice*" supports the use of ILGs. While GEMA does appear to agree that there may be divergent 'lending' and 'borrowing' RFRs (i.e. the rate of return on a riskless asset would be different for a lender and a borrower), it relied on a Wright and Mason report submitted during the PR19 determination to conclude that "*it is not appropriate to distinguish between lending and borrowing rates for CAPM without also considering whether marginal investors in regulated utility companies are net lenders or net borrowers*".[159] The report noted that since most investors in water companies were 'net lenders', their RFR lay very close to the ILG yield.[160] Similarly, GEMA noted that investors in energy networks are "*inherently lenders of either debt or equity capital*" and concluded that the marginal investor was therefore a lender for whom the ILG rate would be most appropriate risk-free rate.[161]

[155] UKRN Report (SGN1_061).

[156] CMA PR19 PFs, para. 9.137 (SGN1_049).

[157] FD Finance Annex, para. 3.21 (SGN1_011).

[158] FD Finance Annex, para. 3.9 - 3.10 (SGN1_011).

[159] FD Finance Annex, para. 3.15 (SGN1_011).

[160] FD Finance Annex, para. 3.15 (SGN1_011); citing Wright & Mason Comments on CMA PR19 PFs (26 October 2020)(SGN1_060).

[161] FD Finance Annex, para. 3.15 (SGN1_011).

(218) GEMA acknowledged that the CMA's PR19 PFs suggested that an index of AAA-rated corporate bonds was an alternative measure of the RFR. However, GEMA decided to disregard the AAA-index, in part for the reasons set out above and in part on the basis of the embedded inflation risk premium.[162] Instead, GEMA conducted cross checks using other benchmarks (nominal gilts and SONIA swaps as set out in Table 1 below) and concluded that they provided broadly similar values. GEMA said that the higher value provided by 20-year nominal gilts was partially explained by embedded inflation risk premium.[163]

Table 1 GEMA's RFR estimates

Source	Nominal yield	RPI real	CPIH real
20-Year ILG		-2.51%	-1.71%
20-Year SONIA swap	0.34%		-1.65%
20-Year nominal gilt	0.80%		-1.20%

Source: FD Finance Annex, Table 8 (SGN1_011).

(219) Finally, GEMA noted that its approach of updating allowed returns for changes in ILGs each year will capture future changes in rates and should reduce the risk that the allowances would necessarily underestimate RFR.[164]

Errors

(220) As set out in detail in the KPMG Cost of Equity Report, GEMA's sole reliance on ILGs to estimate the RFR is inappropriate.

(221) The Appellants note that CAPM literature recognises that in practice, there are distinct borrowing and lending rates (with the former usually being higher). As explained in Appendix 2 of the KPMG Cost of Equity Report, whilst investors may be able to lend unlimited amounts at the 'lending RFR' (i.e. ILGs); they cannot borrow at the same rate. When the risk-free lending and borrowing rates differ, the appropriate RFR lies between the 'lending RFR' and 'borrowing RFR'.[165]

(222) Figure 4 below demonstrates that where the risk-free lending (rS) and borrowing rates (rB) differ, investors that are net savers will invest in lower risk portfolios at point TS i.e. they will be net lenders to risk-free assets with lower exposure to the risky market portfolio. On the other hand, investors seeking higher risk portfolios will borrow (at the risk-free borrowing rate rB) and invest more in the market portfolio, at point TB. The CAPM is an equilibrium model, such that there is one security market line (SML) from which assets are priced. It follows that where the economy is comprised of both net savers and borrowers the security market line will fall between the risk-free borrowing and lending rate, i.e. r* on the diagram. When estimating the RFR, benchmarks that capture the risk-free lending and borrowing rates are therefore required.

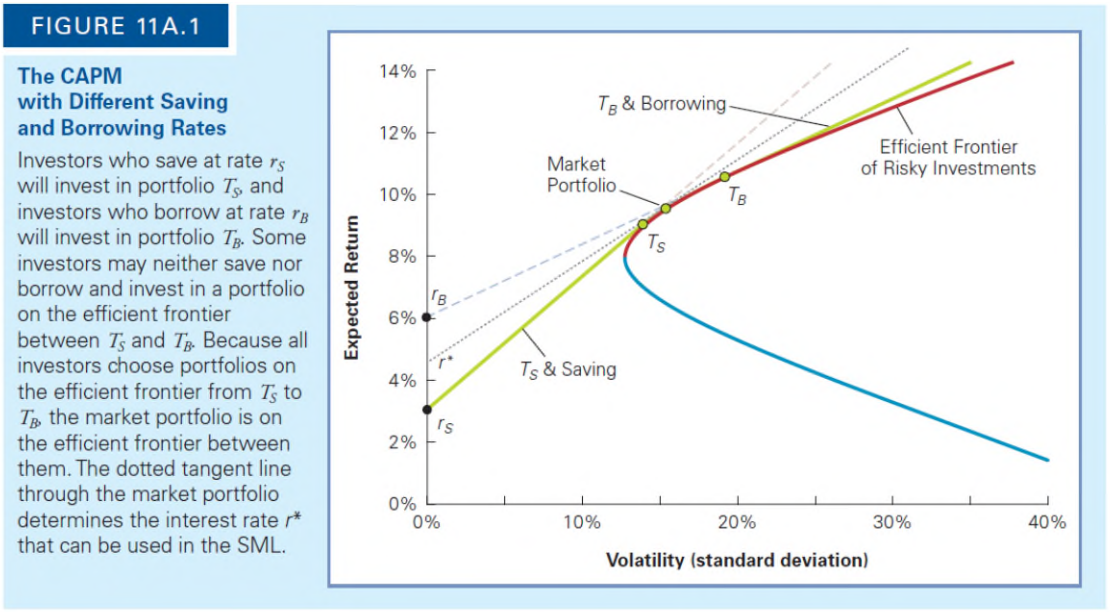
[162] FD Finance Annex, para. 3.16 (SGN1_011).

[163] FD Finance Annex, para. 3.18 (SGN1_011).

[164] FD Finance Annex, para. 3.20 (SGN1_011).

[165] KPMG Cost of Equity Report, Appendix 2: The 'zero beta' CAPM Framework (KPMG_COE1/1).

Figure 4 The CAPM with different saving and borrowing rates



Source: Berk and DeMarzo 2014, page 399 (SGN1_065).

(223) Given this background, the Appellants submit that GEMA was wrong to conclude that the marginal investor in energy networks is a relevant consideration when estimating the RFR. The marginal investor in the CAPM is a market-wide concept, it is not investment specific. Indeed, the passage under Figure 11.A1 in Berk and DeMarzo makes this clear:

> *"…the market portfolio will be a tangent for some risk-free interest rate r* between rs [risk-free saving or lending rate] and rb [risk-free borrowing rate]…. The rate r* depends on the proportion of savers and borrowers* ***in the economy****."*[166]

(224) This concept is further articulated by Brennan in his paper on Capital Market Equilibrium with Divergent Lending and Borrowing rates:

> *"Thus the only difference in the* ***market equilibrium*** *condition introduced by divergence of borrowing and lending rates is that the intercept of the capital market line is shifted. This intercept represents the expected rate of return on a security with a return which has zero covariance with the return on a value-weighted market portfolio of all securities and may be referred to as the market's equivalent risk-free rate."*[167]
>
> *Brennan goes on to note "It is apparent…that this* ***market equivalent*** *risk-free rate of interest is a weighted average of the individual investor's equivalent risk free rates…..Thus the* ***market equivalent risk-free rate is constrained to lie between the borrowing rate b and the lending rate l"***[168]

(225) Put another way, GEMA erred in concluding that the relevant investor was a marginal investor in the utility sector. GEMA should have instead considered the marginal investor in the wider market for whom both the borrowing and lending RFR are relevant. GEMA's decision not to place weight on benchmarks that capture the risk-free lending rate is therefore based on incorrect reasoning.

(226) Given divergent lending and borrowing rates between investors, the Appellants consider that GEMA should have taken into account, and reflected in the RFR, evidence that even the highest rated

[166] Berk and DeMarzo 2014, page 399 (SGN1_065).

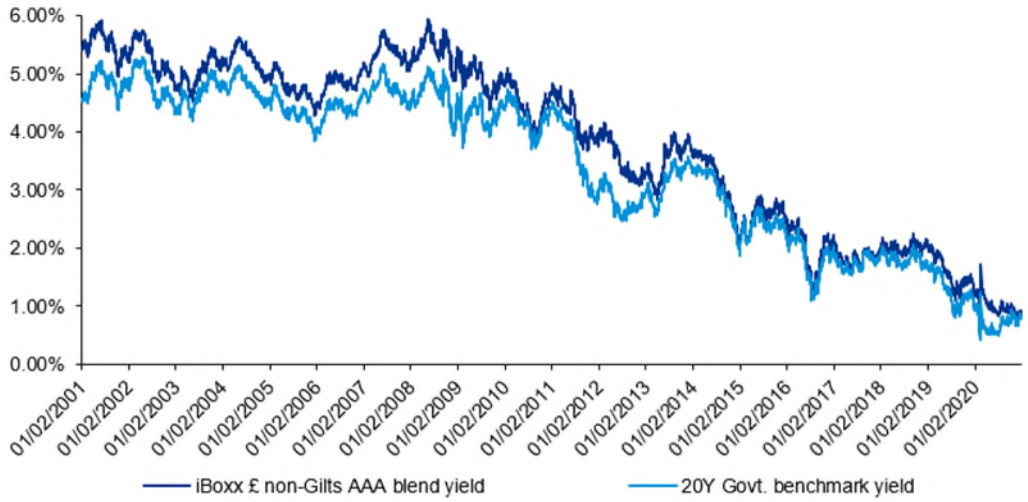
[167] Brennan CME Divergent Borrowing and Lending Rates, pages 1203-1204 (SGN1_055).

[168] Brennan CME Divergent Borrowing and Lending Rates, page 1204 (SGN1_055).

borrowers are unable to borrow at the same levels as the UK government. 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*".[169] However, GEMA has instead emphasised a part of the CMA's (provisional) decision where it notes that ILGs "*closely but imperfectly*" match they key requirements of the RFR within the CAPM model. It then notes that it is "*simpler, more principled, and supported by greater precedent*".[170]

(227) The KPMG Cost of Equity Report provides a comparison between the yields on the highest quality corporate bonds and the yields on normal gilts over the last 20 years. Figure 5 below shows that for both 10 and 20Y tenors, the rates on corporate AAA-rated debt have consistently exceeded the yields on government debt of the same duration.[171]

Figure 5 Yield on AAA rated corporate debt v nominal gilts ≈ 20Y



Source: Refinitiv Datastream, KPMG analysis (Figure 3, KPMG Cost of Equity Report)

(228) GEMA erred in solely relying on ILGs as a proxy, since this underestimated the true RFR. 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.[172] 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 AAA-rated non-government bonds is likely to sit above the 'true' estimate of RFR.[173] The RFR therefore lies in a range defined by ILG yields at the bottom and AAA non-government bond yields at the top.

(229) GEMA rejects AAA bonds on the basis that they introduce distortions, in particular inflation risk premia. However, all available RFR benchmarks are subject to some degree of distortions. For example, the ILGs that GEMA rely upon suffer from convenience premia which depress their yield. This arises due to ILGs having certain 'money-like' benefits which are not available for corporate debt of the same

[169] CMA PR19 PFs, para. 9.134 (SGN1_049).

[170] FD Finance Annex, para. 3.72 (SGN1_011).

[171] KPMG Cost of Equity Report, para. 6.3.5 (KPMG_COE1/1).

[172] CMA PR19 PFs, para. 9.135 (SGN1_049).

[173] CMA PR19 PFs, para. 9.137 (SGN1_049).

quality.[174] It is therefore appropriate to include a range of suitable benchmarks when estimating the RFR.

(230) GEMA's own cross-checks (see Table 1 above) show a difference of over 50 bps between nominal gilt yields and the SONIA swap rates. This is not insignificant – GEMA was wrong to conclude that the values were "broadly similar". Further, GEMA did not recognise that the SONIA-based swaps are typically collateralised i.e. an investor attempting to replicate a risk-free asset by purchasing a SONIA-based swap would have to post and receive collateral in the amount of the prevailing value of the swap thus making it an unsuitable benchmark for a long-term RFR. As the KPMG Cost of Equity Report notes, without collateralisation, it is likely that observed rates would be significantly higher. SONIA swaps have been recognised by the BoE as being illiquid assets beyond a 5-year horizon, which diminishes the quality of the evidence as a long-term benchmark.[175]

(231) Finally, GEMA has argued that the indexation mechanism will capture future changes in the rates and reduce the risk of underestimating the RFR.[176] However, the proposed indexation mechanism will only capture changes in the ILG rates. For the same reasons that current ILG yields underestimate the RFR (ILGs closer to lending not borrowing rate and convenience premia), GEMA's mechanism will systematically underestimate the true RFR over the charge control.

(232) GEMA was therefore wrong to place no weight on AAA bond yields. Consistent with the CAPM model under divergent lending and borrowing rates and the evidence that ILGs include convenience premia, GEMA's mechanism should instead be based on a 50:50 weighting of ILG yields and AAA bond yields. Currently, the outturn RFR adopting a 50:50 weighting is -1.15%, compared to GEMA's -1.58%.

4.4.4 Cumulative impact of Errors 1A-1C: GEMA's CAPM CoE undermines Appellants' abilities to finance their activities and fails to achieve the objective of providing fair returns to investors for their investment in network services

(233) As set out above, GEMA has made errors in estimating each of the CAPM cost of equity parameters. Taken together, underestimating each component has had a compounding effect, resulting in a cost of equity estimate that is below the true market cost of equity and does not allow the Appellants to recover long-term returns to finance the activities of a regulated network.

(234) Each component parameter requires careful consideration of a range of evidence (empirical market data, qualitative considerations, academic literature, regulatory precedent) before arriving at a range and point estimate. It is evident from Errors 1A-1C that for each component of the CAPM cost of equity, GEMA has failed to take into account relevant factors that support numbers above its final range and reached conclusions without having regard to relevant evidence.

(235) GEMA has underestimated each component, such that the final estimate of the cost of equity is materially below the market evidence. Indeed, GEMA's final point estimate (before the outperformance wedge) of 4.55% is:

(i) Approximately 30 basis points below the CMA's revised provisional cost of equity estimate in the ongoing water redeterminations of 4.83%[177], 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.

[174] KPMG Cost of Equity Report, para. 6.5.1 (KPMG_COE1/1).

[175] KPMG Cost of Equity Report, para. 6.4.7 (KPMG_COE1/1).

[176] FD Finance Annex, para. 3.20 (SGN1_011).

[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.

(ii) Below the range from the market evidence, set out in the accompanying KPMG Report "Estimating the Cost of Equity for RIIO GD-2" (5.18% to 6.24%).

(236) The CAPM cost of equity should be adjusted, with underlying parameters that represent the weight of evidence.

4.5 Error 2: GEMA's failure to "aim up" in its selection of a point estimate for the allowed cost of equity will lead to underinvestment in energy infrastructure which will negatively impact current and future customers

4.5.1 Overview

(237) While estimating the allowed cost of equity, regulators consider a range of plausible estimates and then pick a point estimate from within the range. Each of the component parts of the cost of equity are estimated with uncertainty because the true cost of equity is unknown. 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*".[178]

(238) When selecting a point estimate for the cost of equity, it is important to take into account this underlying uncertainty. This is because any point estimate within the cost of equity range has a probability that it is 'wrong' i.e. it is not the true cost of equity. Regulators therefore have to weigh up the downside risks of getting the cost of equity wrong when deciding where in the range to position this point estimate.

(239) An approach of picking a point estimate above the midpoint (i.e. aiming up) has been considered by UK regulators in the past.[179] Most recently, the CMA has considered the need to aim up on cost of equity in the PR19 redetermination process.[180]

(240) The KPMG Cost of Equity Report, on which the Appellants rely, sets out in Section 9 academic literature and regulatory precedent supporting "aiming up" from the mid-point to mitigate the risk of setting the cost of equity too low in certain circumstances.[181] In its FD, GEMA has considered the need to aim up on the following bases:

(i) **To promote ongoing levels of optimal investment / maximise consumer welfare**. This may be necessary to: (a) ensure investment to meet long-term challenges in the sector; and (b) avoid a gradual exit of capital from the sector.

(ii) **Asymmetric risk**. When the overall price control package creates an asymmetric downside risk, there is a need to add an uplift from the mid-point cost of equity to ensure that the investment is a 'fair-bet', i.e. that investors can be expected to earn the market cost of equity on average.

(iii) **Financeability constraints**. Financeability constraints may indicate that the WACC estimate is incorrect, and there may be a need to aim up to correct this.[182]

(241) GEMA considered that none of the three circumstances applied to its FD. It additionally claims that the final view in FDs is "arguably *consistent with a degree of aiming up*".[183] However, the Appellants submit that GEMA's approach fails to mitigate the risks of setting the cost of equity too low, outlined above.

[178] CMA PR19 Cost of Capital WPSs, para. 21 (SGN1_050).

[179] 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).

[180] CMA PR19 PFs, paras. 9.663-9.673 (SGN1_049).

[181] KPMG Cost of Equity Report, Section 9 (KPMG_COE1/1).

[182] FD Finance Annex, paras. 3.176 – 3.186 (SGN1_011).

[183] FD Finance Annex, para. 3.153 (SGN1_011).

(242) When carrying out its duties, GEMA must have regard to its principal objective (protecting the interests of existing and future customers) as well as the need to secure that licence holders are able to finance their regulated activities. The Wright et al Report recognised that "*the heart of the incentive problem facing regulators is to balance the need to further the consumer objective and avoid excessive prices for consumer, with the need to ensure that regulated companies can finance the proper carrying of their functions*".[184]

(243) The Appellants note that in the above circumstances, the consequence of overestimating the cost of equity to the degree contemplated is a slight increase in customer bills, while underestimating will lead to underinvestment in energy infrastructure. Given the importance of the gas distribution sector, such underinvestment can lead to greater harm to future consumers and the wider economy than is caused by overestimation of the cost of equity. As set out below, the CMA has recently recognised underinvestment in the energy sector can lead to extreme adverse events with extreme societal risks.[185]

(244) In order for equity investments to be a 'fair' bet, investors require a mean expectation that they will earn the market cost of equity. However, if the price control package contains asymmetry or unpriced expected losses, investors will not have a mean expectation of earning the cost of equity. Instead they will expect to earn below the market cost of equity. Where there is asymmetric risk, an uplift is therefore needed from the market cost of equity, to compensate investors for the expected loss.

(245) As a one-period model, the CAPM return will provide insufficient remuneration for new investments where these are considered in the presence of uncertainty about future states of the world. Real options theory finds that for investments whose payoffs depend on the resolution of uncertainty in the future, investors hold 'real options' to e.g. delay investments and adopt a 'wait and see' approach until uncertainty resolves - this option carries value. The inference from real options theory is therefore that investors will need a premium above the CAPM cost of equity, in order to be incentivised to give up that real option.

4.5.2 Ongoing investment / maximise consumer welfare

GEMA's approach

(246) GEMA did not consider it necessary to aim up to maximise consumer welfare of secure additional investment. It acknowledged the CMA's position that there are "*well-established arguments that underinvestment caused by a cost of capital being set too low damages the overall welfare of consumers (and potentially the wider economy) materially more than the welfare lost through bills that may be slightly too high*." However, it did not consider that the arguments or evidence were "*well established*" in the context of the energy sector.[186]

(247) GEMA further argued that the design of the RIIO-2 price control includes several features including uncertainty mechanisms, PCDs and ODIs (in addition to licence obligations) which protect companies and consumers from uncertainty regarding investment during the RIIO-2 period. For example, GEMA said that uncertainty mechanisms make a concrete link between allowances and outputs/outcomes. GEMA said that, by contrast, an adjustment to the WACC was not an effective or targeted method of securing higher investment.[187]

Error

(248) As set out in the KPMG Cost of Equity Report, the core principle underpinning aiming-up is that there is a greater welfare loss as a result of under-estimating compared to over-estimating the cost of capital.

[184] Wright et al Report, page 71 (SGN1_061)

[185] CMA PR19 Cost of Capital WPs, para. 44 (SGN1_050).

[186] FD Finance Annex, para. 3.181 (SGN1_011).

[187] FD Finance Annex, para. 3.183 (SGN1_011).

The consequence of setting the allowed return higher than the 'true' cost of capital is that customers pay slightly more in their bills. However, if the allowed return is set too low, companies are unwilling to provide new investment or maintain existing investment at the level that would be optimal, which can cause considerable consumer welfare loss. Given that demand for most regulated services is inelastic because these services are essential in nature, the welfare loss from under-investment is large. The detriment to consumers from setting the allowed return too high or too low is therefore not symmetric.[188]

(249) Further, 'true' cost of equity is unobservable and must be estimated. The CMA has also acknowledged that the CAPM methodology "*comes with parameter uncertainty*".[189] As KPMG notes, in order to maximise consumer welfare, or equivalently minimise the expected consumer welfare loss, a degree of aiming up above the estimated market based CoE is required, which partially mitigates the significant negative net effect of underinvestment.[190]

(250) GEMA takes the view that the arguments in relation to aiming up are "*not well established … in the context of the energy networks sector*".[191] 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.[192] The Appellants note in case of a gas outage an engineer has to visit each property to physically disconnect it before restoring supplies to the area, and make a second visit to reconnect the supplies. This process will take at least a couple of days and any marginal increase in the likelihood of such an outage will have a significant social and economic cost.

(251) The Appellants submit that GEMA wrongly rejects the principle of aiming up by concluding that it is not required to secure higher investment. It has failed to consider aiming up because of uncertainty in parameters is done because the true cost of equity is unknown and the consequences for customers of getting it too low - primarily sub-optimal investment and ultimately exit of capital, are greater than the consequences of setting it too high. Aiming up to a percentile above the mid-point (or 50th percentile) is therefore done in recognition of this asymmetric trade-off.

(252) GEMA's commentary with respect to aiming up indicates that it misunderstands the concept and its rationale. This is clear from the language used by GEMA, for example:

(i) The heading under which it deals with the matter in the FD is "*aiming up to maximise consumer welfare or secure additional investment*".[193] (emphasis added)

(ii) "*By contrast, an allowed return on capital that materially exceeds the cost of capital does not appear to be an effective or targeted method of securing higher investment, particularly in the absence of agreed investment(s).*"[194] (emphasis added)

(iii) "*The experience of RIIO-1 outturn is that – rather than this [Ofgem aiming up in ex ante cost of equity allowances per NAO[195] conclusion] leading to higher investment levels – the licensees have consistently underspent their allowances.*"[196] (emphasis added)

[188] KPMG Cost of Equity Report, para. 9.3.3 (KPMG_COE1/1).

[189] CMA PR19 Cost of Capital WPs, para. 21 (SGN1_050).

[190] KPMG Cost of Equity Report, para. 9.3.3 (KPMG_COE1/1).

[191] FD Finance Annex, para. 3.181 (SGN1_011).

[192] CMA PR19 Cost of Capital WPs, paras. 44, 47 (SGN1_050).

[193] FD Finance Annex, page 67 (SGN1_011).

[194] FD Finance Annex page 68 (SGN1_011).

[195] NAO Electricity Networks Report (e.g. para 2.12) (SGN1_056).

[196] FD Finance Annex para. 3.184 (SGN_011).

(iv) "*Arguably, a major flaw in aiming-up arguments is an assumption that doing so will lead to more investment*".[197] (emphasis added)

(253) The CMA and the Wright et al Report acknowledge that the principal objective of aiming up is not to incentivise higher investment, as GEMA assumes, but to mitigate the risk of applying the wrong cost of equity and therefore disabling investment. If the CoE is too low, this could result in businesses being unable to attract financial capital, the early exit of capital and an opex bias. The goal of aiming up is to attract or enable adequate investment and maximise societal welfare, and not to deliberately over-remunerate or promote additional, inefficient investment that is not in the consumers' interest.

(254) The Appellants believe that GEMA has underestimated the risks arising from uncertainty of investment. While it is true that uncertainty mechanisms help to mitigate the risk of under-investment in specific projects, they do not address the more significant risk of exit of capital over time. 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*". For example, with respect to lower investment in climate change resilience (with instead more focus on existing assets), the lost benefits would include broader externalities associated with foregone investment.[198]

(255) GEMA has suggested that the price control mechanisms at RIIO-2 (uncertainty mechanisms, ODIs, PCDs and licence obligations) are sufficient to protect licensees and consumers in the energy sector from uncertainty in investment. It has used this to assert that there is little downside risk of setting the WACC too low for the energy sector. However, the Appellants submit that this argument conflates the risk to companies' cashflows, with the risk of setting the allowed return too low. Whilst these mechanisms may serve to partially mitigate the risk to cashflows, they are not a means of protecting against the WACC being set too low.

(256) GEMA appears to assume that licence obligations and performance incentives can be used to ensure optimal investment, regardless of the CoE allowance. However, investors will only commit capital if there is a mean expectation of earning the market cost of equity. This is because investors have alternative opportunities where they can earn the market cost of equity and it would be irrational to avoid these opportunities in favour of investing in GDNs, if the cost of equity is set too low. The requirement to set the cost of equity in line with the market evidence therefore holds, regardless of the licence obligations and performance incentives in the package.

(257) As the KPMG Cost of Equity Report concludes: "*GEMA has also failed to price asymmetric risk arising from possible asset stranding as the UK transitions towards Net Zero. GEMA's effective decision not to uplift the allowed return to account for asymmetric risks significantly amplifies the risk of setting the allowed return too low*."[199]

4.5.3 Asymmetric risks faced by the gas distribution sector

GEMA's approach

(258) GEMA did not consider it necessary to aim up to address asymmetric risk in the RIIO-2 design. It noted that the CMA's PR19 PFs placed significant weight on the asymmetric downside risk in the price control. However, GEMA was of the view that the RIIO-2 framework did not include any "*net asymmetric risk*" even if did not consider that the companies faced "*perfectly symmetric risks across every aspect of their regulated activities*".[200]

[197] DD Finance Annex, page 80 (SGN1_024).

[198] CMA PR19 Cost of Capital WPs, para. 49 (SGN1_050).

[199] KPMG Cost of Equity Report, para. 9.5.5 (KPMG_COE1/1).

[200] FD Finance Annex, paras. 3.179-3.180 (SGN1_011).

(259) As set out in relation to Error 1B, GEMA acknowledged that the gas sector may have a greater asset stranding risk than electricity transmission and found that there is "*some basis for it being asymmetric*"[201] although it did not price this into the estimation of the beta, which captures systematic risk.

(260) GEMA further considered there are protections offered against any asymmetric asset stranding risk, including increased depreciation rates in the future, when there is more certainty around the future use(s) of the gas network.[202]

Errors

(261) The Appellants note that GEMA has disregarded the asset stranding risks faced by GDNs. GEMA's conclusion that companies do not face "net asymmetric risk"[203] is made with reference to all RIIO-2 companies.

(262) As set out in the KPMG Future of Gas Report, GDNs face asymmetric risk, as a result of long-term demand risk, which may arise under certain future scenarios as the UK transitions towards Net Zero. In particular KPMG notes that, there are a number of different possible future outcomes for GDNs: one extreme leads to, at best, the decommissioning of assets as they become unviable, while the other extreme would require significant and rapid investment in repurposing and reinforcing the assets in line with the Net Zero Agenda. No other regulated sector faces such opposite extreme scenarios. The situation is exacerbated by the fact that there is currently no clarity on which scenario will play out.[204]

(263) The CAPM model provides a level of return that investors expect to earn on an asset that is considered to be a 'fair bet', which may bear some level of systematic risk. Where the potential outcomes of an asset's cashflows are distributed asymmetrically towards unfavourable scenarios, such that investors no longer consider the asset a fair bet, then an adjustment to the CAPM-derived return is necessary. This adjustment may be incorporated into the allowed return as an uplift to the CAPM CoE, where the uplift is sufficient for investors to consider the asset a fair bet.[205]

(264) The asymmetric risk facing GDNs means that investors in GDNs also face asymmetric risks in recovering their investment: the long-term risks in the sector mean that investors do not have a fair expectation of earning the market cost of equity. KPMG has noted that asset stranding risk in the gas distribution sector results in the possibility of incomplete recovery of a portion of the RAV.[206] The Appellants are not aware of any explicit legal/regulatory protections to ensure that companies are able to recover their RAV, and indeed GEMA has also acknowledged that "*a rapid and sustained decline in gas volumes may mean that return of the RAV becomes less viable in each price control".*[207] In these circumstances, GEMA is wrong to assert that customers bear most of these risks.[208]GEMA has erred in its failure to price for this asymmetric risk. This also goes against its stated objective in the RIIO-2 Framework Decision of "*allowing companies to* ***earn returns that are fair*** *and represent good value for consumers*" [*emphasis is GEMA's*].[209]

[201] FD Finance Annex, para. 3.76 (SGN1_011).

[202] FD Finance Annex, para. 3.76 (SGN1_011).

[203] FD Finance Annex, para. 3.179 (SGN1_011).

[204] KPMG Future of Gas Report, para. 9.1.4 (KPMG_FOG1/1).

[205] It should be noted that the systematic risk of a risky asset, and a potential expected loss are distinct concepts. Systematic risk is the component of a risky return that cannot be 'diversified away' via investment in a broad-based portfolio, whereas expected loss is a measure of the divergence between the outcomes of a risky asset and a fair bet. It is possible that an asset may bear both systematic risk and an expected loss; both components should be assessed separately.

[206] KPMG Future of Gas Report, para. 9.1.4 (KPMG_FOG1/1).

[207] DD Finance Annex, para. 10.6 (SGN1_024).

[208] See DD Finance Annex, para. 10.6 (SGN1_024).

[209] RIIO-2 Framework Decision, page 24 (SGN1_017).

(265) As set out in Error 1B, GEMA's proposed mechanism to dealing with asset stranding risk is not sufficient to address the asymmetry in returns. It has noted Cadent's suggestion that companies can "*seek and obtain changes to depreciation policies at each price review*".[210] As set out in the KPMG Future of Gas Report and the KPMG Cost of Equity Report, such fast track depreciation in the future is unlikely to be effective. The costs of the network will have to be shared over a smaller customer base – impacting future customers.[211] This is illustrated by analysis in the KPMG Future of Gas Report which makes clear that fast tracking depreciation simply leads to network costs becoming too high to be funded by the current charging arrangements.[212] It is clear that that GEMA's package does result in asymmetric risk for investors.

(266) The CMA has considered the need to aim up for asymmetric risks in past cases. In *SONI (2017)*, the CMA took the view that "*application of asymmetric risk to such a large portion of SONI's costs without a corresponding return would be* inconsistent *with the expectations of investors that, on average, returns would be expected to be consistent with the cost of capital*". It then applied an adjustment to reflect the existence of such asymmetric risk.[213] More recently, the PR19 PFs also noted that "*if the expected return is below the allowed return, this also provides justification for small adjustment to the allowed WACC*".[214] As set out in KPMG's Cost of Equity Report, this has read across to RIIO-GD2, where the long-term demand risk facing the gas distribution networks result in asymmetric risk to investors.[215]

(267) Consistent with precedent, GEMA should have aimed up for the asymmetry arising from asset stranding risks, having failed to price it elsewhere. This would recognise that the CAPM model assumes a symmetric distribution of returns and to ensure a 'fair bet' for investors.

(268) In addition, as set out in the KPMG Outperformance Wedge Report (KPMG OW1/1), a number of elements in the price control package are asymmetric by design. Converting this asymmetry into a probability weighted expected loss is inherently difficult. However, where there is significant asymmetry by design the case for aiming-up for asymmetry is stronger, as there is an increased likelihood that investors don't have a mean expectation of earning the market CoE. This is consistent with the CMA's PR19 PFs, whereby structural asymmetry in the package was part of the rationale for aiming-up.

4.5.4 Real options in the gas distribution sector

GEMA's approach

(269) GEMA has not considered the need to aim-up above the CAPM cost of equity, in order to incentivise investors to give up the real option of waiting until uncertainty around the future of gas is resolved.

Errors

(270) As explained in the KPMG Future of Gas Report, investors in GDNs are investing under greater uncertainty than ever before. In the presence of uncertainty, the investing firm has to receive sufficient incentive to give up its option to delay investment. This is because where there is uncertainty over future pay-offs from an investment, the option to delay has a value, because the value of the project is higher where the investment is made under less uncertainty at some point in the future. For a fuller explanation of real options see KPMG Cost of Equity Report, paragraphs 7.4.63 to 7.4.70.

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[210] FD Finance Annex, para. 3.76 (SGN1_011).

[211] KPMG Cost of Equity Report, para. 7.4.22 (KPMG_COE1/1). and KPMG Future of Gas paragraph 6.3.5 and Table 1 (KPMG_FOG1/1). Note this analysis is prudent because it does not reflect decommissioning costs, which are likely to be substantial. See for example KPMG 2050 Energy Scenarios (2016) (SGN1_064) whole energy system table 6.3 and footnote 31.

[212] KPMG Future of Gas Report, para. 6.3.5 (KPMG_FOG1/1).

[213] *SONI (2017)*, para. 12.102 (SGN1_057).

[214] CMA PR19 PFs, para. 9.671 (SGN1_049).

[215] KPMG Cost of Equity Report, para. 4.2.4 (KPMG_COE1/1).

(271) Whilst a number of investments by GDNs are required to meet license obligations, there remain material investments in repurposing the gas network or investing in innovative new projects that can be delayed and therefore have a real option associated with the investment. This option to invest in the future rather than now has a value. For a rational investor to invest in the gas network now, an allowed CoE that recognises this option value is required, which requires an uplift from the CAPM cost of equity. In failing to aim-up above the mid-point GEMA's decision therefore risks customers not benefiting from investment now in a future gas network that is 'Net Zero ready'.

4.5.5 Financeability constraints

(272) The FD concluded that "*the notional efficient company is equity financeable under RIIO-2 and there is therefore no need to aim up* on *equity financeability grounds*",[216] citing an extract from the 2007 airport price control review.[217] However, as set out in Error 3, GEMA's financeability assessment does not constitute an adequate cross-check on the calibration of the price control. Further, as set out below, GEMA's assessment is focussed on debt financeability, and does not consider issues with the notional company's "equity financeability".

4.5.6 GEMA has not "implicitly" aimed up

GEMA's approach

(273) Despite the arguments outline above, GEMA concludes that "*Our final view in these FDs is arguably consistent with a degree of* aiming *up*".[218] It cites two examples of this: (i) the use of cross-checks on the CAPM Cost of Equity; and (ii) the use of an outperformance wedge.

(274) The first step in GEMA's CAPM analysis estimated a range of equity of 3.85% to 5.24% (midpoint of 4.55%). GEMA then carried out cross-checks (including comparison with returns sought by offshore transmission owners, and the use of market asset ratios) to consider whether adjustments to its range were required: "*The Step 2* cross-*checks suggest that the expected return is lower than the CAPM-implied value from Step 1. Based on Step 2 evidence, we tighten the range to 3.8% to 5.0% implying a mid-point of 4.4% however we select a value of 4.55%*."[219] GEMA thus reiterated its original position on the point estimate effectively nullifying the impact of the cross-checks.

Errors

(275) GEMA has erred in concluding that its FD is consistent with a degree of aiming up. It has relied on its approach to the "Step 2 cross-checks" of its CAPM Cost of Equity – where it saw fit to tighten the CAPM range but retained its "Step 1" point estimate of 4.55%. As KPMG has set out in detail in Section 11 of KPMG Cost of Equity Report, GEMA's crosschecks have not been appropriately selected to reflect the risk of UK energy (and particularly, gas) networks and thus materially understate the required return, giving GEMA false confidence that its equity returns have been set at the right level.[220] The FD acknowledged stakeholder representations that the Step 2 cross checks did not justify a lower point estimate.[221] GEMA ultimately decided to adjust the range, but keep the point estimate unchanged, citing stakeholder representations that "*market checks were not as strong as we believed and that using a lower value was not a justified use of regulatory discretion*".[222] GEMA's claim that its point estimate is "*consistent with aiming up*" is not supported by its own reasoning.

[216] FD Finance Annex, para. 3.185 (SGN1_011).

[217] Heathrow and Gatwick (2007), para. 5.32 (SGN1_059).

[218] FD Finance Annex, para. 3.186 (SGN1_011).

[219] FD Finance Annex, para. 3.186 (SGN1_011).

[220] KPMG Cost of Equity Report, para. 11.5.1-11.5.3 (KPMG_COE1/1).

[221] FD Finance Annex, para. 3.120 (SGN1_011).

[222] FD Finance Annex, para. 3.121 (SGN1_011).

(276) GEMA also asserts that the introduction of the 25 bps wedge amounts to aiming up on the basis that it believed the evidence supported a larger wedge. **Ground 2 (Outperformance Wedge)** details the Appellants' concerns with the introduction of the wedge. However, it is relevant to note at this stage that GEMA considered a range of evidence submitted by companies and consumer groups before deciding on a 0.25% wedge "*reflecting the largely unchanged evidence base, unchanged principle and diversity of stakeholder views*."[223] GEMA has seemingly sought to account for the diversity of views by picking a wedge of 25 bps. It is disingenuous for GEMA to then argue that this is consistent with a degree of aiming up.

4.5.7 Impact of GEMA's approach: Conclusions on Error 2

(277) In RIIO-GD2, having set a downward biased set of parameter ranges, GEMA further exacerbates this bias by failing to adequately aim-up. Rather, it selects the mid-point of an already downward biased range, underestimating the cost of equity.

(278) This cost of equity assessment results in a material risk of underinvestment in the gas distribution sector. This could have a real impact on future consumers and the wider economy. It also impacts the Appellants' ability to adequately finance their activities. The Appellants submit, in line with the KPMG Cost of Equity Report, that GEMA should have aimed up by c.40 bps to provide a return to compensate investors for expected losses and uncertainty in the cost of equity.[224]

4.6 Error 3: Financeability

4.6.1 Overview

(279) GEMA has a duty to "*have regard to the need to secure that licence holders are able to finance the activities*".[225] GEMA carries out a financeability assessment as part of each price control which, in its own words, is to "*check that all components of [its] Final Determination, when taken together, allow a notional efficient operator to generate cash flows sufficient to meet its financing needs*". GEMA acknowledges that this can benefit consumers as continued investment in a stable and well-functioning network supports energy supply at efficient costs.[226]

(280) In its FD, GEMA noted that it was assessing whether a 'notionally efficient company' can access finance on reasonable terms. Relying on several assumptions about the notional company, GEMA applied an 'in the round' financeability assessment. It took the view that it would not be inconsistent to assume a company is financeable even if it "*did consider there was a possibility that one or more rating agencies may rate it slightly lower or higher*".[227] It was able to conclude on that basis that its FD would allow all licensees to "broadly" achieve a comfortable investment grade rating. While this not explicitly defined by GEMA, we would expect a comfortable investment grade rating to be consistent with a stable (target) Baa1/BBB+ rating per the KPMG Financeability Report.

(281) GEMA has argued that the financeability assessment is not a reliable cross check on allowed return.[228] However, denying the link between WACC and financeability is contrary to the view expressed by the CMA. 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:*

[223] FD Finance Annex, para. 3.149 (SGN1_011).

[224] KPMG Cost of Equity Report, para. 2.2.2 (KPMG_COE1/1).

[225] Section 4A(2) GA86.

[226] FD Finance Annex, page 73 (SGN1_011).

[227] FD Finance Annex, para. 5.35 (SGN1_011).

[228] FD Finance Annex, para. 5.12 (SGN1_011).

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".[229]

(282) The Appellants note (as highlighted in their RIIO-2 Business Plan) that it is possible to obtain misleading results from financial credit metrics. For instance, regulators can reduce the notional capital assumptions, as GEMA has done, to meet the key debt financeability metrics since these are driven by the cashflows available to service debt financing costs.[230] Further, as noted in the KPMG Financeability Report, GEMA's assessment is focussed on debt financeability – measured by the implied credit ratings – and there remain other issues with the notional company's 'equity financeability'.[231] Under GEMA's own financeability assumptions, this approach leaves the financeability of equity capital (c.40% of the total capital required) simply unconsidered.

(283) The Appellants believe that GEMA's financeability assessment does not provide an adequate cross-check of its cost of equity point estimate. As set out in the submissions above, Errors 1 and 2 have had a material impact on the Appellants. However, the true impact of these errors has been disguised as a result of GEMA's flawed financeability assessment. Details of this are set out in the KPMG Financeability Report on which the Appellants rely.

4.6.2 GEMA's assumptions and adjustments

(284) GEMA's financeability assessment is based on several assumptions about the notional company. It has adjusted some key assumptions since RIIO-GD1, including implementing a full transition from RPI to CPIH for the purpose of calculating RAV indexation and allowed returns. This has the effect of significantly bringing forward cashflows such that the financeability metrics are materially increased, as set out in the KPMG Financeability Report.[232] In addition to this significant change, GEMA have layered on the following adjustments to the notional company:

(i) **A reduction in the notional gearing from 65% to 60%**. By assuming a reduction in gearing, GEMA has effectively identified a financeability constraint with its price control settlement, which it proposes to address by assuming a substantial notional equity injection, at the same time as a significant reduction in equity returns from GD1. As set out in the KPMG Financeability Report this does not represent a robust solution when the financeability constraints are not driven by levels of gearing per se – it merely shifts risk exposure from debt to equity.[233]

(ii) **An increase in the proportion of ILD from 25% to 30%.** GEMA has increased the assumption on the proportion of index-linked debt ("**ILD**") for the notional company from 25% to 30%. This amounts to an arbitrary increase in the proportion of ILD to address financeability constraints as set out in the KPMG Financeability Report.[234]

(iii) **A reduction in the notional dividend yield from 5% to 3%**. The FD states that it allows companies to pay reasonable dividends to investors. GEMA has nonetheless reduced the notional dividend yield assumption from 5% in RIIO-GD1 to 3% in RIIO-GD2. This is inconsistent with the dividend yield of 4 to 6% for comparable (actual) companies and market benchmarks as set out in the KPMG Financeability Report. It is not appropriate to rely on a reduction in the dividend yield and a payout ratio that is below market benchmarks to improve the financeability

[229] CMA PR19 PFs, paras. 10.58-10.59 (SGN1_049).

[230] RIIO-2 Business Plan, page 191 (SGN1_035).

[231] KPMG Financeability Report, paras. 1.6.6-1.6.10 (KPMG_FIN1/1).

[232] KPMG Financeability Report, para. 4.4.5 – 4.5.3 (KPMG_FIN1/1)

[233] *See* KPMG Financeability Report, paras. 4.4.7 – 4.4.19 (KPMG_FIN1/1).

[234] *See* KPMG Financeability Report, paras. 4.4.20 – 4.4.28 (KPMG_FIN1/1).

position. This is all the more true given that there is an assumed equity injection to support the lower levels of gearing across RIIO-GD2.[235]

(iv) **An assumption that the notional company will outperform in the base case**. The introduction of the "outperformance wedge" discussed in **Ground 2 (Outperformance wedge)** has knock on consequences on financeability. As set out in the KPMG Financeability Report, the expectation that the notional company will outperform by 0.25% of its RoRE misstates the actual cash flows during RIIO-2 (and consequently overstates the credit metrics).[236]

(285) While the Appellants do not contest that appropriate adjustments can be implemented to the notional company to address financeability constraints, the number and scale of the adjustments which are made in addition to bringing forward of cashflows by means of the transition from RPI to CPIH, means that the financeability assessment does not represent an appropriate cross-check on the calibration of the price control. GEMA's flawed assessment of financeability disguises the true impact that the errors have on the Appellants' ability to finance their functions.

(286) Finally, given that the objective of the assessment is to assess the licensees' ability to finance their functions, GEMA stated that it has considered key ratios compared to stated rating agency guidance thresholds for two notches above investment grade (i.e. Baa1 or equivalent), to apply an 'in the round' assessment which targeted each notional company "broadly achieving a comfortable investment grade credit quality". However, as set out in the KPMG Financeability Report, GEMA has ignored the importance that rating agencies place on core metrics (e.g. Moody's places significant weight on the adjusted interest cover ratio) and that falling below the minimum threshold for a key credit metric could constrain the company's credit rating.[237]

4.7 Conclusions on Ground 1 and relief sought

(287) GEMA's FD sets the allowed cost of equity at 4.30% for RIIO-GD2 (CAPM CoE estimate of 4.55% minus 25 bps for expected outperformance). The allowed CoE of 4.30% compares to 7.0% (CPIH, real) allowed in RIIO-GD1 (when converted to an equivalent notional gearing and CPIH) which constitutes a reduction of c.245 bps in the CAPM CoE, and c.270 bps in the allowed cost of equity.[238]

(288) The CMA has previously recognised that a consistent approach across price controls is important for investor confidence given the long-term financing commitments made in infrastructure. In *Bristol Water (2015)* the CMA emphasised the importance of a consistent approach, nothing that "*this reflects investors' expectations not just in respect of the immediate regulatory period, but of a consistent approach over the longer term…the financing environment is influenced by the stable approach to the estimation of the cost of capital, applied by both sector regulators and also in previous CC/CMA decisions.*"[239] 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.*"[240]

[235] *See* KPMG Financeability Report, paras. 4.4. 29-4.4.45 (KPMG_FIN1/1).

[236] See KPMG Financeability Report, paras. 4.4.46-4.4.57 (KPMG_FIN1/1).

[237] KPMG Financeability Report, paras. 3.4.25 – 3.4.34 (KPMG_FIN1/1).

[238] KPMG Cost of Equity Report, para. 2.1.5 (KPMG_COE1/1). KPMG also notes that at an equivalent notional gearing level, the RIIO-GD1 CoE was 7.0% (real CPIH) or 6.1% (real RPI).

[239] *Bristol Water (2015)*, paras. 10.6-10.7 (SGN1_058).

[240] CMA PR19 Cost of Capital WPs, para. 103(a) (SGN1_050).

(289) Given the inherent uncertainty associated with the CAPM model, GEMA should have considered all relevant evidence when estimating various components. It should have also "aimed up" above the midpoint to account for such uncertainty. It failed to account for its principal objective: underinvestment in infrastructure will negatively impact current and future customers. Instead, GEMA's approach underestimated the cost of equity, undermining investment in the sector (Error 1). GEMA also failed to account for asymmetric risks facing GDNs and has failed in its stated objective of remunerating investors for the investment in network services (Error 2).

(290) The reduction in allowed returns in RIIO-GD2 is a result of adopting an approach that breaks significantly with precedent. Moreover, it results in a package that undermines the Appellants' ability to finance their functions. GEMA's financeability assessment is based on unjustified assumptions and adjustments, which mask the true effect of GEMA underestimating the CAPM CoE and its failure to aim up (Error 3).

(291) In terms of legal consequences, the Appellants submit, in making these errors GEMA has erred and/or breached its duties in the manner described in Section 2 above and the Appellants therefore respectfully seek the relief described at Section 4.1.3above.

5 Ground 2: Outperformance wedge

5.1 Overview

(292) In RIIO-2, GEMA introduced a new and unprecedented measure to determine the allowed return on equity, which it termed the "outperformance wedge". After picking a point estimate for the Capital Asset Pricing Model (CAPM) implied cost of equity (4.55%, CPIH real),[241] GEMA reduced the licensees' allowed return on equity by 25 bps (to 4.30%) in RIIO-2.

(293) GEMA has introduced this "*novel*"[242] mechanism with a view to bridging the perceived gap between investors' expected return and the regulatory allowed return on equity. If a licensee does not outperform by more than 0.25%, it will receive an ex-post "top-up" allowance of up to 0.25% as part of the RIIO-2 close out process.

(294) The Appellants request that the CMA read the following expert reports from KPMG that are relied on in their entirety for submissions under **Ground 2** (Outperformance Wedge). Key arguments which they contain are included within this ground of appeal:

(i) KPMG's report on Ofgem's RIIO-2 outperformance wedge (the "**KPMG OW Report**") that is Exhibit KPMG_OW1/1 to the Witness Statement of Hylton Millar and Geoffrey Randall (KPMG_OW1).

(ii) KPMG's report on the Financeability of SGN based on the RIIO GD2 Final Determination (the "**KPMG Financeability Report**") that is Exhibit KPMG_FIN1/1 to the Witness Statement of Hylton Millar (KPMG_FIN1).

(295) The Appellants consider that GEMA erred in introducing the outperformance wedge in the following respects:

(i) The introduction of the outperformance wedge is a disproportionate and untargeted tool that undermines consistency and transparency in the regulatory regime, which is to the detriment of consumers (**Error 1**).

(ii) GEMA's decision undermines incentives for investment and performance in RIIO-2 and future price controls (**Error 2**).

(iii) GEMA's decision to introduce the outperformance wedge is not supported by adequate evidence or analysis (**Error 3**).

(iv) GEMA has wrongly dismissed concerns over the impact of the outperformance wedge on financeability (**Error 4**).

(296) These errors mean that the introduction of the outperformance wedge is unjustified and undermines GDNs' incentives to innovate and to reduce efficient costs during the RIIO-GD2 price control period and beyond, negatively impacting consumers.

5.1.1 Legal consequences

(297) In light of the above errors, the Appellants submit that GEMA's introduction of the outperformance wedge was wrong within the meaning of Section 23D(4) GA86. In particular, the Appellants submit that:

(i) GEMA failed within the meaning of Sections 23D(4)(a) and (b) GA86 to have due regard / give appropriate weight to the performance of its duties, in particular:

[241] GEMA states that the CAPM describes the relationship between expected returns and the risk of investing and is used to estimate the returns that investors expect. See SSMD Finance Annex, paras. 3.8 - 3.9 (SGN1_021).

[242] FD Core Document, paras. 6.1, 6.3 and 6.8 (SGN1_009).

(a) Section 4AA(1-1A) GA86 (the consumer duty) – GEMA's intervention is not supported by adequate evidence or analysis and has perverse incentive qualities (in this and future price controls), both of which are contrary to the interests of consumers;

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) – the outperformance wedge disincentivises investment in the sector by undermining the stability of the regulatory regime and GEMA has wrongly dismissed concerns over the impact of the outperformance wedge on financeability;

(c) Section 4AA(5) GA86 (promoting efficiency and economy) – the outperformance wedge undermines companies' incentives to invest and become more efficient; and

(d) Section 4AA(5) GA86 (the principles under which regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed, as well as other principles of best regulatory practice) – in particular as the outperformance wedge involves an untargeted and disproportionate reduction to the allowed returns to address perceived asymmetry in the price control process which undermines consistency and transparency.

(ii) GEMA's decision was based, wholly or partly, on errors of fact within the meaning of Section 23D(4)(c) GA86 – including with respect to its interpretation of historic price controls and the application of GEMA's broader regulatory tools.

(iii) GEMA's decision fails to achieve the effect stated by GEMA within the meaning of Section 23D(4)(d) GA86 – including of "*maintaining high confidence in the regulatory regime, fairness for companies and investors; and fairness for consumers*".[243]

(iv) GEMA's decision was wrong as a matter of law within the meaning of Section 23D(4)(e) GA86 – in particular by acting disproportionately, not having regard to relevant considerations and/or reaching conclusions without adequate supporting evidence.

5.1.2 Materiality

(298) GEMA's decision to implement the outperformance wedge, which deducts 25 bps from allowed returns on the basis of anticipated outperformance, reduces the Appellants' allowed returns by c. £**[CONFIDENTIAL]** if it is able to outperform, which is equivalent to c**[CONFIDENTIAL]**[244] in Totex allowances or the vast majority of the total potential upside on ODI rewards.

(299) If outperformance is not achieved, reduced cashflows would weaken key credit metrics such as AICR, potentially negatively impacting the notional companies' financeability within RIIO-2.

(300) More generally, the Appellants are not aware of an outperformance wedge being applied in any other UK price control processes. This deduction therefore raises fundamental issues of regulatory principle whose effects will persist "*beyond the price control period*",[245] as its inclusion undermines incentive-based regulation.

5.1.3 Relief / remedy sought

[243] DD Finance Annex, para. 3.151 (SGN1_024). At DD, GEMA stated that "*To maintain high confidence in the regulatory regime, and given submissions from companies and their consultants, we re-considered the SSMD methodology, in search of potential improvements that could simultaneously satisfy the following three objectives: maintaining high confidence in the regulatory regime, fairness for companies and investors; and fairness for consumers*". This led GEMA to incorporate the ex-post top-up mechanism.

[244] The Appellants note that the outperformance wedge is equivalent to a. c**[CONFIDENTIAL]**% reduction in the Appellants' Totex allowance. The Appellants' Totex allowances are £2,680 million. The **[CONFIDENTIAL]** of revenues is equivalent to **[CONFIDENTIAL]** underspend with SGN's 50% TIM sharing factor. The Totex Incentive Mechanism ("**TIM**") is a mechanism whereby companies are provided with a share of any underspend or overspend of their Totex allowance with the remainder passed onto consumers.

[245] CMA Letter: Statutory Appeals Mechanism, para. 5 (SGN1_030).

(301) The Appellants request that the CMA quash the Decision, and substitute its own decision, such that the outperformance wedge (i.e. the 25 bps deduction from the allowed return) should be removed it in its entirety. Further detail on the specific relief requested is included in Appendices 1 and 2 to this Notice of Appeal (SGN1_151 and SGN1_152).

5.2 GEMA's approach

(302) At FD, GEMA introduced the outperformance wedge which adjusted the allowed returns by 25 bps below the CAPM cost of equity estimate for the notional company. This novel mechanism was designed to bridge a perceived gap between investors' expected return and the regulatory allowed return, based on structural asymmetries, as GEMA considered that evidence suggested "*at least 0.25% outperformance can be expected by equity investors in RIIO-2*".[246] Further information on GEMA's development of the outperformance wedge is contained in Section 3 of the KPMG OW Report.

(303) In setting the RIIO-2 framework, GEMA first proposed to distinguish the regulatory allowed return from the regulatory expected return[247] on the basis that:

> "*however reasonable the basis for a price control is, companies across different sectors may still be able to outperform against baseline assumptions and earn high returns. Some of this could be due to company-initiated efficiency improvement, but sometimes it could also be because of factors that could not be anticipated at the outset*".[248]

(304) While GEMA stated that it intended to take steps to ensure that the price control was "*set on as solid a base as possible*", it considered it did not know "*whether these will be sufficient*".[249] GEMA had identified a "*need for change*."[250]

(305) GEMA's intervention followed the publication of a 2018 report commissioned by the UKRN (the "**Wright et al**" Report). The Wright et al Report outlined a position that expected returns were often greater than regulatory allowed returns, primarily due to an "*informational wedge*" which suggested regulators were at an informational disadvantage when setting price controls.[251]

(306) At the Sector Specific Methodology stages, even though it was still in the process of calibrating the price control, GEMA took the view that the evidence of historical performance (including RIIO-1) and inherent information asymmetries meant that investors would likely have positive expectations in RIIO-2.[252] GEMA stated that:

> "*[w]hen returns fall well outside ex ante expectations, particularly across all companies in a sector, we think it is more likely to [sic] due to network companies exploiting information asymmetry, forecasting errors, or due to a poorly calibrated price control mechanism*".[253]

(307) As a "*working assumption*", GEMA considered a 50 bps reduction to the notional company's CAPM cost of equity to arrive at the allowed returns, which it considered to be "*reasonable*",[254] believing "*on the balance of probabilities ... companies will be expected to outperform regulatory targets during RIIO-*

[246] FD Core Document, para. 6.8 (SGN1_009).

[247] RIIO-2 Framework Decision, para. 6.31 (SGN1_017).

[248] RIIO-2 Framework Consultation, para. 7.114 (SGN1_016).

[249] RIIO-2 Framework Consultation, para. 7.116 - 7.119 (SGN1_016).

[250] RIIO-2 Framework Consultation, para. 7.114 (SGN1_016).

[251] Wright et al Report, page 7 (SGN1_061).

[252] SSMD Finance Annex, para. 3.162 (SGN1_021).

[253] SSMD Core Document, para. 12.116 (SGN1_019).

[254] SSMD Core Document, para. 12.57 (SGN1_019).

2".[255] GEMA noted that this was a "*relatively small reduction compared to historical outperformance of 200 to 300bps*", although explicitly recognising that variances of 300bps are "*less likely in RIIO-2*".[256]

(308) At DD, GEMA maintained its proposed reduction to allowed returns but proposed a figure of 25 bps (at 60% gearing). GEMA cited the following analysis:

(i) A cross-sector analysis of performance against Totex allowances from 2000 to 2020 across gas, electricity, water and sewerage, and aviation.[257] After making certain adjustments that it deemed relevant to RIIO-2, GEMA estimated that Totex underspend of approximately 2-4% would deliver outperformance of 0.25%.[258] GEMA believed:

"*this provides a strong basis for our conclusion that, despite the measures included in the proposed RIIO-2 ... companies ... have the scope to outperform"* and that its expectation of 0.25% *"is cautious*".[259]

(ii) A review of the RIIO-1 observed returns after making certain limited modifications to address changes in market factors since RIIO-1 such as Real Price Effects (**"RPEs"**).[260]

(iii) GEMA also conducted an analysis of Market to Asset Ratios ("**MARs**") of certain water companies (which are not subject to RIIO-2 price control) and two energy companies, and concluded that 0.25% outperformance is "*a fraction of the outperformance that is reasonably derived from MAR evidence*".[261]

(309) From this analysis, GEMA concluded at DD that "*equity investors should expect at least 0.25% in outperformance returns*".[262]

(310) Recognising that its approach was "*novel*", GEMA consulted on adding "*an ex post adjustment mechanism*" to mitigate the risk that investors fail to earn equity returns in line with costs.[263] The adjustment mechanism proposed at the DD stage considered average performance across the sector rather than each individual licensee's performance.

(311) At FD, GEMA accepted that:

"*[w]e agree with licensees' views that there is uncertainty, ... We also agree that the evidence can be interpreted in different ways and inferences can vary widely. However, in our view, it is unlikely that investors would expect performance to be precisely in line with RIIO-2 baseline allowances and assumptions.*"[264]

(312) In explaining its conclusion, GEMA articulated three "*structural factors*" that it considered provided opportunities for excess returns that would justify an outperformance wedge, namely: (i) information asymmetries; (ii) asymmetries in price control deliverables ("**PCD**") design; and (iii) asymmetries created by re-openers.[265] GEMA concluded that, even though it had included a range of specific measures in RIIO-2 to address perceived excess returns in RIIO-1,[266] historical outperformance and structural factors

[255] SSMD Core Document, para.12.53 (SGN1_019).

[256] SSMC Finance Annex, para. 3.166, footnote 48 (SGN1_063).

[257] DD Finance Annex, para. 3.123 (SGN1_024).

[258] DD Finance Annex, para. 3.126 (SGN1_024).

[259] DD Finance Annex, para. 3.127 (SGN1_024).

[260] DD Finance Annex, para. 3.132 (SGN1_024).

[261] DD Finance Annex, para. 3.138 (SGN1_024).

[262] DD Finance Annex, para. 3.139 (SGN1_024).

[263] FD Core Document, paras. 6.1, 6.3 - 6.8 (SGN1_009).

[264] FD Finance Annex, para. 3.156 (SGN1_011).

[265] FD Core Document para. 11.29 (SGN1_009).

[266] FD Core Document para. 11.28 (SGN1_009).

"*provide good reason to make an explicit adjustment for outperformance when setting the allowed return on equity*".[267]

(313) At FD, GEMA retained the 25 bps adjustment, but adapted the ex-post top-up mechanism so that it would apply based on each individual licensee's performance (rather than the industry average).[268]

5.3 Errors in GEMA's approach

(314) The Appellants now address the four errors identified at paragraph (294) above(295) above in turn.

5.4 Error 1: The outperformance wedge is a disproportionate and untargeted tool that undermines consistency and transparency in the regulatory regime, which is to the detriment of consumers

(315) The Appellants invite the CMA to consider in particular the KPMG OW Report at Sections 1, 3 and 4 which provides an assessment of the development and economic consequences of the outperformance wedge, on which the Appellants rely.

5.4.1 Background

(316) As KPMG explains in Section 4.2 of the KPMG OW Report:

(i) Since the early 1990s, regulators in the UK have followed a building block approach to price regulation. This approach assesses individual cost elements or "*building blocks*" (e.g. Totex allowances) across the entire price control.[269] Each block relates to a different area, has a particular purpose, and is calibrated in a way that is consistent with this purpose. For example, Totex allowances should be set at a level that allows a notionally efficient company to effectively discharge its licence functions and deliver an appropriate level of service. GEMA sets out the building block approach in its RIIO handbook.[270]

(ii) UK regulators have also consistently followed an "*incentive-based*" approach to regulation, which has driven significant benefits for UK energy consumers. Incentive-based regulation is based on a series of carefully calibrated incentive mechanisms applying to costs and service levels. Each of these incentives is designed to provide an economic motivation for companies to apply additional effort where the cost of that effort is less than the benefit to consumers.[271]

(iii) Outperformance within a calibrated price control has a variety of consumer benefits, including lower costs and improved service benefits for current consumers. This includes benefits for future customers, as, by outperforming, the regulator has better information on the capabilities of the industry, and therefore on where to set the cost and incentive targets in the next price control process.

(317) In this way, outperformance can be considered as a sign of successful incentive-based regulation within a price control. Outperformance can be achieved by improving efficiency. Existence of outperformance does not imply it was already expected in advance by the company or by investors. Conversely, companies who find it more difficult to achieve efficiencies than expected by the price control may underperform.[272]

(318) Incentive-based regulation has driven significant benefits for consumers, as recognised by GEMA itself, which has noted that incentive-based regulation has attracted significant investment where "*network*

[267] FD Core Document para. 11.30 (SGN1_009).

[268] FD Core Document, para. 6.8 (SGN1_009).

[269] KPMG OW Report, paras. 4.3.1 - 4.3.2 (KPMG_OW1/1).

[270] Handbook for Implementing the RIIO Model (2010), paras. 5.4-5.7 (SGN1_126).

[271] KPMG OW Report, para. 4.2.2 and 4.3.2-4.3.3 (KPMG_OW1/1).

[272] KPMG OW Report, para. 4.2.6 (KPMG_OW1/1).

companies have invested over £100bn in maintaining and upgrading the networks".[273] The framework that has promoted these outcomes is based on a series of carefully calibrated efficiency and service targets.

(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*".[274]

5.4.2 Against this background, the outperformance wedge is a disproportionate and untargeted tool that undermines consistency and transparency, which is to the detriment of consumers

(320) GEMA has recognised that the price control should aim to set a "fair bet" (i.e. charting a stretching but achievable target for the notional company).[275] Nonetheless, as explained at paragraph (312) above, GEMA considers that historical outperformance and structural factors "*provide good reason*" for an adjustment of the allowed returns.

(321) As set out in the sections that follow, the Appellants however submit that:

(i) the outperformance wedge is a disproportionate, untargeted tool; and.

(ii) the outperformance wedge undermines consistency and transparency in the regulatory regime, ultimately to the detriment of consumers.

(322) The Appellants invite the CMA to consider Sections 1 and 4 of the KPMG OW Report in particular which explain that the deduction applied by GEMA is not compatible with the building-block approach to regulation that GEMA has adopted in RIIO-2, with negative consequences within this and future price controls.

(i) The outperformance wedge is a disproportionate and untargeted tool

(323) As KPMG explains, GEMA has adopted the standard building-block approach, whereby the RIIO-2 price control is comprised of a series of building blocks that are individually calibrated. Each building block should be calibrated consistently with its purpose. This is designed to ensure that a price control is deliverable overall and to avoid introducing perverse incentives by using a building block for a purpose that it was not intended to achieve.[276]

(324) GEMA has conducted a calibrated review of cost allowances at RIIO-2. However, rather than identifying, evidencing and consulting upon any specific aspects that require further adjustment, GEMA has made a blanket reduction which is effectively an arbitrary overlay on the calibration.

(325) The outperformance wedge has been introduced to address perceived asymmetries in the price control and potential opportunities for excess returns. However, as explained below, it is a disproportionate and untargeted tool to address these concerns.

(326) As a preliminary point, the Appellants note that perceived concerns around information asymmetry are not unique to the energy sector among regulated utilities. In GEMA's own view, the issue of outperformance is one faced by regulators in other sectors.[277] Despite this, the outperformance wedge introduced by GEMA is without precedent. It is notable that in an interview series conducted with a

[273] RIIO-2 Framework Consultation, page 4 (SGN1_016).

[274] CMA PR19 Cost of Capital WPs, para. 81(a) (SGN1_050).

[275] GEMA stated that "*a regulator should strive to set up a 'fair bet' in which the likelihood of a regulated firm earning returns above or below the cost of capital are evenly balanced*" FD Finance Annex, page 163 (SGN1_011).

[276] KPMG OW Report, paras. 4.3.1 - 4.3.3 (KPMG_OW1/1).

[277] KPMG OW Report, para. 3.3.5; Section 6.1 (KPMG_OW1/1).

number of ex-regulators, 25 out of 32 were not keen on the idea that a regulator should make an adjustment such as this as a way of securing a 'fair bet'.[278]

(327) UK regulators have a range of tools which can be used to appropriately calibrate the price control without resorting to an adjustment on allowed returns. As KPMG explains in Section 4.5 of the KPMG OW Report:

(i) Regulators can use comparative benchmarking to set cost benchmarks and can also tailor efficiency challenges to address potential information asymmetries, as the CMA has recently (provisionally) done in the PR19 redetermination;

(ii) Regulators can choose the level of stretch within the package to reflect the evidence available and introduce uncertainty mechanisms to limit scope for upside/downside from regulatory uncertainty; and

(iii) Regulators can adjust their approach over time. If companies beat their targets during the price control period, this introduces efficiencies (from which customers directly benefit through the Totex incentive mechanism) and allows the regulator to impose a more challenging set of baseline targets in the next price control.

(328) As explained by KPMG, GEMA has in fact utilised these tools in RIIO-2 (independent of the outperformance wedge),[279] by making adjustments compared to RIIO-1 to reduce the scope for outperformance by the notional company, including by enhanced scrutiny of the information provided by companies, benchmarking and assessment of technically assessed costs. These tools avoid adjusting the cost of equity (and are therefore more targeted at the source of any perceived concerns around asymmetry) and are therefore not directed at a different regulatory parameter designed to ensure investors receive their required return.

(329) The outperformance wedge 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. Its impact is material: the outperformance wedge is the equivalent of c.**[CONFIDENTIAL]** of Totex allowances, or to eliminating the vast majority of the total potential upside on ODI rewards.[280]

(330) The outperformance wedge is a blunt and conceptually flawed mechanism to address perceived asymmetry. As explained in Error 2, the outperformance wedge has significant negative incentive qualities for investment and performance incentives. Regulators have a range of alternative tools, which do not suffer the same undesirable side-effects and are more targeted at the source of any perceived harm. Indeed, GEMA has already deployed a number of these tools to calibrate the RIIO-GD2 process.

(331) By introducing an arbitrary overlay on its assessment of cost allowances through a reduction to the allowed returns, GEMA has relied on a disproportionate and untargeted mechanism.

(ii) The outperformance wedge undermines consistency and transparency in the regulatory regime, ultimately to the detriment of consumers

[278] Earwaker and Fincham Information Asymmetry and the Calibration of Price Controls 2020 (SGN1_128). GEMA speculated that "*[i]t is possible that former regulators would react differently after digesting the full set of DD information..*" *asserting that "this report is supportive of the DD proposals in many respects*." FD Finance Annex, Appendix 2, page 164 (SGN1_011). This ignored the fact that the findings of the report were clearly at odds with the outperformance wedge.

[279] Section 4.5.8 of the KPMG OW Report (KPMG_OW1/1).

[280] KPMG OW Report, para 1.2.4 (KPMG_OW1/1). GEMA has identified the package of incentives it has offered in RIIO-2 as being worth between -0.7% and 0.3% in gas distribution; GEMA's upside estimate is therefore only 5 bps greater than the 25 bps deducted from allowed revenues for the outperformance wedge. See FD Core Document, page 6 (SGN1_009).

(332) As explained above, GEMA's approach represents a fundamental departure from the building block approach to price regulation, in which it is incumbent on the regulator to remedy the specific aspects of the price control which need to be adjusted. The introduction of a blanket reduction to allowed returns undermines consistency and transparency in the regulatory regime, ultimately to the detriment of consumers.

(333) It is entirely unclear how the mechanism is joined up with the rest of the calibrated price control, which GEMA essentially cuts-across; as KPMG notes, it is incoherent and confusing to deal with Totex and ODI calibration issues through an adjustment to the allowed return.[281] This undermines consistency in the price control regime.

(334) Departing from the standard approach also undermines transparency. Applying an ex ante across the board reduction does not make clear where GEMA expects outperformance to occur, and therefore what level of performance should be expected for each building block. This results in a lack of robustness and traceability in the price control parameters.[282]

(335) An unprecedented intervention such as this increases regulatory risk. By introducing a blanket adjustment that is not underpinned by robust analysis or by reference to the design of individual building blocks, the outperformance wedge increases regulatory risk. In this regard, it is noted that one of the authors of the Wright et al report (Burns) explicitly considered whether such a mechanism could be introduced and concluded that this would not be optimal and would add to regulatory risk:

> "*regulatory action on outperformance should apply to the cost and output targets not to the RAR – the RAR should be focussed on the WACC and minimising regulatory risk implies that this should be clear and transparent. An* ***arbitrary adjustment factor*** *applied to the RAR* ***would only add to regulatory discretion and risk****.*"[283] [*emphasis added*]

(336) As KPMG explains, investors will be mindful of regulatory risk when providing capital and the introduction of a novel mechanism such as this is only liable to increase regulatory risk.[284] The outperformance wedge undermines the stability of the regime, eroding trust and risks disincentivising investment in the sector. This could in turn increase costs to consumers by increasing the returns investors require to commit capital.[285] This falls well short of GEMA's stated objectives when setting the allowed return at DD of: "*maintaining high confidence in the regulatory regime; fairness for companies and investors; and fairness for consumers*".[286]

(337) The outperformance wedge therefore undermines consistency and transparency in the regulatory regime.[287] The importance of "*stability, predictability and transparency*" to investors has been recognised by the CMA's predecessor.[288] The introduction of such a novel and conceptually flawed mechanism can only serve to increase regulatory risk, which is ultimately to the detriment of consumers.

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[281] KPMG OW Report, para. 4.3.13 (KPMG_OW1/1).

[282] KPMG OW Report, paras. 4.3.14 - 4.3.15 (KPMG_OW1/1). For instance, it is unclear when carrying out a financeability assessment what level of performance should be assumed against targets, creating the risk that the financeability analysis does not properly reflect the risks and assumptions in the building blocks as explained in paragraphs 4.3.16 - 4.3.18 of the KPMG OW Report.

[283] Wright et al Report, page 88 (SGN1_061).

[284] KPMG OW Report, paras. 4.4.48 - 4.4.51 (KPMG_OW1/1).

[285] KPMG OW Report, para. 4.4.51 (KPMG_OW1/1).

[286] DD Finance Annex, para. 3.151 (SGN1_024).

[287] Principles that have also been recognised by the Better Regulation Taskforce. KPMG provide an assessment of the outperformance wedge against these principles in Section 4.6 of the KPMG OW Report (KPMG_OW1/1).

[288] The Competition Commission has recognised that "*stability, predictability and transparency*" can be important to investors in *Phoenix Natural Gas Limited* (2012). In Phoenix Gas, the CMA concluded that action taken by the Northern Ireland Authority for Utility Regulation "*would lead to a perception of regulatory uncertainty, as investors may assume that UR's future actions could be unpredictable ... Investors may anticipate that in addition to normal commercial risks there could be greater uncertainty in the future about the regulatory*

5.4.3 Conclusion on Error 1

(338) The outperformance wedge marks a significant departure from established regulatory practice, including GEMA's approach at RIIO-1.

(339) The outperformance wedge purports to address asymmetry in the price control. However, in imposing an arbitrary adjustment such as this, GEMA does not identify specific inefficiency or asymmetry within the price control. By adopting what is essentially a "*just in case*" reduction, the Appellants submit that GEMA has in effect abdicated its responsibility to effectively conduct a calibrated price control assessment.

(340) As Frontier Economics explained in an expert report submitted with the Appellants' DD response:

> "*It is the equivalent of a catch all bucket of the price control that can "right" all perceived "wrongs". Except the "wrongs" are never explicitly stated, allowing no scope for debate as to whether they should indeed be properly understood to be wrong. And moreover, the "righting" of these "wrongs" for future price controls derives from the assessment of "wrongs" from previous price controls."*[289]

(341) The outcome is a disproportionate and untargeted intervention to address GEMA's stated concerns that undermines consistency and transparency in the price control. The inherent flaws in GEMA's approach increase regulatory risk and erodes investor confidence in the stability of the regulatory regime. The outperformance wedge is therefore not in line with GEMA's stated objective, nor GEMA's statutory duties.

5.5 Error 2: GEMA's decision undermines incentives in RIIO-2 and future price controls

(342) The outperformance wedge applies a downward adjustment to the allowed return on equity and prevents GDNs from benefiting from any RoRE performance between 4.3% and 4.55%, despite 4.55% having been calculated as the appropriate cost of equity in GEMA's CAPM assessment. In doing so, GEMA:

(i) distorts investment incentives;

(ii) undermines efficiency and performance incentives; and

(iii) risks creating negative effects for future consumers and future price controls.

(343) The KPMG OW Report at Section 4.4 provides an assessment of the impact of introducing the outperformance wedge on investment and performance incentives, on which the Appellants rely.

5.5.1 The outperformance wedge distorts investment incentives

(344) The Appellants invite the CMA to consider, in particular, the analysis referred to in paragraphs 4.4.6 to 4.4.28 of the KPMG OW Report. To incentivise efficient investment, it is important that the allowed return on investment matches the cost of the associated finance that the company faces. If the allowed return is below the cost of that finance, the company will not be incentivised to undertake any optional investment (i.e. those investments which can be delayed or reduced in scope). Investment incentives work on a marginal basis, i.e. what matters when making investment decisions is the marginal return for each investment rather than the average return across the price control.[290]

(345) As KPMG explains:

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environment, and thus increased risks that returns on investment will not be realized in the way or to the extent that is expected. This is likely adversely to affect investment decisions in the future." *PGNL* (2012), paras. 8.85 and 8.89 (SGN1_129).

[289] Frontier Report, Ofgem's Proposal to Adjust Baseline Allowed Returns, page 35 (SGN1_039).

[290] KPMG OW Report, paras. 4.4.6 - 4.4.7 (KPMG_OW1/1).

(i) Setting an allowed return below the true cost of equity dampens marginal incentives to invest. The opportunity cost of making this marginal investment is greater than the marginal return that is earned. As a result, a company that is well placed to outperform by over 0.25% will be incentivised to delay or not undertake the investment.[291] This is in practice likely to affect other companies who don't ultimately outperform by 0.25% given uncertainties over future performance levels.[292]

(ii) These negative effects are particularly acute for investments associated with re-opener mechanisms (as there is generally no scope for outperforming the allowance where the expenditure has already been incurred before the re-opener request is made).[293]

(iii) These negative effects are not addressed by the top-up mechanism as the incremental investment of a company that outperforms by more than 0.25% will not be remunerated at the cost of equity assessed by GEMA. Common regulatory practice sets allowed returns at a level that ensures that the marginal return to investment equals the cost of equity so that investors are fairly compensated for and not discouraged from making incremental investments.[294]

(346) Disincentivising investment has significant negative consequences for consumers. Weakening incentives to invest are particularly damaging in the context of investments to support net zero initiatives.[295] The Appellants submit that ensuring the right incentives exist for investment should be a regulatory priority.

(347) GEMA maintains that companies will have a strong incentive to invest (on the basis that they are compelled to do so by licence obligations, ODIs and minimum standards).[296] GEMA has also argued that given the reduction in allowed return on equity, companies may be incentivised to outperform more, so that they can increase results above that level.[297] However, KPMG explains that GEMA fails to take account of the impact on incentives to invest outside of mandated areas, or for investments that will not generate enough outperformance to offset the outperformance wedge.[298]

5.5.2 The outperformance wedge undermines efficiency and performance incentives

(348) GEMA's allowed return on equity after removing the outperformance wedge is 4.30%. The top-up mechanism means that if a company performs exactly in line with GEMA's Totex allowances and service benchmarks (i.e. if there is no outperformance) GEMA will top up their returns by up to 25 bps to 4.55%. Similarly, if a company's aggregate outperformance is between 0% and 0.25% of RoRE, GEMA will top up a licensee's returns to the same 4.55%.

(349) Figure 6 below shows the operation of the top-up mechanism according to the amount of outperformance generated.

[291] KPMG OW Report, para. 4.4.17 (KPMG_OW1/1).

[292] KPMG OW Report, para. 4.4.18 – 4.4.19 (KPMG_OW1/1).

[293] KPMG OW Report, paras. 4.4.21 - 4.4.22 (KPMG_OW1/1).

[294] KPMG OW Report, para. 4.4.10 (KPMG_OW1/1).

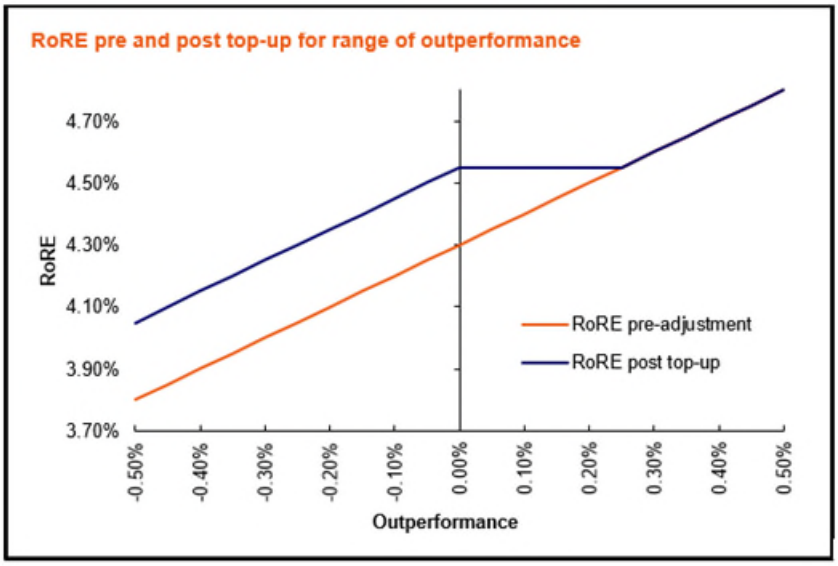
[295] KPMG OW Report, para. 4.4.28 (KPMG_OW1/1).

[296] FD Finance Annex, Appendix 2, page 154 (SGN1_011).

[297] FD Finance Annex, Appendix 2, page 155 (SGN1_011).

[298] KPMG OW Report, para. 3.7.15 (KPMG_OW1/1).

Figure 6 RoRE and post top-up for a range of out / underperformance



Source: KPMG

(350) As illustrated by Figure 6 above, the ex post adjustment mechanism means that licensees that outperform between 0 or 25 bps will end up with the same level of outturn RoRE, regardless of the level of outperformance within that band. This provides no incentive for incremental effort by a company to improve outcomes within that outturn performance range (essentially creating a deadband for performance or a cost pass through regime within this range).

(351) The Appellants invite the CMA to consider the analysis referred to in paragraphs 4.4.29 to 4.40 in particular of the KPMG OW Report, which explains the negative consequences that flow from this deadband, including that management will not be incentivised to deliver efficiency or service level improvements if companies do not expect to benefit from doing so. These effects would become particularly acute towards the end of the price control if a network company has a high likelihood of ending up in the deadband.

5.5.3 Disincentivising investment in RIIO-2 risks creating negative effects for future price control and future consumers

(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*".[299] Outperformance within a price control by a company shares immediate benefits with consumers either in the form of lower costs (through the Totex Incentive Mechanism) or in terms of improved service levels. The structure of the price control ensures that any outperformance represents a net gain for consumers, even if it also results in improved returns for the company.[300]

(353) The outperformance wedge goes beyond this, however. Rather than updating targets to reflect outperformance of calibrated building blocks in a previous control, GEMA has doubled-up by making an additional lump sum adjustment across the price control for perceived excessive returns. In changing the rules of price control calibration, the outperformance wedge may well therefore logically create an expectation that any rewards gained during future price controls will be clawed back in part at the next price control through an increased outperformance wedge.[301] This reduces the incentive for companies

[299] CMA PR19 Cost of Capital WPs, para. 81(a) (SGN1_050).

[300] KPMG OW Report, para. 4.2.3 (KPMG_OW1/1).

[301] KPMG OW Report, para. 4.4.41 (KPMG_OW1/1).

to seek to outperform, impacting consumers in both current and future price control cycles, a phenomenon known as the "Ratchet Effect". This effect moves the regulatory approach away from a more incentive-based structure and towards rate of return regulation which is widely acknowledged to be worse for consumers.[302] These issues are expanded on in paragraphs 4.4.41 to 4.4.45 of the KPMG OW Report.

(354) Separately, as outlined in more detail in Error 1, the outperformance wedge makes it unclear what level of performance is expected in each area by cutting across the price control calibration. This undermines the ability of companies to use the calibration to set internal staff performance benchmarks. This may encourage short-term investment strategies that enable a company to recoup the outperformance adjustment but are not in the long-term interests of consumers.[303]

(355) It is notable that, despite these potential long-term effects, GEMA has not undertaken an impact assessment of the potential for the outperformance wedge to create longer-term losses.[304]

5.5.4 Conclusion on Error 2

(356) The deduction from allowed returns proposed by GEMA undermines incentives and the objectives of incentive-based regulation in both RIIO-2 and future price control periods. This will have a material negative impact on the interests of current and future consumers.[305]

5.6 Error 3: GEMA's decision to introduce the outperformance wedge is not supported by adequate evidence or analysis

(357) Without prejudice to the errors outlined in the foregoing which demonstrate that the introduction of the outperformance wedge was wrong as a matter of principle, GEMA's decision to introduce the outperformance wedge is also not supported by adequate evidence or analysis.

(358) As explained above, based on a review of historical analysis of outperformance in energy and other price controls, GEMA concluded that certain structural factors provided opportunities for excess returns that would justify the introduction of the 'novel' outperformance wedge. The CMA has previously recognised that where a regulator significantly departs from regulatory precedent, such changes need to be supported by particularly robust evidence.[306] However, as set out in detail below:

(i) GEMA's analysis of performance fails to properly take into account the RIIO-2 framework and the inferences drawn are unsupported; and

(ii) GEMA's concerns around asymmetries are unsubstantiated and fail to take due account of the broader regulatory framework.

(359) The KPMG OW Report at Sections 1, 3, 5 and 6 provide an assessment of GEMA's development and analysis of the outperformance wedge and an assessment of GEMA's analysis of potential sources of outperformance.

5.6.1 GEMA's analysis of performance fails to properly take into account the RIIO-2 framework and the inferences drawn are unsupported

[302] KPMG OW Report, para..4.4.41 (KPMG_OW1/1).

[303] KPMG OW Report, para. 4.3.12 (KPMG_OW1/1).

[304] KPMG OW Report, para. 4.4.45 (KPMG_OW1/1).

[305] KPMG OW Report, para. 4.4.52 (KPMG_OW1/1).

[306] As the CC found in *Bristol Water (2010)* Final Determination, para 9.21 (SGN1_127), "*consistency with regulatory precedent is a relevant consideration and ... any significant changes should be satisfactorily explained and well justified."* See also *"We consider that consistency with previous decisions is relevant and any significant changes should be satisfactorily explained and well justified.*", *NIE* (2014), para. 13.191 (SGN1_062).

(360) In seeking to justify its introduction of the outperformance wedge, GEMA sought to rely on, (i) evidence of historical outperformance; and (ii) inferences that could be drawn from the MARs of certain listed UK utilities companies. These issues are expanded upon in Section 6.1 and 6.2 of the KPMG OW Report.

(i) GEMA's assessment of historical outperformance fails properly to take into account the RIIO-2 framework

(361) GEMA refers to historical outperformance in energy and other sectors (namely water and aviation), based on its analysis conducted at DD[307] as the basis for introducing the outperformance wedge.[308] As described in paragraph (308) above, GEMA conducted a cross-sector analysis of historical performance in different price controls and purported to assess what performance in RIIO-1 would have been under the RIIO-2 framework.

(362) As a preliminary point, GEMA itself has recognised that historical outperformance "*may not necessarily provide a reliable guide to future outperformance*".[309] This is illustrated by the historical evidence GEMA reviewed; while it showed outperformance on average across sectors, there is significant variation within GEMA's dataset and it showed multiple examples of underperformance[310] and had some notable gaps.[311]

(363) Recognising these limitations, as explained in paragraph (308) above, GEMA purported to adjust its analysis of RIIO-1 performance to reflect aspects of the RIIO-2 framework (such as RPEs). However, in fact, GEMA made only relatively minor tweaks to attempt to account for RIIO-2, given the changes GEMA had made as part of its broader regulatory framework and other major features of RIIO-2. [312]

(364) Historical and future outperformance must be analysed within the context of both the applicable regulatory framework and broader industry trends that occurred or are expected to occur. GEMA has "*actively*"[313] sought to address perceived outperformance concerns from RIIO-1 by setting a stretching RIIO-2 package (with RIIO-2 intended to be a "*tougher price control for network companies*").[314]

(365) GEMA's assessment of historical outperformance, including of companies that are active in other sectors, is therefore not informative. Critically, GEMA failed to adequately distinguish between outperformance which may have been due to genuine efficiency enhancements in other price controls and expected outperformance which is due to information (or some other) asymmetry in this price control. Simple analysis of headline levels of return provides little insight regarding the asymmetries GEMA purports to identify.[315]

(ii) GEMA's inferences from MARs are unsupported

(366) MARs represent the ratio between the market value of a regulated business and its regulatory asset value. GEMA examined certain companies' MARs when considering the outperformance wedge and

[307] DD Finance Annex, para. 3. 20 - 3.133 (SGN1_024).

[308] FD Finance Annex, para. 3.158 (SGN1_009).

[309] SSMD Finance Annex, para. 3.297 (SGN1_021). See also, "*Notwithstanding this evidence, we acknowledge that past outperformance may not be a perfect indictor of expected outperformance*", FD Core Document, para. 11.31 (SGN1_009).

[310] DD Finance Annex, para. 3.122, figure 16 (SGN1_024). See also KPMG OW Report, Table 5 (KPMG_OW1/1).

[311] KPMG OW Report, para. 6.1.7 (KPMG_OW1/1).

[312] KPMG OW Report, paras. 6.1.12 - 6.1.16. This included failing to make adjustments for changes that GEMA specifically stated it had made to address perceived excess returns in RIIO-1 (such as the material expansion of PCDs and re-openers), as well as adjustments to reflect the size of cost challenges being applied by GEMA in the RIIO-2 framework.

[313] FD Core Document, para. 11.28 (SGN1_009).

[314] RIIO-2 Framework Consultation, page 5 (SGN1_016).

[315] KPMG OW Report, para. 6.1.12 (KPMG_OW1/1).

concluded that these provided "*strong evidence that investors expect outperformance by regulated utilities*".[316] It was wrong to do so.

(367) GEMA itself accepted that estimating and "*interpreting MAR premiums is subject to uncertainty*", and that the "*inferences reflect assumptions and period chosen*".[317]

(368) As explained by KPMG,[318] MAR premia can occur for a number of reasons, including the influence of market valuations from unregulated business lines and assumptions about allowances beyond the regulatory period (such as RAV growth or macro-economic factors). For instance:

(i) GEMA's analysis incorporates evidence from three listed water companies whose valuations are likely to reflect the companies' high performance versus the rest of their sector, additional returns associated with their fast-track statuses, and savings on their costs of debt versus the allowed return; and

(ii) GEMA's analysis also relies upon evidence from SSE, which has significant retail supply operations and generation activities, and National Grid which has US regulated and non-regulated business lines (such as NG Ventures' interconnector business).

(369) MARs for these companies will include investors' views of their actual capital structures, their specific performance, and the non-regulated activities that they carry out. These factors are likely to mean that the observed MARs are incomparable for the purposes of determining the appropriateness of the regulatory allowed return for GDNs in general, or any GDN specifically.

(370) The inferences that GEMA drew from MAR premia regarding expected outperformance are therefore unsupported.

5.6.2 GEMA's analysis of alleged asymmetry is unsubstantiated and fails to take due account of the broader regulatory framework

(371) Notwithstanding the limited evidence underpinning its views on expected outperformance, the FD asserts that "*structural factors*" provide opportunities for companies to earn excess returns at the expense of customers.[319] It identified three alleged asymmetries in this regard:

(i) information asymmetry;

(ii) asymmetries in PCD design; and

(iii) asymmetries created by re-openers.[320]

(372) As set out below, these concerns have not been substantiated by GEMA, taking into account the wider industry and regulatory framework set by the price control. These issues are expanded on in Sections 5.2 – 5.4 of the KPMG OW Report.

(i) Information asymmetry

(373) GEMA first cites information asymmetry, which it states arises as the regulator is forced to rely on licensees' own data in setting cost benchmarks.[321] However, as KPMG explains in section 5.2 of the KPMG OW Report, GEMA has a number of tools available to it to address information asymmetry, which it has already applied. In particular:

[316] FD Finance Annex, para. 3.162 (SGN1_011).

[317] DD Finance Annex, para. 3.138 (SGN1_024).

[318] Section 6.2 of the KPMG OW Report (KPMG_OW1/1).

[319] FD Core Document, para. 11.29 (SGN1_009).

[320] FD Core Document, para. 11.29 and 11.30 (SGN1_009).

[321] FD Core Document, para. 11.29 (SGN1_009).

(i) While licensees only have direct access to information on their own assets and operations, GEMA is able to request any information it requires from them, and (unlike the licensees) can crucially also compare information across the sector. In order for the information asymmetry to have a material consumer detriment, there would need to be material common asymmetries or withholding of information across the same cost components. Further, cost assessments are based on historical as well as forward-looking costs, and cost allowances are set on a benchmarked basis.

(ii) In RIIO-2, GEMA introduced a business plan incentive, providing rewards for companies if their plans deliver (from GEMA's perspective) genuine value for money. Inefficient and low-quality plans are subject to significant financial penalties.[322] These plans were subject to a greater level of transparency in RIIO-2 than in previous reviews, having been reviewed by customer challenge groups, and with three rounds of business plan submissions in which companies were required to submit more cost data than in previous price controls. GEMA does not provide any justification for considering this to be insufficient to incentivise companies to propose an efficient set of costs.

(iii) More generally, RIIO-2 represents a shift towards ex post regulation through re-openers and uncertainty mechanisms which heavily reduce any perceived ex ante information asymmetry as GEMA will be determining cost allowances based on observed outturn data.

(374) Notwithstanding the above, GEMA merely asserts that, while it expects the business plan incentive to have reduced the potential harm from information asymmetries, it does "*not think it has removed it altogether*".[323] GEMA has not provided any evidence supporting this position, or indeed any quantification of the alleged impact of this asymmetry.

(ii) PCDs

(375) PCDs specify the deliverables for funding allocated by GEMA and include a mechanism to refund customers if the output is not delivered (or only partially delivered).[324] PCDs have been used by GEMA in RIIO-2 to ensure that companies are held to account to deliver specific outputs,[325] and were identified as a metric that "*could reduce the impact of information asymmetry as final allowances will be subject to additional ex-post information and assessment*".[326]

(376) GEMA, for the first time at FD, identified concerns around asymmetries in PCD design as a ground to justify the outperformance wedge.[327] GEMA states that even though it has the power to clawback allowances for non-delivered work, this still gives licensees the discretion to choose whether to undertake work, creating scope for outperformance and bias "*particularly within the transmission sector*".[328]

(377) As explained in the KPMG OW Report at Section 5.3, GEMA's analysis simply does not reflect the reality of GDNs' operations. Given the regulatory framework around PCDs, GDNs have very limited discretion as to whether to proceed with their commitments under PCDs. Depending on the relevant PCD, failure to deliver work could result in a breach of health and safety obligations, cost allowance claw back, contravention of publicly made commitments or carry heavy reputational implications. In addition, not delivering a PCD that has been identified (and confirmed by GEMA's technical experts as necessary) in

[322] FD Core Document, para. 10.16 (SGN1_009).

[323] FD Core Document, para. 11.29 (SGN1_009).

[324] FD Core Document, para. 4.3 (SGN1_009).

[325] FD Core Document, para. 2.24 (SGN1_009).

[326] DD Finance Annex, Table 27, page 81 (SGN1_024).

[327] FD Core Document, para. 11.29 (SGN1_009).

[328] FD Core Document, para. 11.29 (SGN1_009).

order to maintain resilience would lead to an unacceptable increase in the risk of asset failure and/or significant additional costs.

(378) A GDN does not have the ability simply not to deliver the work associated with the PCDs as GEMA described. Indeed, as explained by KPMG, most PCDs create negative asymmetries against GDNs, primarily where they face cost claw-back for under-delivery (which could give rise to unrecoverable sunk costs) but receive no corresponding reward or a capped reward for over-delivery.[329]

(iii) Re-openers

(379) Re-openers are mechanisms through which GEMA can amend revenue allowances, outputs and / or delivery dates within the price control period to reflect limited and pre-determined circumstances.[330]

(380) GEMA specified concerns around asymmetries in re-openers as a ground to justify the outperformance wedge in the FD for the first time in the price control.[331] GEMA stated that "*a substantial majority of these re-openers are designed to provide additional allowances to take account of upward cost pressures or scope changes*" and that companies have the discretion to trigger a re-opener or volunteer information, creating "*an inherent and significant bias in favour of companies*".[332]

(381) However, as explained in the KPMG OW report at Section 5.4, this ignores the fact that re-openers are subject to regulatory assessment; they are not simple cost pass-through exercises and companies can only get additional costs with GEMA's approval. In many cases, companies will have already incurred costs prior to triggering a re-opener and there is strong regulatory precedent for significant cost challenges to re-openers[333]. KPMG explains that re-openers therefore represent an asymmetric risk against companies, rather than being asymmetric in their favour.[334]

(iv) Asymmetry/new risks

(382) As explained in the KPMG OW Report at Section 5.5 and 5.6, the Appellants note that there are other features of the regulatory framework that can create negative asymmetries for GDNs[335] and companies will face new and emerging risks in the coming years, that include Covid-19 to energy transition and increasingly advanced cyber threats.[336]

5.6.3 Conclusion on Error 3

(383) The outperformance wedge marks a significant departure from RIIO-1. At DD, GEMA reduced the magnitude of expected outperformance from its "*working assumption*" of 0.50% to (in its words) a "*cautious*" 0.25%.[337] At FD, GEMA recognised that "*the evidence can be interpreted in different ways and inferences can vary widely*"[338] but nonetheless proceeded to introduce a novel adjustment to companies' allowed returns.

(384) The CMA has previously noted that it is "*crucial that ... robust evidence*" supports key elements of the price control process.[339] Indeed, the CMA has noted that:

[329] KPMG OW Report, para. 5.3.3 and Table 2 (KPMG_OW1/1).

[330] FD Core Document, page 190 (SGN1_009).

[331] FD Core Document, para. 11.29 (SGN1_009).

[332] FD Core Document, para. 11.29 (SGN1_009).

[333] See Table 3 of the KPMG OW Report (KPMG_OW1/1).

[334] KPMG OW Report, paras 5.4.1-5.4.6 (KPMG_OW1/1).

[335] KPMG OW Report, section 5.5 (KPMG_OW1/1).

[336] KPMG OW Report, section 5.6 (KPMG_OW1/1).

[337] DD Finance Annex, para. 3.127 (SGN1_024).

[338] FD Finance Annex, para. 3.156 (SGN1_011).

[339] *Firmus Energy (2017)* para. 5.130 (SGN1_125).

"*robust, evidence-based decision-making, taking into account the potential limits of evidence on issues where there is significant uncertainty, is itself central to protecting the interests of consumers.*"[340]

(385) However, the evidence and analysis supporting the outperformance wedge fail to substantiate GEMA's concerns. More specifically, after asserting that there was a "*need for change*"[341] at the outset of the price control, GEMA failed to consider if its evidence justified imposing an outperformance wedge impacting material revenues, particularly in light of the detrimental implications for consumers and regulatory risk identified in Errors 1 and 2.

(386) GEMA's proposal is an unprecedented adjustment to allowed returns and needs to be well justified. As the CMA has recognised, "*there has to be ... a limit to the discretion of regulators*" where its assessment "*has failed to demonstrate evidence in support of those adjustments*".[342]

5.7 Error 4: GEMA has wrongly dismissed concerns over the impact of the outperformance wedge on financeability

(387) GEMA has a duty to have regard to the need to secure that licence holders are able to finance their activities. This is an important part of a price control assessment, not least because, as the CMA has recognised, wider social benefits of investment can also be lost if the finance to deliver those investments is unavailable.[343]

(388) As set out above in response to Error 1, the introduction of a poorly justified tool such as the outperformance wedge undermines the predictability of the regime and introduces regulatory risk, which investors will take into account when deciding to invest in the sector. This will ultimately undermine companies' ability to secure investment and is to the detriment of long-term interests of consumers.[344]

(389) More specifically, GEMA has conducted a financeability assessment of the notional company where it has assumed that a notionally efficient company will outperform the price control by 25 bps. The effect of this assumption on its financeability assessment is that the notional company's AICR (a key financial metric) increases by c. 0.06x.[345] GEMA explicitly recognised the impact of this assumption on AICR.[346]

(390) As set out in the KPMG Financeability Report, gas distribution companies generally rely on their credit ratings to be able to access capital markets.[347] In terms of credit ratings criteria, AICR is seen as particularly important by Moody's, which identifies AICR as "*[t]he key constraint on credit quality for most distribution networks*".[348]

(391) However, notwithstanding the direct impact on AICR of excluding outperformance, GEMA dismissed concerns over financeability on the basis that it should not be considered a long-term issue, given the top-up mechanism. GEMA stated that the,

"*AICR is intended not purely as a cashflow interest cover metric ... but as a longer-term debt service sustainability measure" and that the top up mechanism "**should** provide networks and*

[340] *NPG* (2015), para. 4.59 (SGN1_124).

[341] RIIO-2 Framework Consultation, para. 7.114 (SGN1_016).

[342] *NPG* (2015), para. 4.142 (SGN1_124).

[343] CMA – Working Cost of Capital PR – 19 Paper, para. 42(iii) (SGN1_050).

[344] The Appellants invite the CMA to consider the analysis in paragraphs 4.4.53 – 4.4.54 of the KPMG Financeability Report (KPMG_FIN1/1).

[345] GEMA considered ratio results excluding its outperformance assumption with the result that AICR fell by 0.06x on average and FFO/Net debt fell by 0.2% on average. FD Finance Annex - para 5.25 (SGN1_011).

[346] FD Finance Annex, para. 5.25 (SGN1-011).

[347] KPMG Financeability Report, para. 3.4.18 (KPMG_FIN1/1).

[348] Moody's, RIIO-2 Proposals will Weaken Credit Quality, page1 (SGN1_130).

*rating agencies with comfort that it will be earned and that any absence of this source of revenue in any particular year **should** not be considered a longer term problem in terms of debt service sustainability*" *[emphasis added].*[349]

(392) GEMA has failed however to take into account the manner in which credit metrics are calculated in practice. As KPMG explain, the top-up mechanism applies only on an ex-post basis, and therefore would not be reflected in metrics considered by rating agencies across RIIO-2, which are based on annual reports which reflect cash flows (not accruals for regulatory top-ups applied ex post).[350] This would persist throughout RIIO-2 for any companies that are not outperforming.

(393) GEMA has therefore wrongly dismissed concerns over the impact of the outperformance wedge on financeability of the notional company, both in terms of the impact on regulatory risk by introducing such a novel and arbitrary mechanism and assuming that any negative impact on cashflows will not be taken into account by rating agencies.

5.8 Conclusions on Ground 2

(394) The Appellants submit that the errors outlined under this Ground 2 demonstrate that the outperformance wedge is a disproportionate and untargeted tool that undermines consistency and transparency, ultimately to the detriment of consumers and to confidence in the regulatory system (Error 1). The outperformance wedge undermines incentives to invest and to reduce efficient costs during the RIIO-GD2 price control period and beyond. This is to the detriment of consumers in RIIO-GD2 and future price controls (Error 2).

(395) As well as being wrong as a matter of principle, GEMA has not provided adequate evidence and analysis in support of this significant departure from regulatory precedent (Error 3).

(396) In doing so, GEMA undermines the predictability of the regime and introduces regulatory risk, and fails to properly consider the consequent impact on financeability of the notional company (Error 4).

(397) The Appellants submit that, in making these errors, GEMA has erred and/or breached its legal duties in the manner described in Section 2 above. The Appellants therefore respectfully seek the relief described in Section 5.1.3 above.

[349] FD Finance Annex, para. 5.26 (SGN1_011).

[350] KPMG Financeability Report, para. 4.4.55 (KPMG_FIN1/1).

6 Ground 3 – Ongoing Efficiency Challenge

6.1 Overview

(398) The ongoing efficiency challenge reflects GEMA's expectation that the productivity of an efficient company will improve over time, resulting in the reduction of its efficiently incurred costs.

(399) At FD, GEMA applied a headline 1.2% overall ongoing efficiency challenge (1.25% per annum on a compounding basis for opex and 1.15% per annum for capex and repex) (the "**Overall Ongoing Efficiency Challenge**").[351] This was comprised of two components:

(i) a core efficiency challenge of 1.05% for opex and 0.95% for capex/repex (the "**Core Efficiency Challenge**") based on analysis of productivity growth rates in the wider economy; and

(ii) a 0.2% innovation uplift (the "**Innovation Uplift**") intended to reflect productivity improvements resulting from historical innovation funding.[352]

(400) The Appellants contend that GEMA erred in its decision to apply an ongoing efficiency challenge of 1.2% in three respects:

(i) First, the Innovation Uplift is unjustified:

(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;

(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 used by GEMA to set allowances (**Error 1**).

(ii) Second, 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) Third, the implementation of the Innovation Uplift results in an unjustified Overall Ongoing Efficiency Challenge:

(a) The Innovation Uplift is applied on top of an already stretching Core Efficiency Challenge which is at the top of CEPA's range; and

(b) GEMA relies on inadequate and flawed reasoning to conclude that the resulting Overall Ongoing Efficiency Challenge of 1.2% is reasonable and achievable (**Error 3**).

(401) As a result of the above errors, GEMA's decision to impose the Innovation Uplift, on top of an already stretching Core Efficiency Challenge, represents an unjustified and insufficiently evidenced decision that goes beyond the limits of regulatory discretion. Over the course of RIIO-GD2, the application of the Innovation Uplift stands to result in the underfunding of SGN's allowances by £**[CONFIDENTIAL]**.[353] The application of the Innovation Uplift also risks blunting GDNs' incentives to innovate in the future.[354]

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

[352] Ongoing Efficiency Report, paras 1.1.1 (MR1/1).

[353] Supporting Calculations Removing Innovation Uplift (SGN1_123A).

[354] Ongoing Efficiency Report, paras 4.6.1 to 4.6.4 (MR1/1)

(402) The Appellants request that the CMA read the expert report prepared by Frontier Economics titled "Assessment of GEMA's *Approach to Setting Ongoing Efficiency at RIIO-GD2*" (the "**Ongoing Efficiency Report**") (MR1/1) and the **SGN Innovation Statement** (SGN_IB1), which are relied on in their entirety in relation to the submissions made in support of this Ground 3.[355]

6.1.1 Legal consequences

(403) In light of the above errors, the Appellants submit that the ongoing efficiency challenge applied by GEMA is wrong within the meaning of section 23D(4) GA86.

(404) In particular, the Appellants submit that:

(i) GEMA failed, within the meaning of sections 23D(4)(a) and (b) GA86, to have due regard / give appropriate weight to the performance of its duties under:

(a) Section 4AA(1-1A) GA86 (the duty to protect the interests of existing and future consumers) – robust, evidence-based regulation is in the consumer interest;[356]

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) – the uplift underfunds GDNs' efficient costs;

(c) Section 4AA(5) GA86 (promoting efficiency and economy) – in light of the blunting of incentives to innovate; and

(d) the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed (Section 4AA(5A) GA86) – GEMA has failed to demonstrate either the need for an uplift or that it is appropriate to set such an uplift specifically at 0.2%;

(ii) the Innovation Uplift was based on errors of fact within the meaning of Section 23D(4)(c) GA86: GEMA has double counted productivity improvements already captured by the Core Efficiency Challenge and in GEMA's baseline allowances derived from GDNs' business plans; CEPA's methodology to derive the level of uplift is wholly inadequate; and GEMA's cross-check for the Overall Ongoing Efficiency Challenge is flawed;

(iii) the Innovation Uplift fails to achieve its stated effect within the meaning of Section 23D(4)(d) GA86) – at FD GEMA indicated that the Innovation Uplift specifically was intended to reflect "*efficiency benefits over and above those achieved in the wider economy*" arising from "*explicit and additional innovation funding over and above general allowances, and beyond any comparator sectors, including water*",[357] however the Innovation Uplift does not do this; and

(iv) GEMA erred as a matter of law within the meaning of Section 23D(4)(e) GA86 – by breaching the duties identified in paragraph (404)(i) and by acting disproportionately and reaching conclusions without adequate supporting evidence.

[355] The Appellants note that the Ongoing Efficiency Report has been jointly prepared for the Appellants and NGN. The Appellants have not reviewed the Witness Statement of Mark Horsley referenced in the Ongoing Efficiency Report and therefore does not seek to rely on this Witness Statement or any statement within it.

[356] See Firmus Energy (2017), para 5.85 (SGN1_125), where the CMA stated that it "*would expect assumptions that are major drivers of the price control to be based on robust evidence*".

[357] See FD Core Document, para. 5.26 (SGN1_009).

6.1.2 Materiality

(405) The application of the Innovation Uplift results in an unjustified underfunding of SGN's allowances by £**[CONFIDENTIAL]** over the course of RIIO-GD2.[358] This does not take into account any additional impact arising from the already highly stretching Core Efficiency Challenge.

(406) For this reason alone, the errors identified in this Ground 3 are sufficiently material to warrant both the granting of permission to appeal and, if the appeal succeeds, the remedies identified at paragraph (407) below.[359]

6.1.3 Remedy / relief sought

(407) The Appellants request that the CMA quash GEMA's Overall Ongoing Efficiency Challenge and substitute it with a revised ongoing efficiency challenge which removes the Innovation Uplift in its entirety. Further detail on the specific relief requested is included in **Appendix 1 (SGN1_151).**

6.2 GEMA's approach

(408) As noted in paragraph (399) above, at FD GEMA applied an overall ongoing efficiency challenge of 1.25% per annum for opex and 1.15% per annum for capex and repex.[360] This was comprised of two components:

(i) a core efficiency challenge of 1.05% for opex and 0.95% for capex/repex (the "**Core Efficiency Challenge**") based on analysis of productivity growth rates in the wider economy; and

(ii) a 0.2% innovation uplift (the "**Innovation Uplift**") intended to reflect productivity improvements resulting from historical innovation funding.[361]

(409) It is the latter of these – i.e. the Innovation Uplift – and the resulting level of stretch in the Overall Ongoing Efficiency Challenge, which is the focus of this Ground 3.

(410) By way of context, sections 6.2.1 and 6.2.2 below provide a brief summary of (1) the historical innovation funding received by GDNs and (2) the evolution of GEMA's decision to apply the Innovation Uplift in RIIO-GD2 respectively. For completeness, meanwhile, section 6.2.3 provides a brief summary of the underlying methodology used to set the Core Efficiency Challenge.

6.2.1 Historical innovation funding

(411) The background to GEMA's decision to include the Innovation Uplift as part of its ongoing efficiency challenge for RIIO-GD2 stems from innovation funding provided previously by GEMA to the network companies.

(412) A key objective was to "*try to replicate the incentives on unregulated companies to innovate*".[362]

(413) At GD1 GEMA introduced an innovation stimulus package "*to fund innovation where the commercial benefits [might] be uncertain*"[363] noting that:

[358] Supporting Calculations Removing Innovation Uplift (SGN1_123A).

[359] CMA Letter: Statutory Appeals Mechanism, paras. 3-11 (SGN1_030).

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

[361] Ongoing Efficiency Report, para 1.1.1 (MR1/1).

[362] Ongoing Efficiency Report, para 4.2.26 (MR1/1).

[363] RIIO-1 Final Proposals (Overview), para. 3.1 (SGN1_115).

"*These mechanisms are intended to act as an initial catalyst to bring about culture change within the businesses that run the gas and electricity networks in GB. Eventually we expect the features in the price control framework to be enough to incentivise innovation by licensees*."[364]

(414) The innovation stimulus package was primarily designed to drive low-carbon and other environmental (rather than economic) benefits. In particular, the package comprised:

(i) The Network Innovation Allowance ("**NIA**") – a set allowance to fund small-scale innovation projects.

(ii) The Network Innovation Competition ("**NIC**") – an annual competition for funding larger more complex projects with the potential to deliver low carbon and/or wider environmental benefits to consumers.

(iii) The Innovation Roll-out Mechanism ("**IRM**") a revenue adjustment mechanism that enables companies to apply for additional funding within the price control period for the rollout of initiatives with demonstrable and cost effective low-carbon or environmental benefits.[365]

(415) Prior to GD1, GEMA had provided the Innovation Funding Incentive (IFI) that was introduced for gas networks as part of GDPCR1 (2008-2013).

6.2.2 Evolution of GEMA's decision to apply the Innovation Uplift

(416) The evolution of GEMA's decision to apply the Innovation Uplift is described in paragraphs 3.1.1 to 3.1.17 of the Ongoing Efficiency Report.

(i) Approach at DD

(417) Prior to DD, GEMA commissioned CEPA to carry out analysis to provide a recommended range for the ongoing efficiency challenge. GEMA asked CEPA to consider evidence from a range of sources, including:

"*wider evidence on the scope for productivity improvements, e.g. as a result of innovation funding received by the network companies during RIIO-1.*"[366]

(418) In its report (hereafter, "**CEPA's DD Report**") CEPA did not identify any robust evidence for establishing a firm quantitative relationship between innovation funding in RIIO-1 and the scope for frontier efficiency improvements in the energy sector.[367] Accordingly, CEPA instead considered what level of cost savings would be required in order for the innovation allowances to have seemed like a reasonable investment (for customers). [368]

(419) CEPA considered what return customers could expect to make on their investment, and what the required cost savings would be to deliver that level of return. For this purpose, CEPA used ten input assumptions. This included an input assumption of a 0.2% per annum upwards impact of innovation funding on ongoing efficiency. These assumptions were used to calculate an implied return to customers from innovation funding, giving an estimated return of 4.2%. Having tested the sensitivity of four assumptions, CEPA concluded the 4.2% was reasonable, thereby concluding that "*an annual efficiency improvement of up to 0.2% during RIIO-2 was a reasonable estimate for the level of cost savings required to provide consumers with a reasonable return on innovation funding in RIIO-1*".[369]

[364] GEMA Network Innovation Review Consultation Proposals, para. 1.7 (SGN1_118).

[365] See RIIO-1 Final Proposals (Overview), para. 3.1 (SGN1_115).

[366] DD Core Document, para. 5.32 (SGN1_023).

[367] Ongoing Efficiency Report, paras. 1.1.15 (MR1/1)

[368] Ongoing Efficiency Report, paras. 3.1.6-3.1.8 (MR1/1) and CEPA Draft Determinations Report, page 23 (SGN1_116).

[369] Ongoing Efficiency Report, paras. 3.1.6-3.1.8 (MR1/1) and CEPA Draft Determinations Report, page 25 (SGN1_116).

(420) CEPA's assumptions included the following:[370]

(i) The only benefits that accrue to customers from innovation are cost savings.

(ii) The benefits of the RIIO-GD1 innovation funding will be fully realised during RIIO-GD2, albeit with the resulting reduction in costs persisting beyond RIIO-GD2.

(iii) No additional productivity improvements driven by innovation funding during RIIO-GD1 were already embedded in the baseline spending plans submitted by the GDNs.

(iv) The benefits from innovation last for 20 years.

(v) Spend driven by the innovation funding provided during RIIO-GD1 was entirely additional to what GDNs would have spent in the absence of such funding.

(vi) Such innovation funding was equivalent to 1% of GDNs' base revenue each year of RIIO-GD1.

(vii) It is appropriate to focus on the impact on totex directly rather than attempting to unpick the impact on allowed revenues specifically.

(viii) The Core Efficiency Challenge would be set at 1% p.a.

(ix) Customers can be treated as a single group (i.e. without taking into account inter-generational equity issues).

(421) CEPA set out a number of considerations for GEMA in considering its analysis.[371] These included:

(i) The importance of benefits to consumers other than cost savings - such as environmental benefits and quality of service; and

(ii) the degree of additional ongoing efficiency driven by innovation funding in RIIO-1 that is already embedded in the baseline spending plans submitted by the companies. [372]

(422) CEPA also alerted GEMA to CMA precedent from ED1, including "*the importance of a transparent and robust methodology for estimating innovation benefits*".[373]

(423) At DD, GEMA proposed to apply a 0.2% Innovation Uplift on top of the Core Efficiency Challenge:

> "*By providing innovation funding throughout RIIO-1 and previously, we believe that consumers have effectively provided the network companies with additional upfront allowances and that this should have driven efficiency…. [I]f the innovation funding is treated like an investment… a 0.2% [uplift to the Core Efficiency Challenge] would give consumers a 4.2% return on RIIO-1 innovation funding… we believe this is reasonable given the associated level of risk. We have considered whether some of the innovation funding may have resulted in quality of service improvements (rather than cost reductions), which would be more difficult to capture through productivity metrics. However, we believe that there are sufficient levels of gains that are likely to come from lower costs that this should be accounted for*"."[374]

(ii) Approach at FD

(424) CEPA did not revisit its analysis of the 0.2% in the report that it prepared for GEMA at FD.[375]

[370] Ongoing Efficiency Report, para. 4.3.6 (MR1/1) and CEPA Draft Determinations Report, pages 24- 26 (SGN1_116).

[371] See for more detail, Ongoing Efficiency Report (Section 4.3.32) (MR1/1)

[372] CEPA Draft Determinations Report, page 26 (SGN1_116).

[373] CEPA Draft Determinations Report, page 29 (SGN1_116). See also SGN DD Response, page 100 (SGN1_037).

[374] DD Core Document, paras. 5.40 to 5.41 (SGN1_023).

[375] Ongoing Efficiency Report, paras 3.1.17 (MR1/1).

(425) At FD, GEMA proceeded with the Innovation Uplift, providing the following justification for doing so:

> *"We believe the energy sector has enjoyed explicit and additional innovation funding over and above general allowances, and beyond any comparator sectors, including water. This funding has been totally unique to energy network companies. While companies will have baselined some savings from past innovation projects, this will only account for findings and benefits known at this point in time. We would expect to see additional benefits come to light over the course of RIIO-2, as the full benefits of past innovation continue to be realised and all benefits become known. An additional innovation challenge over and above that indicated by EU-KLEMS and set for the water sector, is therefore reasonable and necessary in the energy sector."*[376]

6.2.3 GEMA's approach to setting the Core Efficiency Challenge

(i) Approach at DD and FD

(426) GEMA's approach to setting the Core Efficiency Challenge is described in paragraphs 5.1.1 to 5.1.20 of the Ongoing Efficiency Report. It is derived from analysis by CEPA provided to GEMA at FD ("**CEPA's FD Report**"), which identified an ongoing efficiency range of 0.5% to 1.05% for opex and 0.5% to 0.95% for capex and repex.

(427) At FD, GEMA selected the top of CEPA's range, noting:

> *"We believe TFP and labour productivity measures from sources like the EU KLEMS could underestimate the scope for efficiency gains within regulated sectors such as electricity and gas networks in GB. This is because, not only are network companies less exposed to negative shocks, but also the lack of competitive pressure means they should be able to place greater management focus on driving high efficiency gains. This supports an OE challenge at the top end of the range proposed by CEPA."* [377]

(ii) Overall Ongoing Efficiency Challenge

(428) In its FD, GEMA justified the headline 1.2% Overall Ongoing Efficiency Challenge (combining the Innovation Uplift with the Core Ongoing Efficiency Challenge), by reference to:

(i) a high-level assessment of data provided by the network companies in relation to efficiencies achieved to date in RIIO-1:

> *"NGN, as the frontier GDN for RIIO-GD1, was able to realise ongoing efficiencies of >1.2% per annum. The other GDNs have indicated they believe they have got closer to NGN as the frontier company over the course of RIIO-GD1. This provides us with further comfort that the headline 1.2% ongoing efficiency challenge for GDNs under RIIO-GD2 is not only reasonable but is achievable based on RIIO-GD1 performance formally reported to Ofgem by the GDNs."*[378]

(ii) perceived consistency with the CMA's provisional findings in PR19; and

(iii) the highest expected productivity improvements submitted by companies in RIIO-2 (as per their submitted business plans rather than as revised during the process).[379]

6.3 Error 1: The Innovation Uplift is unjustified

(429) As noted at paragraph (425) above, GEMA asserted that an uplift to reflect productivity improvements resulting from historical innovation funding was appropriate on the basis that (in its view):

[376] FD Core Document, para. 5.26 (SGN1_009).

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

[378] FD Core Document, para, 5.27 (SGN1_009).

[379] FD Core Document, paras. 5.28 - 5.29 (SGN1_009).

(i) the energy sector has enjoyed explicit and additional innovation funding over and above general allowances, and beyond any comparator sectors;

(ii) such funding has been totally unique to energy network companies; and

(iii) while companies will have included some savings from past innovation projects in the baseline costs submitted with their business plans, this will only account for findings and benefits known at the time that the business plans were submitted (and additional benefits might be expected to come to light during RIIO-GD2 as the full gains from past innovation continue to be realised).[380]

(430) The Appellants contend that this purported justification is wholly insufficient. GEMA appears to rely on gut feel, rather than empirical analysis, and fails to articulate from a technical perspective the types of innovations and productivity benefits that it would expect to "come to light" over the course of the next five years.

(431) Notably, GEMA thereby fails to observe the principles noted by the CMA in the context of the Smart Grid Benefits ("**SGBs**") appeal at RIIO-ED1, in which the CMA overturned GEMA's decision to impose a cost adjustment relating to SGBs,[381] on the basis that:

> *"[N]either the evidence nor the reasons put forward by GEMA […] support GEMA's decision to make a specific […] adjustment. In the absence of evidential support for the judgement, GEMA's discretion cannot be treated as sufficient to justify the adjustment […] that it made.""*[382]

(432) The Appellants further submit that GEMA has failed to establish a sound basis for the Innovation Uplift on the grounds that:

(i) 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;

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

(iii) GEMA failed to assess double counting with productivity improvements already captured in GEMA's baseline allowances, which are derived from GDNs' business plans.

(433) The Appellants expand on these observations in sections 6.3.1 to 6.3.4 below.

6.3.1 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

(434) As Frontier explains in the Ongoing Efficiency Report, it is not possible to meaningfully use differences in R&D spend to infer what level of overall productivity can be achieved by one sector relative to others.[383]

(435) There are multiple reasons for this.

(436) First, innovation is just one of a large number of drivers of productivity improvements. Other drivers include investment in physical capital, investment in skills, uptake of wider technological advances and

[380] FD Core Document, para. 5.26 (SGN1_009).

[381] *NPG (2015)* (SGN1_124).

[382] *NPG (2015)*, para 4.140 (SGN1_124).

[383] Ongoing Efficiency Report, para 4.2.5 (MR1/1)

improvements to organisational structures. It is not possible using EU KLEMS to decompose productivity growth estimates by reference to these component drivers.[384]

(437) Second, different firms and sectors will spend different amounts on innovation and will focus their innovation on different priorities (for example, health and safety, environmental impact, customer outcomes and productivity).[385]

(438) Third, the same level of spending on innovation can lead to very different impacts on productivity, and over different timescales, with variations driven by, among other things:

(i) The sector in question, for example, R&D spending is likely to have a larger impact on productivity in some sectors than others;

(ii) whether the R&D is basic research, applied research or experimental development;

(iii) the technology readiness level of any new products or processes being tested;

(iv) the R&D experience and expertise of the organisation carrying out the work; and

(v) other drivers of productivity that the spending may interact with.[386]

(439) A further complication is that some innovation projects may never deliver any benefits at all (cost savings or otherwise). Innovation projects are, by their nature, uncertain. Some novel ideas may fail, or may not be implementable.[387] Others may require further investment in the future to get to a point where there is a possibility of realising benefits (such as the Appellants' project investigating the possible use of "seeker particles" referred to in the SGN Innovation Statement).[388] If the benefits of innovation projects were certain, specific funding for innovation would likely not be needed.

(440) Given these differences, two firms or two sectors could spend exactly the same amount on R&D, but achieve very different levels of overall productivity.[389]

(441) Frontier accordingly concludes that even if it were true that energy networks receive additional innovation funding over and above comparator sectors within EU KLEMS, it is not possible to conclude they can achieve greater overall productivity than those sectors as a result.[390]

(442) In any event, GEMA has failed to conduct any analysis to support its assertion that innovation funding is beyond the level of comparators, or to consider whether there were any offsetting factors (i.e. sources of additional productivity) in other sectors.

(443) The issues set out in this section are dealt with in further detail in paragraphs 4.2.3 to 4.2.20 of the Ongoing Efficiency Report.

6.3.2 GEMA failed to assess the extent to which there was double counting with the Core Efficiency Challenge

(444) Even if it were possible to use differences in R&D spend to infer relative levels of overall productivity, this does not in itself provide a basis for the implementation of an uplift above and beyond the Core Efficiency Challenge. In order to provide such a basis, it would have to be established that the innovation

[384] Ongoing Efficiency Report, para 4.2.15 (MR1/1)

[385] Ongoing Efficiency Report, para 4.2.16 (MR1/1)

[386] Ongoing Efficiency Report, para. 4.2.17 (MR1/1).

[387] Ongoing Efficiency Report, para. 4.2.18 (MR1/1).

[388] SGN Innovation Statement, para. 14 (SGN_IB1).

[389] Ongoing Efficiency Report, para. 4.2.19 (MR1/1).

[390] Ongoing Efficiency Report, para. 4.2.20 (MR1/1).

funding received by energy networks is entirely incremental to R&D spend by comparator sectors.[391] GEMA has failed to do so.

(445) As explained in the Ongoing Efficiency Report, GEMA's Core Efficiency Challenge is effectively based on EU KLEMS productivity growth estimates for the wider economy.[392] These benchmarks already capture productivity improvements driven by innovation in comparator sectors.[393]

(446) It follows that, in order to establish that any productivity improvements arising from historical innovation funding are not already captured in the Core Efficiency Challenge, GEMA would need to show that this innovation funding was incremental to innovation spending in comparator sectors.[394] GEMA has failed to do so. CEPA's report at FD highlighted this risk of double counting in its DD Report, observing that:

> "*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*."[395]

(447) GEMA has sought to address this point by asserting that historical innovation funding received by companies represents funding "*beyond any comparator sectors, including water*".[396]

(448) However, the Appellants note in this regard that:

(i) the comparison to water is not relevant because the comparator set used is CEPA's EU KLEMS analysis of an economy-wide set, and a set targeted at four comparator sectors, none of which is water;[397]

(ii) GEMA itself has previously stated that monopoly network companies generally undertake less than optimal levels of innovation, due to being regulated monopolies;[398] and

(iii) GEMA also fails to explain why its innovation funding is fundamentally different from the various sources of public and private R&D spending in the UK. R&D spending was equivalent to c.1.7% of GDP in 2018.[399]

(449) GEMA does not appear to have attempted any empirical exercise to support its view that innovation funding was "*beyond any comparator sectors*".[400] As the Ongoing Efficiency Report concludes, had GEMA attempted an exercise to demonstrate that its approach does not lead to double counting, it would be likely to show that there is in fact double counting between the Innovation Uplift and the Core Efficiency Challenge because, as stated in the past by GEMA, R&D spending in the network sectors is likely to be lower than comparators absent specific innovation funding.[401]

(450) The Appellants note that having previously made the observation referred to above regarding regulated monopoly network companies generally undertaking less than optimal levels of innovation, GEMA has subsequently suggested at both DD and FD that:

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[391] Ongoing Efficiency Report, para. 4.2.21 (MR1/1).

[392] Ongoing Efficiency Report, para. 4.2.7 to 4.2.10 (MR1/1).

[393] Ongoing Efficiency Report, para. 4.2.22 (MR1/1).

[394] Ongoing Efficiency Report, para. 4.2.21 (MR1/1).

[395] CEPA Final Determinations Report, footnote 7 (SGN1_117).

[396] FD Core Document, para. 5.26 (SGN1_009).

[397] Ongoing Efficiency Report, para. 4.2.30 (MR1/1).

[398] See, for example: Network Innovation Consultation Review Consultation Proposals, para. 1.4 (SGN1_118)

[399] Ongoing Efficiency Report, para. 4.2.29 (MR1/1). See also ONS R&D Expenditure Report (SGN1_119).

[400] Ongoing Efficiency Report, para. 4.2.33 (MR1/1).

[401] Ongoing Efficiency Report, para. 4.2.34 (MR1/1).

"*not only are network companies less exposed to negative shocks, but also the lack of competitive pressure means [GDNs] should be able to place greater management focus on driving high efficiency gains*".[402]

(451) The suggestion that regulated monopolies can be expected to deliver better outcomes than competitive sectors runs contrary to established economic theory and is not credible.[403]

(452) Frontier conclude in the Ongoing Efficiency Report that:

> *"GEMA has not demonstrated that networks companies in fact have incremental R&D spend relative to the EU KLEMS comparator sectors. In our view it is extremely unlikely that the innovation funding is entirely incremental […] there is likely to be double counting between the innovation uplift and productivity improvements captured in the core ongoing efficiency challenge."*[404]

(453) The Appellants accordingly submit that even though the issue of double counting clearly arose, GEMA failed to make any, or any adequate, attempt to address it, or to demonstrate that its approach does not lead to double counting with the Core Efficiency Challenge.

(454) These issues are considered in further detail in the Ongoing Efficiency Report at paragraphs 4.2.21 to 4.2.36.

6.3.3 GEMA failed to assess double counting with productivity improvements already captured in GEMA's baseline allowances, which are derived from GDNs' business plans

(455) In addition to establishing that any productivity improvements are not already captured in the Core Efficiency Challenge, in order to provide a basis for the implementation of an uplift above and beyond the Core Efficiency Challenge GEMA also needed to establish that productivity improvements are not already captured in the baseline costs submitted in GDNs' business plans for RIIO-GD2.[405] It failed to do so.

(456) As explained in the Ongoing Efficiency Report, cost savings resulting from RIIO-GD1 have been captured in GDNs' baseline costs.[406]

(457) The Appellants note in this regard that:

(i) The operation of GEMA's cost benchmarking process (as to which, see Ground 4) provides two channels through which lower company baseline plans can lead to lower allowances:

(a) Lower company baseline plans for GD2 (or indeed lower costs in GD1), will impact the estimated relationship between costs and the cost driver in GEMA's regression analysis. The estimated regression parameters will reflect that costs are lower relative to the cost driver, and this will result in lower modelled costs.

(b) To the extent that the GDNs used to set the efficiency benchmark have built efficiency gains from innovation funding into their plans, this would be imposed on all other companies as a further efficiency challenge.[407]

[402] See FD Core Document, para 5.21 (SGN1_009) and DD Core Document, para. 5.42 (SGN1_023).

[403] Ongoing Efficiency Report, paras. 4.2.35 to 4.2.36 (MR1/1).

[404] Ongoing Efficiency Report, para. 4.2.1(b) (M/R1/1).

[405] Ongoing Efficiency Report, para. 4.2.37 (MR1/1).

[406] Ongoing Efficiency Report, para. 4.2.42 (MR1/1). See also the SGN Innovation Statement, paras. 18 to 22 (SGN_IB1).

[407] Ongoing Efficiency Report, para. 4.2.39] (MR1/1).

(ii) CEPA's DD Report identified the risk of double counting with baseline allowances several times and stakeholders raised it in their DD responses.[408]

(iii) Based on SGN's Business Plan, and as set out in the SGN Innovation Statement, a significant amount of savings resulting from historical innovation have in fact been captured in submitted baseline costs.[409]

(iv) GEMA has itself acknowledged that some savings from innovation projects have already been reflected in submitted baseline costs, observing that:

> "*…companies will have baselined some savings from past innovation projects...*"[410]

(v) If, as GEMA accepts, some savings have been baselined (and therefore reflected in lower RIIO-GD2 allowances), it must follow that there is double counting, regardless of whether further savings could, as GEMA speculates, "*come to light of the course of RIIO-2 as the full benefits of past innovation continue to be realised and all benefits become known*".[411]

(458) Moreover, GEMA has not adduced any evidence to demonstrate that further productivity benefits of the nature and scope necessary to justify the proposed 0.2% uplift to the Core Efficiency Challenge will actually come to light. The suggestion that they will is pure speculation.

(459) These issues are considered in further detail in the Ongoing Efficiency Report at paragraphs 4.2.37 to 4.2.46.

6.3.4 GEMA has failed to observe the principles set out by the CMA in the SGBs appeal at RIIO-ED1

(460) As noted at paragraph (431) above, there are certain parallels between the issues raised in relation to this Error 1 and the issues considered by the CMA in the context of the SGBs appeal at RIIO-ED1.

(461) As the CMA will be aware, in its Final Determinations at RIIO-ED1, GEMA sought to apply a downward adjustment to the cost allowances of certain network companies to account for cost savings resulting from the application of "*smart grid technologies*" that it considered had been underestimated in company business plans.[412] As with the proposed Innovation Uplift in RIIO-GD2, the proposal to make downward adjustments to account for SGBs was made at the Draft Determination stage of the RIIO-ED1 price control process, and attracted criticism from companies.[413]

(462) Northern Powergrid successfully appealed the adjustment, with the CMA finding that:

> "*[N]either the evidence nor the reasons put forward by GEMA, at the time or subsequently, support GEMA's decision to make a specific SGB adjustment. In 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."*[414]

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[408] See CEPA Draft Determinations Report, pages 22, 31 and 54 (SGN1_116). See also SGN DD Response, pages 98 to 110 (SGN1_037)

[409] SGN Innovation Statement, paras. 18 to 22 (SGN_IB1).

[410] FD Core Document, para. 5.26 (SGN1_009). For the avoidance of doubt, cost savings resulting from RIIO-1 innovation projects have in fact been captured in company baseline costs. These savings in baselines are additional to the "embedded" ongoing efficiency that companies layered on top of baseline costs, to reflect productivity growth that they expect to be able to achieve over the course of GD2. GEMA removed these embedded ongoing efficiency figures before carrying out its benchmarking modelling, to avoid double counting between company ongoing efficiency assumptions and its own assumptions. However this removal of embedded future ongoing efficiency does not address the double counting of savings arising from innovation funding which have already been made in GD1 and/or are built into baseline costs.

[411] Ongoing Efficiency Report, para. 4.2.44 (MR1/1). See also FD Core Document, para. 5.26 (SGN1_009).

[412] *NPG (2015)*, paras. 4.1 to 4.2 (SGN1_124).

[413] *NPG (2015)*, para. 4.5. (SGN1_124).

[414] *NPG (2015)*, para. 4.140 (SGN1_124).

(463) This statement could, the Appellants submit, equally be made in respect of GEMA's decision to implement the Innovation Uplift. GEMA's view that "*additional benefits might be expected to come to lig*ht" during RIIO-2 is pure conjecture. It is a wholly inadequate basis for imposing an uplift.

(464) The Appellants note in this regard the CMA's additional conclusions in its ruling on SGBs that:

(i) "*the importance of […] a policy goal cannot, in our view, negate the need for decisions […] in the price control to be justified and supported adequately by reasoning and evidence*";[415] and

(ii) the duty to protect the interests of consumers does not require the CMA to uphold "*significant change[s] in approach that [are] inadequately justified*".[416]

(465) GEMA's economists, CEPA, similarly recognised the significance of the CMA's ruling on SGBs – observing that it could be drawn from this that GEMA should, when considering whether to apply the Innovation Uplift:

(i) establish the extent to which innovation benefits have already been embedded in the business plans submitted by the companies;

(ii) ensure it had in place a transparent and robust methodology for estimating innovation benefits;

(iii) show that it has made a 'fair' assessment of the outcomes and risks; and

(iv) provide GDNs with sufficient time and information to assess and, if necessary, challenge its data, modelling and conclusions.[417]

(466) In the event, however, GEMA does not appear to have taken these points onboard.

(467) The read across between the CMA's findings in the SGBs appeal and the present case are set out in more detail in the Ongoing Efficiency Report at paragraphs 4.4.1 to 4.4.20. The observations made in sections 6.3.1, 6.3.2 and 6.3.3 above, meanwhile, are repeated.

6.4 Error 2: Even if GEMA was correct to apply an uplift to reflect historical perceived productivity improvements arising from innovation funding, the methodology which GEMA used to derive the level of the Innovation Uplift is wholly inadequate and based on a number of demonstrably false and/or inappropriate assumptions

(468) For the reasons outlined above, the Appellants contend that there is no sound basis for GEMA's application of an uplift. Even if there were, however, the Appellants consider that the methodology which GEMA used to derive the level of the Innovation Uplift is wholly inadequate for the purpose and based on a number of demonstrably false and/or inappropriate assumptions. It is, therefore, insufficient to support the Innovation Uplift.

(469) The overarching flaws in GEMA's methodology are addressed in section 6.4.1 below, the assumptions underpinning GEMA's methodology are addressed in section 6.4.2, and the caveats that accompanied CEPA's observations are addressed in section 6.4.3 below.

(470) The observations made in section 6.3.4 above regarding GEMA's failure to observe the principles and process set out in the SGBs appeal at RIIO-ED1 are equally applicable in respect of the issues raised in relation to Error 2. The Appellants address this in section 6.4.4 below.

6.4.1 Overarching flaws in GEMA's methodology

[415] *NPG (2015)*, para. 4.132 (SGN1_124).

[416] *NPG (2015)*, para. 4.141. (SGN1_124).

[417] CEPA Draft Determinations Report, page 29 (SGN1_116).

(471) As noted at paragraph (419) above, the 0.2% figure is ultimately an assumption – that is to say it is not supported by empirical data. The Appellants note in this regard that CEPA's DD Report concludes by stating:

> "*Based on this sensitivity analysis, it appears that an annual efficiency improvement of up to 0.2% during RIIO-2 is a reasonable estimate for the level of cost savings required to provide consumers with a reasonable return on innovation funding in RIIO-1*." [418]

(472) Given its central importance to GEMA's decision to impose the Innovation Uplift, and the caveats and concerns raised by CEPA regarding the 0.2% figure as noted in the Ongoing Efficiency Report, it plainly needed to be properly supported by analysis and evidence. GEMA, however, has provided neither.

(473) The approach adopted by GEMA to arrive at the 0.2% is also highly sensitive to the assumptions used for the reasons Frontier give in its Ongoing Efficiency Report.[419] Indeed, it is likely that other (similarly stylised) alternative methodologies could be envisioned which might generate wide ranges of estimates under different assumptions – such stylised analysis is not a robust basis for quantifying the uplift.[420]

(474) The matters set out in this section 6.4.1 are dealt with in further detail in paragraphs 4.3.26 to 4.3.31 of the Ongoing Efficiency Report.

6.4.2 Assumptions underpinning GEMA's methodology

(475) In addition to the 0.2% figure itself ultimately remaining an assumption, meanwhile, CEPA's DD Report made various other assumptions when setting the level of the Innovation Uplift. These assumptions are summarised at paragraph (420) above.

(476) Frontier concludes that, of these assumptions, three are demonstrably false, a further two are entirely unevidenced, while others are oversimplified and arbitrary and that the result of this is a highly stylised analysis which is of limited accuracy (see paragraphs 4.3.6 to 4.3.9 of the Ongoing Efficiency Report).

(477) The assumptions that Frontier concludes are "*demonstrably false*" are considered in further detail below.

(i) Not all benefits that accrue to customers from innovation spending are cost savings

(478) With regard to CEPA's assumption that the only benefits that accrue to customers from innovation are cost savings, it is important to note that a significant portion of historical innovation funding will lead to benefits other than cost savings.

(479) The Appellants note in this regard the descriptions of the three components of the innovation stimulus package referred to at paragraph (414) above. As stated in that paragraph, the purpose of the NIC was to fund projects with the potential to deliver low carbon and/or wider environmental benefits to consumers.[421] As Frontier explains, while projects funded through these mechanisms could, of course, deliver ongoing efficiency benefits, it is not correct to assume that all of them will be capable of delivering a direct monetary "return" in the form of reduced costs. In fact, given the focus of the funding, it is highly likely that the vast majority of "returns" to consumers arising from these projects either have been or will be non-monetary.

(480) The Appellants rely upon the analysis referred to in paragraph 4.3.16 of the Ongoing Efficiency Report, which notes that, of the gas distribution NIC projects approved from 2013 to 2020, a significant majority (71%) of NIC funding had a primary focus of delivering environmental benefits, rather than cost-savings.

[419] Ongoing Efficiency Report, paras. 4.3.27 to 4.3.29 (MR1/1).

[419] Ongoing Efficiency Report, paras. 4.3.27 to 4.3.29 (MR1/1).

[420] Ongoing Efficiency Report, para. 4.3.38 (MR1/1).

[421] See RIIO-1 Final Proposals (Overview), para. 3.1 (SGN1_115).

The importance of non-cost benefits in innovation projects is also reflected in the SGN Innovation Statement.[422]

(ii) Not all benefits of the RIIO-GD1 innovation funding will be fully realised during the RIIO-GD2 period

(481) With regard to CEPA's assumption that the benefits of the RIIO-GD1 innovation funding will be fully realised during RIIO-GD2 (albeit with a resulting reduction in costs persisting beyond RIIO-GD2) , this is also demonstrably false. The reality is that there are clear examples of RIIO-GD1 innovation funding delivering benefits during the RIIO-GD1 price control period. For example, as noted in the SGN Innovation Statement:

(i) SGN introduced a series of innovations in GD1 that improved the way that risers are managed in large multioccupancy buildings. These included innovations such as 'Self-Amalgamating Tape'. Prior to the start of RIIO-GD1 a gas escape in a large multioccupancy building would regularly lead to the gas riser being completely disconnected until a more permanent repair could be carried out. Following the introduction of innovations such as Self-Amalgamating Tape and Microstop, it is now unusual that a riser will need to be disconnected in unplanned circumstances.

(ii) The Appellants' Cast Iron Sealing roBOT ("**CISBOT**") meanwhile, was a low TRL innovation project at the start of the RIIO-GD1 price control period. CISBOT reduces disruption when completing repairs to larger mains under busy roads by avoiding the need for large-scale excavation. By the end of RIIO-GD1 CISBOT will have travelled and completed repairs over 60km of gas main.[423]

(482) CISBOT, Microstop and Self-Amalgamating Tape were all funded by NIA funding.[424]

(483) In any event, the Appellants submit, it is not unreasonable to expect that RIIO-GD1 innovation funding can deliver benefits within the RIIO-GD1 price control period, especially given that the RIIO-GD1 price control period lasted for eight years.

(iii) The baseline costs submitted in GDNs' business plans for RIIO-GD2 already capture productivity improvements

(484) With regard to CEPA's assumption that no additional productivity improvements driven by innovation funding during RIIO-GD1 were already embedded in the baseline spending plans submitted by the GDNs, section 6.3.3 above is repeated.

(485) The matters set out in this section 6.4.2 are dealt with in further detail in paragraphs 4.3.1 to 4.3.31 of the Ongoing Efficiency Report.

6.4.3 Caveats accompanying CEPA's analysis

(486) CEPA itself recognised the challenges associated with estimating the impact of innovation funding on productivity growth and set out a number of caveats in its report.

(487) With this in mind, the Appellants submit, GEMA should have carried out a detailed examination of the 0.2% figure and the assumptions underpinning it before seeking to implement the Innovation Uplift. In the event, however, it does not appear to have done so. Rather, GEMA provided just two paragraphs on the Innovation Uplift at DD, and one paragraph at FD. Neither of these extracts provide any evidence of detailed consideration of the 0.2% figure.

[422] SGN Innovation Statement paras. 14 to 15 (SGN_IB1).

[423] SGN Innovation Statement para. 17

[424] See documents referred to at footnotes 13, 14 and 15 of SGN Innovation Statement.

(488) CEPA observed that:

> "*[W]e have not yet identified 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*."[425]

> "*Estimating the baseline for cost savings from innovation required to provide a reasonable return for consumers involves judgements being made in multiple areas – therefore, to avoid spurious accuracy, we have tried to keep the analysis simple and have tested the robustness of the overall conclusion to different assumptions*."[426]

(489) CEPA also explicitly asked GEMA to consider the reasonableness of certain assumptions in deciding whether to use the 0.2% figure, and set out a number of other points for GEMA to consider with regard to it.[427] The points that CEPA recommended that GEMA consider, including the risk of double counting, included:

(i) The importance of benefits to consumers other than cost savings – such as environmental benefits and quality of service.

(ii) 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).

(iii) 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).

(iv) 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.[428]

(490) The brief reasons which GEMA set out in its FD do not provide any evidence of detailed consideration of these matters and are wholly inadequate.

(491) "*Our OE decision reflects our view that the innovation funding provided by consumers since 2007 should deliver efficiency benefits over and above those in achieved in the wider economy, in comparator sectors, and beyond the range indicated by EU KLEMS. […] We believe the energy sector has enjoyed explicit and additional innovation funding over and above general allowances, and beyond any comparator sectors, including water. This funding has been totally unique to energy network companies. While companies will have baselined some savings from past innovation projects, this will only account for findings and benefits known at this point in time. We would expect to see additional benefits come to light over the course of RIIO-2, as the full benefits of past innovation continue to be realised and all benefits become known. An additional innovation challenge over and above that indicated by EU-KLEMS and set for the water sector, is therefore reasonable and necessary in the energy sector*." The matters set out in this section 6.4.3 are dealt with in further detail in paragraphs 4.3.32 to 4.3.36 of the Ongoing Efficiency Report.

6.4.4 GEMA failed to observe the principles set out by the CMA in the SGB appeal in RIIO-1

(492) As noted above, the observations made in paragraph 6.3.4 above regarding the parallels with the SGBs appeal at RIIO-ED1 are equally applicable in respect of the issues raised in relation to Error 2.

[425] CEPA Draft Determinations Report, page 23 (SGN1_116).

[426] CEPA Draft Determinations Report, page 24 (SGN1_116).

[427] CEPA Draft Determinations Report, page 26 (SGN1_116).

[428] CEPA Draft Determinations Report, pages 35-36 (SGN1_116).

(493) The Appellants submit that the matters referred to in sections 6.4.1, 6.4.2 and 6.4.3 in respect of this Error 2 are further evidence of GEMA's failure to take onboard the points referred to at paragraphs (464) and (465) above.

(494) Again, the read across between the CMA's findings in respect of SGBs and its approach to implementing the Innovation Uplift are set out in more detail in the Ongoing Efficiency Report at paragraphs 4.4.1 to 4.4.20.

(495) For completeness, the Appellants also note the observations made by the CMA in Firmus Energy (2017) that it "*would expect assumptions that are major drivers of the price control to be based on robust evidence*" before reaching the conclusion that the "*significant lack of rigour in [the NIUR's] approach*" to determining the non–additionality rate meant that the NIUR had contravened its statutory duties and the stated effect in the GD17 Decision.[429]

(496) The Appellants submit that these criticisms of the NIUR's approach in Firmus Energy (2017) are equally applicable to GEMA's approach in the present case, noting its highly stylised nature, lack of rigour/robustness, and lack of empirical data supporting the 0.2% level at which the Innovation Uplift has been set.[430]

6.5 Error 3: The implementation of the Innovation Uplift results in an unjustified Overall Ongoing Efficiency Challenge.

(497) Finally, the Appellants submit, the implementation of the Innovation Uplift results in an unjustified Overall Ongoing Efficiency Challenge. The Appellants note in this regard that:

(i) the Innovation Uplift is layered on top of a Core Efficiency Challenge at the top of CEPA's range; and

(ii) GEMA relies on inadequate and flawed reasoning to conclude that the resulting Overall Ongoing Efficiency Challenge of 1.2% is reasonable and achievable.

(i) The Innovation Uplift is layered on top of a Core Efficiency Challenge at the top of CEPA's range

(498) As noted in the Ongoing Efficiency Report, GEMA's Core Efficiency Challenge target of 1.05% for opex and 0.95% for capex/repex, is at the very top end of the range recommended by CEPA.[431].

(499) We note that Frontier makes various criticisms regarding the decision to set the Core Efficiency Challenge at this level. These include that:

(i) GEMA has not placed appropriate weight on the structural break in productivity growth since the financial crisis (see paragraphs 6.2.2 to 6.2.16 of the Ongoing Efficiency Report);

(ii) GEMA has not placed appropriate weight on gross output (GO) (as opposed to value added (VA)) measures of productivity (see paragraphs 6.2.17 to 6.2.27 of the Ongoing Efficiency Report;

(iii) GEMA has placed too much weight on an economy-wide (as opposed to targeted) comparator set (see paragraphs 6.2.28 to 6.2.33 of the Ongoing Efficiency Report);

(iv) it is inconsistent to apply productivity estimates based on VA measures to the entirety of controllable totex (see paragraphs 6.3.1 to 6.3.5 of the Ongoing Efficiency Report); and

[429] Firmus Energy (2017), paras 5.146-5.147 (SGN1_125).

[430] Ongoing Efficiency Report, para. 4.3.38 (MR1/1).

[431] Ongoing Efficiency Report, Ongoing Efficiency Report, paras 6.1.1 (MR1/1)

(v) it is inconsistent to apply productivity estimates based on labour productivity (LP) measures to the entirety of opex (see paragraphs 6.3.1 to 6.3.3 and 6.3.6 to 6.3.9 of the Ongoing Efficiency Report).

(500) Secondly, Frontier observes, the Core Efficiency Challenge does not take into account the impacts of COVID on productivity growth. Frontier consider the impacts of COVID further at 6.4.1 to 6.4.16 of the Ongoing Efficiency Report).[432]

(501) The result of this, Frontier concludes, is a Core Efficiency Challenge which is "*highly stretching*" and "*represents an unbalanced interpretation of the evidence available*".[433]

(502) In such circumstances, and without prejudice to the Appellants' submissions in respect of Errors 1 and 2, the application of a further uplift on top of a stretching Core Efficiency Challenge clearly requires clear and cogent justification, both as a matter of law and as a matter of regulatory practice. GEMA has not provided adequate justification, however.

(ii) GEMA relies on inadequate and flawed reasoning to conclude that the resulting Overall Ongoing Efficiency Challenge of 1.2% is reasonable and achievable

(503) The Appellants note in this regard that GEMA has sought to justify its approach at FD by asserting that its proposed Overall Ongoing Efficiency Challenge (comprising both the Core Efficiency Challenge and Innovation Uplift) is:

> "*consistent with both regulatory precedent and expectations set out by companies themselves*".[434]

(504) This is not the case, however. To the contrary, the Overall Ongoing Efficiency Challenge goes far beyond all relevant precedent set by GEMA itself, as well as other regulators and the CMA, particularly when taking into account that much of that precedent was set at times where there was no or only limited evidence of a sustained economy-wide productivity slump.[435]

(505) As Frontier note in the Ongoing Efficiency Report, once the fact that Ofwat's PR19 ongoing efficiency challenge of 1.1% has been superseded by the 1% challenge proposed in the CMA's Provisional Findings is taken into account, CEPA's summary table of relevant regulatory precedent on ongoing efficiency does not identify a single price control in which an ongoing efficiency challenge greater than 1% per annum has been found to be justified.[436]

(506) These points are considered further in the Ongoing Efficiency Report at paragraphs 4.5.4 to 4.5.9.

(507) GEMA also seeks to justify the level of its Overall Ongoing Efficiency Challenge by reference to the GDNs' own submissions with respect to ongoing efficiency. Specifically, GEMA states that:

> *"the most ambitious energy companies suggested they could achieve ongoing efficiencies of 1.0% Totex (SGN and SPT), and 1.1% opex (NGET and NGGT)."*[437]

(508) In the case of the Appellants (as the only GDNs that GEMA references), however, this statement is a mischaracterisation, as the Appellants highlighted to GEMA in their DD response that their 1% ongoing efficiency figure was not comparable to GEMA's ongoing efficiency figures – being a simple average of

[432] The Appellants also invite the CMA to read the 'Impact of Covid-19' annex to its Draft Determination consultation response, which sets out how COVID has affected its business and, most relevantly, how it will have an ongoing impact in GD2 (SGN (September 2020) RIIO-2 DD: Impact of COVID-19 (SGN1_120).

[433] Ongoing Efficiency Report, Ongoing Efficiency Report, paras 6.1.1 (MR1/1)

[434] FD Core Document, para. 5.28 (SGN1_009).

[435] Ongoing Efficiency Report, Ongoing Efficiency Report, paras 4.5.8 (MR1/1).

[436] Ongoing Efficiency Report, Ongoing Efficiency Report, paras 4.5.7 (MR1/1).

[437] FD Core Document, para. 5.29 (SGN1_009).

the Appellants' annual ongoing efficiency assumptions, rather than a compound average.[438] Specifically, the Appellants' response to GEMA's DD stated that:

> *"reflecting this as an average compounded value, in line with Ofgem's position, this would be re-stated as 0.83%."*[439]

(509) The Appellants further note that the 1% ongoing efficiency figure originally cited by them was calculated in the run up to the submission of their Business Plan, before the COVID pandemic and at a time when there was still a lack of clarity regarding what the broader RIIO-GD2 price control package would look like. In their DD response, the Appellants noted that they now considered a lower figure of 0.65% (calculated on a compound basis) to be more reasonable on account of the impact of the pandemic and other factors.[440]

(510) Looking at the GD sector more broadly, meanwhile, GEMA's Overall Ongoing Efficiency Challenge of 1.15% for capex/repex and 1.25% for opex is materially higher than any of the numbers quoted by GEMA, noting also that these differences are compounded over time when applied to allowances.[441]

(511) These points are considered further in the Ongoing Efficiency Report at paragraphs 4.5.10 to 4.5.12.

(512) Finally, the Appellants note GEMA's statement that – so as to cross-check its overall ongoing efficiency figures – GEMA attempted to estimate the efficiencies achieved to date by one of the network companies at RIIO-1. Specifically GEMA stated that:

> "*To cross-check the headline 1.2% ongoing efficiency challenge, as a comparator we have analysed data provided to us by network companies under the RRP process in relation to efficiencies achieved to date in RIIO-1. Our high-level assessment indicated that NGN, as the frontier GDN for RIIO-GD1, was able to realise ongoing efficiencies of >1.2% per annum. The other GDNs have indicated they believe they have got closer to NGN as the frontier company over the course of RIIO-GD1. This provides us with further comfort that the headline 1.2% ongoing efficiency challenge for GDNs under RIIO-GD2 is not only reasonable but is achievable based on RIIO-GD1 performance formally reported to Ofgem by the GDNs. Similar high-level analysis indicates the same position for TOs and indeed NGET proposed 1.1% ongoing efficiencies which is only marginally lower than our Final Determination."*[442]

(513) It is unclear exactly how this cross-check has been conducted. It also remains unclear to the Appellants:

(i) whether or not the efficiency gains NGN achieved in GD1 were driven by changes that are repeatable; and

(ii) to what extent GEMA's estimate may be capturing a number of effects other than productivity improvements (recognising that it is not clear how GEMA has controlled for input prices or work mix over time).

(514) We also note Frontier's observations on these points in the Ongoing Efficiency Report at paragraphs 4.5.13 to 4.5.14.

6.6 Conclusions on Ground 3

(515) GEMA has erred by implementing an uplift to reflect perceived higher productivity arising from previous innovation funding when it lacks justification for doing so (Error 1). Even if GEMA were correct to apply

[438] Ongoing Efficiency Report, Ongoing Efficiency Report, paras 4.5.11 (MR1/1).

[439] SGN DD Response, page 100 (SGN1_037).

[440] SGN DD Response, page 101 (SGN1_037).

[441] Ongoing Efficiency Report, Ongoing Efficiency Report, paras 4.5.12 (MR1/1) .

[442] FD Core Document, paragraph 5.27 (SGN_009)

an uplift to reflect perceived productivity improvements arising from innovation funding, meanwhile, the methodology which GEMA 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). Finally, the Innovation Uplift results in an unjustified Overall Ongoing Efficiency Challenge (Error 3).

(516) The conclusion in respect of Error 1 follows from the lack of evidence 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, and GEMA's failure to assess the extent to which the implementation of the Innovation Uplift would lead to double counting. GEMA has also failed to adduce evidence supporting the decision to implement the Innovation Uplift more generally. As the CMA held in the SGBs appeal at RIIO-ED1 GEMA's discretion cannot, absent evidential support, provide sufficient basis for the implementation of such an uplift.

(517) The conclusion in respect of Error 2 follows from the lack of evidence to support its judgement that the return of 4.2%, implied by the 0.2% uplift, is reasonable, the sensitivity of CEPA's approach to testing the 0.2% figure (indicating a lack of robustness), the fact that GEMA's approach relies on assumptions that are incorrect, unevidenced and arbitrary and the fact that GEMA – despite the caveats accompanying CEPA's analysis – failed to carry out a detailed examination of the 0.2% figure and the assumptions underpinning it. The CMA's findings in the SGBs appeal are also relevant to Error 2, as are the CMA's findings in respect of Firmus Energy's appeal to the CMA in 2017.

(518) The conclusion in respect of Error 3, finally, follows from the fact that the Innovation Uplift is layered on top of a highly stretching Core Efficiency Challenge at the top of CEPA's range and GEMA's reliance on inadequate and flawed reasoning to conclude that the resulting challenge is reasonable and achievable.

(519) In addition to these points, the application of the Innovation Uplift risks blunting GDNs' incentives to innovate because it puts them in a position where, if they undertake innovation projects that do not deliver productivity improvements, GEMA may nevertheless assume that productivity improvements have been achieved and reduce future cost allowances. Ultimately, this will hurt consumers' interests.[443]

(520) In terms of legal consequences, the Appellants submit, in making these errors (and making a decision that blunts incentives to innovate), GEMA has erred and/or breached its duties in the manner described at paragraph (404) above. In terms of practical consequences, meanwhile, the decision to implement the Innovation Uplift stands to result in the underfunding of SGN's allowances by £**[CONFIDENTIAL]** over the course of RIIO-GD2.[444] The Appellants therefore respectfully seek the relief described at Section 6.1.3 above.

[443] The impact of the innovation uplift on future incentives to innovate is considered further in the Ongoing Efficiency Report at paras. 4.6.1 to 4.6.4 (MR1/1)

[444] Supporting Calculations Removing Innovation Uplift (SGN1_123A).

7 Ground 4 – Efficiency Benchmark

7.1 Overview

(521) GDNs' allowances are set by GEMA based on its assessment of the costs that would be incurred by a notional efficient company. GEMA carries out econometric benchmarking to assess the relative efficiencies between companies and this is used to set the efficient frontier, or benchmark, to which less efficient firms are required to "catch up". In recent price controls, GEMA (and other regulators) have set the efficiency benchmark (that is to say the level at which the notional efficient company is expected to operate) at the upper quartile in its econometric modelling. However, at FD, GEMA has moved away from the upper quartile, setting a more stretching efficiency benchmark on a glidepath to the 85th percentile.[445]

(522) The Appellants request that the CMA read the expert report prepared by Frontier titled "*Cost Benchmarking and Frontier Catch-up in RIIO-GD2*" (the "**Efficiency Benchmark Report**") (MR2/1) together with the Cost Assessment Process Statement (SGN_CAP1), which are relied on in their entirety in support of Ground 4 (**Efficiency Benchmark**).

(523) The Appellants submit that GEMA has erred in its approach to setting and applying the efficiency benchmark at FD in two respects:

(i) First, GEMA's decision to set the efficiency benchmark at a level higher than the upper quartile is not supported by the evidence (in particular, GEMA's modelling is not sufficiently robust to support this change) (**Ground 4A**). Specifically:

(a) there are inherent factors that limit the level of confidence that can be attached to allowances derived from the model, including the limited sample size available to GEMA;

(b) statistical testing does not provide evidence of an improvement in model robustness capable of supporting a move beyond the upper quartile (indeed, GEMA has not satisfied its own criteria for a move beyond the upper quartile); and

(c) there are data input / model calculation errors, procedural shortcomings and data quality issues affecting GEMA's modelling which undermine the confidence that can be placed in its results.

(ii) Second, in addition, GEMA has wrongly applied it to costs that have been removed from the regression model to account for regional differences (**Ground 4B**).

(524) GEMA's approach risks under-funding efficient GDNs' costs in GD2 and potentially, if not corrected, future price controls. It is poorly justified regulation, contrary to the interests of consumers.

7.1.1 Materiality

(525) From a financial standpoint, based on GEMA's totex allowances at FD, should the CMA quash GEMA's decision to use the 85th percentile benchmark and an efficiency benchmark no higher than the upper quartile were to be adopted in its place (i.e. correcting Ground 4A), it would result in an increase in the Appellants' GD2 allowances of at least c. £**[CONFIDENTIAL]**.[446] Correcting Ground 4B, meanwhile, would result in a further increase in the Appellants' GD2 allowances of at least c. £**[CONFIDENTIAL]**.[447]

(526) The Appellants note, for context, that changes to the underlying data or model specification in GEMA's GD2 modelling suite (e.g. through GEMA's error-correction process) have been shown to result in

[445] FD GD Annex, para. 3.15 (SGN1_012).

[446] Supporting Calculations Ground 4A (SGN1_75A).

[447] Supporting Calculations Ground 4B (SGN1_75B).

significant changes to the benchmark score (and therefore allowances). For example, as set out at paragraph 4.5.6 of the Efficiency Benchmark Report, using the upper quartile rather than the 85th percentile benchmark in GEMA's DD would have increased industry GD2 allowances by £**[CONFIDENTIAL]** and SGN's GD2 allowances by c. £**[CONFIDENTIAL]**.

(527) Moreover, the implications of GEMA's decision extend beyond the immediate financial consequences for the companies concerned. This has a strong bearing on the materiality of GEMA's decision: In assessing materiality, *NPG* and *Firmus* highlight the importance of taking into account: (i) the potential impact on future price controls; and (ii) whether the matter relates to a matter of economic or regulatory principle.[448] Both of these factors are directly relevant to this case.

(528) Indeed, a robust approach to setting an efficiency benchmark is a fundamental requirement of any price control. Should GEMA's decision be left unchanged despite such an important decision not being supported by the evidence, this would set an unhelpful precedent for future price controls when the impact could be far more material. It is poorly justified regulation, contrary to the interests of consumers.

(529) For these reasons, applying the CMA's approach to materiality,[449] the errors identified in this Ground 4 are sufficiently material to warrant both the granting of permission to appeal and, if the appeal succeeds, the relief identified below.

7.1.2 Legal consequences

(530) In light of the above errors, the Appellants submit that GEMA's adoption of the 85th percentile benchmark in RIIO-2 was wrong within the meaning of Section 23D(4) GA86.

(531) In particular, the Appellants submit that:

(i) GEMA failed, within the meaning of Sections 23D(4)(a) and 23D(4)(b) GA86, to have due regard/give appropriate weight to the performance of its duties under:

(a) Section 4AA(1-1A) GA86 (the consumer duty) – this is poorly justified regulation, contrary to the interests of consumers;

(b) Section 4AA(2)(b) GA86 (securing that licence holders are able to finance their activities) – it risks underfunding GD2 allowances;

(c) Section 4AA(5) GA86 (promoting efficiency and economy) – by failing to apply a robust, evidence-based efficiency benchmark; and

(d) the principles under which regulatory activities should be proportionate, consistent and targeted only at cases in which action is needed, as well as other principles of best regulatory practice (Section 4AA(5A) GA86);

(ii) GEMA's decision was based on errors of fact within the meaning of Section 23D(4)(c) GA86, including a large number of model errors, data quality issues and an insufficient assurance process in GEMA's application of the GD2 model; and

(iii) GEMA erred as a matter of law within the meaning of Section 23D(4)(e) GA86 – with respect to (i) above and by acting disproportionately, failing to have regard to material considerations, and reaching conclusions without adequate supporting evidence.

7.1.3 Relief / Remedy sought

[448] *NPG* (2015), para. 3.58 (SGN1_124) and *Firmus Energy* (2017), para. 3.25 (SGN1_125).

[449] CMA Letter: Statutory Appeals Mechanism, paras 3 to 11 (SGN1_030).

(532) The Appellants request that the CMA quash the Decision, and substitute its own decision, insofar as these matters are concerned and:

(i) for GEMA's proposed efficiency benchmark to be substituted for an efficiency benchmark set at no higher than the upper quartile; and

(ii) for the efficiency benchmark to be disapplied insofar as costs that have been removed from the regression model due to regional differences are concerned.

(533) Further detail on the specific relief requested is included in Appendices 1 and 2 to this Notice of Appeal (SGN1_151 and SGN1_152).

7.2 GEMA's approach

(534) The Appellants invite the CMA to consider section 3 of the Efficiency Benchmark Report which sets out the cost assessment process adopted by GEMA. Figure 3 in the FD GD Annex provides an overview.[450]

(535) In summary, the key steps up to the point at which the efficiency benchmark is calculated and applied are as follows: (i) GDNs submit business plans with detailed GD2 projections and outturn historical data on both costs and cost drivers; (ii) GEMA removes costs that have, in GEMA's view, not been justified and conducts adjustments and normalisations in respect of GDNs' submitted data to facilitate like-for-like comparison; (iii) GEMA carries out an efficiency analysis based on three different types of assessments (assessments via a single top-down totex regression model, a non-regression analysis and a technical assessment); (iv) using results from the top-down totex regression model, GEMA determines a single benchmark efficiency score for each year of GD2 based on the 85th percentile and the application of a three-year "glidepath" from the upper quartile to 85th percentile and (v) GEMA calculates allowed costs by applying the benchmark score to each company's modelled costs from the top-down totex model, as well as to the costs within the non-regression analysis.

(536) The efficiency scores derived from GEMA's regression analysis are shown in Figure 7 below, along with the resulting upper quartile, 85th percentile and annual "*glidepath*" benchmark scores.[451]

Figure 7 GEMA Final Determination (Corrected) Results

Final Determination (Corrected)		
	Efficiency scores	Rank
EoE	96.96%	4
Lon	108.59%	8
NW	96.87%	3
WM	98.99%	6
NGN	92.23%	1
Sc	98.33%	5
So	104.78%	7
WWU	96.61%	2
85th percentile	96.63%	
Upper Quartile	96.81%	

	RIIO-GD2				
	2022	2023	2024	2025	2026
Glidepath benchmark	96.81%	96.75%	96.69%	96.63%	96.63%

[450] Further detail is provided in the FD GD Annex, Section 3 (SGN1_012).

[451] Efficiency Benchmark Report, Figure 3 (MR2/1).

Source: Frontier calculations

(537) As noted above, GEMA's decision to adopt the 85th percentile benchmark represents a major departure from previous regulatory practice.

(538) In RIIO-GD1, GEMA stated:

> "*We defined efficient costs equal to the upper quartile (UQ) GDNs' costs rather than the frontier… The use of the UQ is identical to previous price reviews (e.g. GDPCR1, and more recently the electricity distribution price review, DPCR5).*"[452]

(539) In RIIO-ED1, GEMA similarly adopted upper quartile benchmarking, recognising that the use of the upper quartile was "*well established*" and had been used by a variety of regulators, including Ofwat in PR14.[453]

(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.[454]

(541) In the DD, GEMA proposed to move away from using the upper quartile and to use the 85th percentile instead.[455] Subsequently, at FD, GEMA proposed to set the efficiency benchmark on a glidepath to the 85th percentile.[456]

7.3 Errors in GEMA's approach

(542) As noted above, the Appellants submit that GEMA was wrong in its approach to setting and applying the efficiency benchmark in two respects:

(i) First, GEMA's decision to set the efficiency benchmark at a level higher than the upper quartile is not supported by the evidence (Ground 4A).

(ii) Second, GEMA has wrongly applied it to costs that have been removed from the regression model (Ground 4B).

7.4 Ground 4A: GEMA's decision to set the efficiency benchmark at a level higher than the upper quartile is not supported by the evidence

(543) At FD,[457] GEMA sought to justify adopting the 85th percentile benchmark and respond to related submissions by the Appellants' by arguing that:

(i) the robustness of its modelling had improved, noting that the R-squared of the FD model was higher compared to the DD and the range of efficiency scores was narrower compared to the DD;[458]

(ii) there had been a substantial improvement in comparability between GDNs,[459] driven by:

[452] RIIO-1 Final Proposals (Cost Efficiency), para. 1.10 (SGN1_066).

[453] RIIO-ED1 FD, para. 4.32 (SGN1_067).

[454] CMA PR19 PFs, para. 4.296 (SGN1_049).

[455] DD GD Annex, para. 3.24 (SGN1_025).

[456] FD GD Annex, para. 3.15 (SGN1_012).

[457] At DD, the Appellants note that GEMA also sought to justify setting the efficiency benchmark at the 85th percentile by arguing that evidence from time trends supports such a move (see DD GD Annex, para 3.27 (SGN1_025)). While this justification was not put forward at FD, for the avoidance of doubt, the Appellants submit that the efficiency benchmark does not need to increase in order to drive increased efficiency over time – the efficiency benchmark and ongoing efficiency target drive improvements in efficiency in any event from one price control to the next.

[458] FD GD Annex, para. 3.31 (SGN1_012).

[459] FD GD Annex, para. 3.30 (SGN1_012).

(a) an increase in the sample size used compared to previous price controls;

(b) improvements in the quality of the data collected;

(c) the assessment process conducted since publication of the DD;

(d) work done to normalise expenditure, incorporate regional factors and use composite scale variables ("**CSVs**") to eliminate the possibility of outliers influencing regression estimates;

(i) GDNs have outperformed during the GD1 price control period;[460]

(ii) GDNs stated in their business plans that it was their ambition to be at the frontier;[461]

(iii) there is a "regulatory principle" of continuing to raise the efficiency benchmark;[462] and

(iv) it is likely that there are further cost efficiency gains to be achieved in the future, noting that observations in competitive markets show that companies strive to operate increasingly close to the frontier company.[463]

(544) In response to stakeholder feedback, GEMA argued that there is no specific percentile benchmark recommended in academic literature,[464] claiming that the CMA's provisional decision in PR19 suggests that regulatory decisions do not put a ceiling on the efficiency benchmark that a regulator can choose.[465]

(545) The Appellants reject these arguments.

(546) With regard to the arguments summarised in paragraphs (543)(i) and (543)(ii) above, this Ground 4 does not concern GEMA's choice of models or CSV, 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. The Appellants note in this regard that:

(i) there are inherent factors that limit the level of confidence that can be attached to allowances derived from the model, including the limited sample size available to GEMA;

(ii) statistical testing does not provide evidence of an improvement in model robustness capable of supporting a move beyond the upper quartile (indeed, GEMA has not satisfied its own criteria for a move beyond the upper quartile); and

(iii) there are data input/model calculation errors, procedural shortcomings and data quality issues affecting GEMA's modelling which undermine the confidence that can be placed in its results.

(547) Accordingly, it cannot sensibly be suggested that GEMA's current modelling is any more robust than the modelling adopted at RIIO-GD1 such that a move beyond the upper quartile might be justified. The Appellants expand on these observations in sections 7.4.1 to 7.4.4 below.

(548) With regard to the arguments summarised in paragraphs (543)(iii) to (543)(vi) and (544) above, these similarly do not provide sufficient justification for setting the efficiency benchmark at a level higher than the upper quartile. The Appellants expand on these observations in sections 7.4.5 and 7.4.6 below. GEMA's assertion that the introduction of a glidepath at FD resolves any issues that might be posed by adopting the 85th percentile, finally, is addressed in section 7.4.7 below.

[460] FD GD Annex, paras 3.25 to 3.28 (SGN1_012).

[461] FD GD Annex, para. 3.25 (SGN1_012).

[462] FD GD Annex, para. 3.33 (SGN1_012).

[463] FD GD Annex, paras 3.25 and 3.27 (SGN1_012).

[464] FD GD Annex, para. 3.31 (SGN1_012).

[465] FD GD Annex, para. 3.27 (SGN1_012).

7.4.1 CMA and GEMA regulatory practice regarding modelling robustness

(549) It is important to recognise at the outset that no benchmarking exercise can ever perfectly and unambiguously establish an objective "*frontier*" which all other companies in the sample concerned can reasonably be expected to meet. Whilst unexplained 'noise'/random variation between companies can be reduced, it is not possible to eliminate it entirely – issues such as data comparability, missing variables, and other sources of bias/distortion will always exist.

(550) It is against this background that GEMA and the CMA opted to set the efficiency benchmark at the upper quartile in RIIO-GD1, RIIO-ED1 and PR19.[466]

(551) RIIO-GD1, GEMA stated that:

> "*Our… use of the UQ rather than the frontier acknowledges that a part of the difference in costs across the GDNs relates to factors other than GDNs' relative efficiency (e.g. statistical errors).*"[467]

(552) As noted in the Efficiency Benchmark Report, this is the same reasoning that GEMA has used to justify the 85th percentile in its Step-by-Step Guide to cost assessment at DD and GEMA does not appear to have provided any additional reason to believe this issue was better addressed now than it had been in the past:

> "*We selected the 85th percentile score rather than the frontier to acknowledge that part of the difference in costs across GDNs related to factors other than GDNs' relative efficiency (i.e. measurement errors and statistical noise)*."[468]

(553) Similarly, in RIIO-ED1, in addition to citing the use of the upper quartile in previous price controls, GEMA sought to justify its decision to use the upper quartile on the basis that:

(i) it lacked perfect information;[469] and

(ii) factors other than relative efficiency might influence the DNOs' costs.[470]

(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).*[471]
>
> *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…*"[472]

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[466] In addition, as mentioned in GEMA's statements set out in para. 4.2.2 of the Efficiency Benchmark Report (MR2/1), the Appellants note that GEMA's GD1 allowances were also subject to the IQI interpolation mechanism, under which GEMA set final allowances based on a weighted average of 75% weight on the upper quartile efficiency benchmark and 25% weight on the companies' own business plan cost forecast. GEMA stated that (along with the use of the upper quartile efficiency benchmark) this IQI interpolation mechanism accounts for the possibility of inaccuracies and statistical error in the GD1 models. This means that the efficiency benchmark was effectively lower than the upper quartile.

[467] RIIO-1 Final Proposals (Cost Efficiency), para. 1.10 (SGN1_066).

[468] RIIO-2 DD Cost Assessment Guide, para. 1.71 (SGN1_072).

[469] RIIO-ED1 FD, para 4.3 (SGN1_067).

[470] RIIO-ED1 FD, para 4.12 (SGN1_067).

[471] CMA PR19 PFs, para. 4.296 (SGN1_049).

[472] CMA PR19 PFs, para. 4.294 (SGN1_049).

(555) That model robustness is a key consideration in determining the appropriate level of efficiency challenge was similarly emphasised by the CMA in *Bristol Water* (2015), where it stated that:

> "*a less demanding benchmark than the upper quartile may be appropriate in cases where there [is] less confidence in the modelling results*".[473]

(556) The challenges posed by a lack of model robustness were also considered more generally by the Competition Commission in *Northern Ireland Electricity* (2014), where it observed that:

> "*Weaknesses or limitations in the econometric models and any errors or inconsistencies in the dataset we used will contribute to the variance in costs across the 15 companies in the sample. We would expect this to have an effect on the statistical properties of the cost benchmarks. We would expect this variance to introduce a bias that overstates the relative performance of companies ranked better than the median performance and understates the relative performance of companies ranked worse than the median. Where we see a company that has performed relatively well in the benchmarking analysis, we would expect that, on the balance of probability, its performance or rank has been improved (to some degree) by modelling limitations and data issues*."[474]

(557) The principle that can be drawn from previous regulatory practice is that the efficiency benchmark should recognise limitations in model robustness. The Appellants would therefore expect material advancements in model robustness for the efficiency benchmark to be moved higher than the upper quartile. In the event, however, GEMA has failed to show that the robustness of its modelling has meaningfully improved since these prior price control processes for the reasons set out below.

(558) The issues set out in this section are also dealt with in section 4.2 of the Efficiency Benchmark Report.

7.4.2 Inherent limitations with GEMA's modelling

(559) As the Efficiency Benchmark Report notes at paragraph 4.3.1, there are two main factors that materially limit the level of confidence that can be attached to allowances derived from the GD2 model, namely sample size and aspects of the model specification.

(560) In this case, the sample size is constrained by the number of companies in the sample (i.e. cross-sectional variation) and the number of years of data (i.e. time-series variation). Taking these in turn:

(i) With only eight GDNs, and only four management groups in the GD sector, cross-sectional variation is limited.[475] GEMA itself has recognised this limitation in the past.[476] The Appellants note in this regard that the available sample is much larger in other sectors – in RIIO-ED1 the sample size was 14 licensees and six ownership groups, and in PR19, the sample size was 17 water companies and 10 waste-water companies.

(ii) Regarding the number of years of data available (i.e. the time series variation), GEMA has used seven years of historical data and six years of forecast data, combining historical and forecast data into a single regression to maximise the sample size. The Appellants note in this regard that:

(a) Combining historical and forecast data also does not overcome the issues associated with a limited cross-sectional sample. There is a limit on the amount of additional

[473] *Bristol Water* (2015), para. 4.222 (SGN1_058).

[474] *Northern Ireland Electricity* (2014), para. 8.135 (SGN1_070).

[475] The London, East of England, West Midlands and North West England GDNs are managed by Cadent, while SGN (as noted above) operates the GDNs in Scotland and Southern England. Northern Gas Networks and Wales & West Utilities are under common ownership, but separate management.

[476] Efficiency Benchmark Report, para. 4.3.12 (MR2/1).

variation that additional years of data can add, in comparison to adding additional companies.[477]

(b) The combination of historical and forecast data in a single model raises further issues of model robustness. This is particularly so here where almost half of GEMA's sample is made up of forecast data (six of the 13 years in the regression are forecasts).[478]

(c) While forecast data can provide helpful information about expected changes in future costs, there is also inherent uncertainty and risks surrounding cost forecasting. This risk was recognised by GEMA in its sector specific consultation, where it stated that:

> "*Forecast data could inform cost allowances where the past is not expected to be a good indicator of the future. However, approaches to forecasting can vary by GDN which potentially undermines the comparability of costs between GDNs. Moreover, forecasts are inherently uncertain, so using them to inform cost allowances, when past costs are not a good indicator of the future, would undermine our confidence in cost allowances.*"[479]

(561) Given a sample of eight licensees, the 85th percentile efficiency score is overwhelmingly driven by the efficiency score of the second ranked company.[480] This exacerbates the problem that small fluctuations in one network's efficiency score, potentially driven by subjective adjustments by GEMA or data errors as opposed to factors reflecting relative efficiency, can significantly impact allowances for the whole sector. This inherently suggests that the 85% is unlikely to be appropriate.

(562) With regard to model specification, the small sample size places a limit on the number of explanatory variables that can be included in the model. GEMA's approach to these issues is to use a single CSV. In practice, however, a single cost driver is unlikely to capture all of the wider reasons (other than inefficiency) for differences in costs across GDNs.

(563) The issues set out in this section are dealt with in further detail in section 4.3 of the Efficiency Benchmark Report.

7.4.3 Statistical testing does not provide evidence of an improvement in model robustness capable of supporting a move to the 85th percentile

(564) In its FD, GEMA stated that the higher R-squared value at FD (compared to DD) and the narrower range in efficiency scores indicated that the robustness of its modelling had improved and gave it confidence to set the benchmark at the 85th percentile.[481]

(565) The Appellants submit, however, that as explained in section 4.4 of the Efficiency Benchmark Report:

(i) A comparison between GEMA's models at GD2 DD and FD is not relevant – the relevant comparison would be between GD1 and GD2 because GEMA has moved from the upper quartile at GD1 to a higher efficiency benchmark for GD2. Furthermore, the relevant comparison between GD1 and GD2 does not show evidence of an improvement in model robustness at GD2, compared to GD1.

[477] GEMA's economic consultants, CEPA, have also recognised this limitation: CEPA, RIIO-2 Cost Assessment, page 18 (SGN1_068).

[478] Furthermore, efficiency scores (a key part of the process for calculating allowed costs) are calculated based purely on the forecast years of the GD2 price control period.

[479] SSMC GD2 Annex, para 6.32 (SGN1_073).

[480] Whereas if the efficiency benchmark is set at the upper quartile, the benchmark efficiency score is 75% of the distance between the efficiency score of the company ranked second and the company ranked third.

[481] FD GD Annex, paras 3.30 to 3.31 (SGN1_012).

(ii) The relevant comparison of the range of efficiency scores at GD1 compared to GD2 shows that the range is in fact more variable than previous GD1 results suggesting there should be less confidence in increasing the efficiency challenge.

(566) With regard to the former, Figure 8 below summarises the R-squared values at GD1 and GD2.[482] The adjusted R-squared values at GD2 DD were lower than at GD1, while the GD2 FD values were broadly in line with those calculated at GD1. With regard to the latter, Figure 9 below summarises the efficiency scores at GD1 compared to GD2, with the ranges shown below.[483] As can be seen from the final row, there has not in fact been a reduction in the range of efficiency scores between the GD1 and GD2 models (rather, there has been an increase).

Figure 8 Comparison of adjusted R-squared at GD1 and GD2

	RIIO- GD1			RIIO-GD2		
	Final Determination			Draft Determination (Original)	Final Determination (Original)	Final Determination (Corrected)
	Historical	Forecast	Average			
Adj. R-squared	0.92	0.96	0.94	0.86	0.92	0.93

Source: Frontier calculations

Figure 9 Comparison of efficiency scores at GD1 and GD2

	RIIO - GD1					RIIO-GD2		
	Final Determination					Draft Determination (Original)	Final Determination (Original)	Final Determination (Corrected)
	Totex model		Bottom-up model		Average			
	Historical	Forecast	Historical	Forecast				
EoE	101%	96%	104%	97%	100%	110%	97%	97%
Lon	108%	107%	100%	105%	104%	117%	110%	109%
NW	102%	101%	101%	100%	101%	104%	102%	97%
WM	101%	94%	110%	100%	101%	104%	98%	99%
NGN	89%	97%	90%	98%	94%	89%	91%	92%
Sc	100%	98%	98%	98%	98%	95%	97%	98%
So	105%	101%	103%	99%	102%	98%	105%	105%
WWU	96%	104%	94%	103%	100%	100%	96%	97%
Range	16%	13%	20%	7%	11%	28%	19%	16%

Source: Frontier calculations

(567) The Appellants further note in this regard that, in their June 2019 'tools for cost assessment' consultation, GEMA's consultants, CEPA, considered the upper quartile reasonable and recommended that GEMA should only move away from it if certain tests were met – one of which was that there should be a narrower distribution of efficiency scores. Specifically, CEPA stated:

> "*We consider that the upper quartile provides a reasonable allowance for the measurement error in the modelling".*[484]
>
> *"If there is a relatively large distribution in the networks' expenditure around the line of best fit this can indicate that there may be a greater degree of measurement error and Ofgem may need to be more cautious… On the other hand, if the model has good statistical results then Ofgem may have more confidence in choosing a tougher target.*"[485]

(568) GEMA subsequently referred to this in its cost assessment publication, stating that:

[482] Efficiency Benchmark Report, Figure 6 (MR2/1).

[483] Efficiency Benchmark Report, Figure 5 (MR2/1).

[484] See CEPA, RIIO-2 Cost Assessment, page 42 (SGN1_068).

[485] See CEPA, RIIO-2 Cost Assessment, page 42 (SGN1_068).

"*In RIIO-GD1, we set the efficiency benchmark at the upper quartile level instead of the frontier (i.e. the GDN with lowest cost) recognising model measurement errors, but also that the frontier could have been an unfeasible target for GDNs."*[486]

"In setting efficiency benchmarks in RIIO-1, we were mindful the level of the company with the lowest costs may be unachievable and unrealistic. This was because our models did not account for all company differences or perfectly map costs with cost drivers."[487]

"*Our choice of benchmark will be driven by our level of confidence in the data and the variability in the modelling results. If the data is accurate, and is likely to provide accurate results, then we may be more inclined to set a tougher target. Alternatively, if there is a relatively large distribution in the GDNs' expenditure around the line of best fit, this can indicate that there may be a greater degree of measurement error and we may need to be cautious about setting a high benchmark.*"[488]

"*As the GDNs have now had two price controls (GDPCR and GD1) to catch up to the 'frontier', CEPA recommended that we explore the case for not applying a glide-path towards the efficiency target. It considered that, in line with RIIO-ED1, the use of the UQ is likely to be sufficient in dealing with measurement error in the models*."[489]

(569) The move to the 85th percentile is accordingly contrary to the criteria set by GEMA itself, and its own consultants as evidenced by the findings set out in paragraphs (564) to (566) above. Indeed, as explained in more detail in section 4.4 of the Efficiency Benchmark Report, while GEMA has undertaken various statistical tests of the model, the key tests which GEMA relies on do not support a move from the upper quartile.

7.4.4 There are data input/model calculation errors, procedural shortcomings and data quality issues affecting GEMA's modelling which undermine the confidence that can be placed in its results

(570) In addition to the issues outlined above, the Appellants note that there are also a large number of: (i) data input/model calculation errors; (ii) procedural shortcomings; and (iii) data quality issues that have impacted GEMA's modelling. Whilst (i) and (ii) are described more comprehensively in the Cost Assessment Process Statement, further information on (iii) is set out in section 4.5 of the Efficiency Benchmark Report.

(i) Data input/model calculation errors

(571) With regard to data input/model calculation errors, the Appellants submit that the substantial volume and materiality of the errors at both DD and FD show that the process which GEMA had undertaken to verify and assure the data and the model assurance process was plainly not adequate. This, in turn, calls into question the robustness of GEMA's modelling and, accordingly, the confidence that can be placed in its results. GEMA cannot sensibly maintain that the robustness of its modelling has improved in comparison to its modelling at GD1 to justify its decision to adopt the 85th percentile benchmark when there have been so many errors.

(572) Following DD, errors included:[490]

[486] GEMA Cost Assessment Consultation, footnote 16 (SGN1_027).

[487] GEMA Cost Assessment Consultation, para. 8.2 (SGN1_027).

[488] GEMA Cost Assessment Consultation, para. 8.8 (SGN1_027).

[489] GEMA Cost Assessment Consultation, para. 8.9 (SGN1_027).

[490] Cost Assessment Process Statement, para. 29 (SGN_CAP1).

(i) basic spreadsheet errors (e.g. incorrect formula linking in the calculation of totex CSV and incorrect formula references in calculation of repex synthetic unit costs);

(ii) data input errors (e.g. duplication of normalisation of costs, incorrect linking to BPDTs for example for submitted repex values for smart metering); and

(iii) conceptual calculation errors (e.g. incorrect reference for the compounding period for ongoing efficiency).

(573) Similarly, following FD, errors included:[491]

(iv) basic spreadsheet errors (e.g. formula errors in pre-modelling removal of embedded efficiency); and

(v) incorrect lookup identifier resulting in regional adjustments not being applied for capex categories for some GDNs.

(574) In addition, the Appellants have identified that allowances have been misallocated between expenditure pots, meaning that, as it stands, the licences remain inaccurate with errors in the allocation of allowances to different outputs.[492]

(575) The full extent and materiality of these errors are described in the Cost Assessment Process Statement and at paragraphs 4.5.16 to 4.5.18 of the Efficiency Benchmark Report. In particular, as Frontier explains at paragraph 4.5.17 of the Efficiency Benchmark Report, whilst GEMA has since sought to redress a number of these errors, it is possible that further data errors remain in GEMA's models.

(ii) Procedural shortcomings

(576) There were a number of procedural shortcomings suggesting insufficient internal quality assurance in the preparation of GEMA's modelling suite. These further undermine the robustness of GEMA's modelling and, accordingly, the extent to which it can be said to support the decision to adopt the 85th percentile benchmark.

(577) The Appellants note by way of example that:

(i) Whilst they received confidential copies of the models on 10 July 2020 to review for potential redactions, the cost assessment models were only published on 17 July 2020. GEMA published the necessary codes to run the cost assessment files four weeks after the publication and was still releasing important data files six weeks after publication of the DD on an eight-week consultation period. The review of these files led to material errors being identified.[493]

(ii) GEMA introduced changes in methodology between DD and FD without allowing sufficient time to assure these changes.[494] For example, in GEMA's FD in December 2020, GEMA stated that it had changed its approach to the treatment of embedded ongoing efficiency.[495] In October 2020, the Appellants expressed concerns to GEMA that *"[i]ntroducing such a fundamental change so late in the process is likely to significantly heighten the risk of introducing new errors, undermining the robustness of the modelling*."[496] Furthermore, these concerns were realised at

[491] Cost Assessment Process Statement, para. 38 (SGN_CAP1).

[492] Cost Assessment Process Statement, para. 42 (SGN_CAP1).

[493] Cost Assessment Process Statement, para. 24 (SGN_CAP1).

[494] Cost Assessment Process Statement, para. 35 (SGN_CAP1).

[495] FD GD Annex paras 3.42 to 3.43 (SGN1_012).

[496] Application of Ongoing Efficiency, page 1 (SGN1_074).

FD when a number of errors were identified that related to the embedded ongoing efficiency calculation – these are described in GEMA's FD error log.[497]

(iii) Following the release of the FD, GEMA released a revised set of models on 22 December 2020 to address a number of material errors and was required to re-publish its modelling suite on 3 February 2021 to correct for a number of additional errors.[498] This gave GDNs only four weeks (i.e. 20 working days) between the release of the final modelling suite and the date by which they were required to bring any appeals.

(578) Further information regarding these and other procedural shortcomings associated with GEMA's costs assessment and modelling is set out in the Cost Assessment Process Statement.

(iii) Data quality issues

(579) As regards data quality, finally, GEMA has not provided any evidence to support its assertion that data quality has improved. Data quality issues that have become apparent over the course of the RIIO-GD2 price control process have included:

(i) WWU's inaccurate forecasting of one of the cost drivers used in the CSV, which directly affected the regression estimates and efficiency scores at FD, affecting the results for all companies. Though GEMA rectified this error in its final (corrected) FD, it illustrates the potential inconsistencies associated with forecast data, and also indicates that GEMA's own verification processes did not identify a material error, even by the time of the FD.

(ii) The evidence from GEMA's modelling outputs suggests that there are difficulties with identifying the extent to which costs (such as labour costs) are driven by regional differences.

(580) Further information regarding the data quality issues associated with GEMA's costs assessment process and modelling is set out in section 4.5 of the Efficiency Benchmark Report.

(581) Once again, therefore, the Appellants submit that GEMA's decision to adopt the 85th percentile benchmark on the grounds of the improved robustness of its modelling was unjustified.

7.4.5 GDNs' past outperformance during the GD1 price control period does not justify adopting the 85th percentile benchmark

(582) GEMA further states that:

> "*GDNs have consistently materially outperformed their historic price controls by realising enhanced efficiencies of performance…despite what was viewed at the time as an ambitious catch-up efficiency challenge*."[499]

(583) In light of this outperformance at GD1, GEMA argues that:

> "*setting the efficiency target at the 85th percentile is not a significant increase from the 75th percentile set in RIIO-GD1*."[500]

(584) The Appellants reject this both in principle and in fact. 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:

[497] Post FD Error Modelling Log (Revised) (SGN1_075).

[498] Cost Assessment Process Statement, paras 39 and 40 (SGN_CAP1).

[499] FD GD Annex, para. 3.28 (SGN1_012).

[500] FD GD Annex, para. 3.32 (SGN1_012).

"*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.*"[501]

(585) More generally, the past outperformance at GD1 does not imply that the upper quartile benchmark was wrong for GD1, or that the challenge of the benchmark should be increased for GD2. As outlined in the KPMG Outperformance Wedge Report,[502] there were a number of drivers for outperformance at GD1, which have been removed for GD2. These include for example:

(i) GEMA's own analysis at the DD suggested that, on average across the sector, 57% of all totex outperformance arose from the RIIO-GD1 allowances for RPEs.[503] GEMA has already proposed a direct 'fix' for this issue by indexing RPEs for GD2, meaning that there is no reason to believe that this (substantial) portion of outperformance could be repeated.

(ii) RIIO-GD1 also saw significant innovation (for instance with respect to deployment of live insertion techniques). SGN's specific programmes are explained in more detail in the SGN Innovation Statement (SGN_IB1). The reduced unit costs of these techniques are already reflected in the RIIO-GD1 historical costs and in the RIIO-GD2 forecasts. These savings cannot be replicated again.

(iii) The IQI interpolation mechanism (i.e. the GD1 gap closure) has been removed for GD2.

(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*".[504]

7.4.6 GEMA's reliance upon GDNs' stated ambitions, the CMA's provisional decision in PR19, academic literature and regulatory principles

(587) With regard to GEMA's references to GDNs' stated ambitions, the CMA's provisional decision in PR19, academic literature and regulatory principles, meanwhile, none of these actually support the adoption of the 85th percentile benchmark. The Appellants make the following submissions in this regard:

(i) First, while there may be no specific benchmark recommended in academic literature (or in the CMA's provisional decision in PR19), it is also clear that the point at which the benchmark should be set should take into account the level of confidence associated with the econometric modelling and data. For the reasons stated in sections 7.4.1 to 7.4.4 above, in the present case the evidence suggests that GEMA's modelling is not sufficiently robust to justify the setting of the efficiency benchmark at a level above the upper quartile.

(ii) Second, it follows from the fact that GEMA's modelling is clearly not sufficiently robust that neither GEMA nor the GDNs can have any confidence that the models used are capable of accurately identifying the frontier. Accordingly, any arguments regarding GEMA (or GDNs) wanting to be ambitious and encourage and/or achieve frontier-level performance fall away.

7.4.7 GEMA's glidepath does not address the issues outlined above

(588) The Appellants note that, while the glidepath which GEMA introduced at FD (see paragraph 3.1.13 of the Efficiency Benchmark Report) reduces the average level of the efficiency benchmark applied during RIIO-2 as a whole, this average efficiency benchmark remains well above the upper quartile at the 81st

[501] CMA PR19 PFs, paras 4.294 to 4.295 (SGN1_049).

[502] KPMG Outperformance Wedge Report, paras 4.5.8 to 4.5.12 (KPMG OW1/1).

[503] See RIIO-2 DD Residual Outperformance Spreadsheet, (SGN1_069). The effect of indexing RPEs can be seen by comparing allowed totex in row 62 on the tab Cal_RIIO-1, with the same row on the tab Cal_RIIO-1_ex_RPEs. This amount can be compared with total outperformance taken as the difference between row 63 and row 62 in tab Cal_RIIO-1.

[504] CMA PR19 Cost of Capital WPs, para. 81(b) (SGN1_051).

percentile (using a simple average of the glidepath over GD2). Further, the overall effect remains to move to a benchmark set at the 85th percentile of the last two years of the GD2 price control period. On that basis, the glidepath does not address any of the objections set out above nor justify GEMA's move to an efficiency benchmark beyond the upper quartile.

7.5 Ground 4B: GEMA has wrongly applied the efficiency benchmark to pre-modelling adjustments for regional factors

(589) GEMA derives its efficient view of modelled costs by applying the benchmark score to each GDN's modelled cost. GEMA has explained that, in practice, this is done in two steps:[505]

(i) First GEMA calculates modelled costs post-reversals. This is calculated by adding back to the modelled costs:

(a) pre-modelling adjustments made for regional factors;

(b) GEMA's view of the separately assessed costs; and

(c) workload adjustments.[506]

(ii) GEMA then multiples modelled costs (post-reversals) by the benchmark efficiency score to derive efficient modelled costs.

(N.B. for the avoidance of doubt, the efficiency benchmark has not been applied to costs subject to technical assessment.)

(590) GEMA has erred in applying the efficiency benchmark to pre-modelling adjustments for regional factors. The entire purpose of removing the regional differences in labour costs (and other regional adjustments) from the regression model is because GEMA recognises that such costs are outside the control of the companies. GEMA acknowledges this in its FD:

> "*We adjusted submitted costs to ensure that we can benchmark GDNs on a comparable basis. This includes costs that are* ***driven by factors outside of a company's control*** *and are unique to the location in which that company operates. These* ***regional factors can lead to higher or lower costs that are not the result of efficient or inefficient behaviour****. As in RIIO-GD1, we make pre-modelling adjustments to account for regional labour, urbanity and sparsity*."[507] (emphasis added)

(591) It is therefore erroneous in principle (and internally inconsistent) for GEMA to suggest that a cut, whether 85th percentile or upper quartile, should be applied to the costs related to regional factors.

(592) Furthermore, the Appellants note that this is an increased level of stretch, compared to GD1 and that GEMA has not provided any justification or evidence for this change. At the time that this change was first introduced at the DD, GEMA acknowledged that the benchmark would be applied to the pre-modelling adjustments for regional adjustments but did not provide any further justification:

> "*We took each GDN's modelled costs and added back our modelled view of the separately assessed costs. We also added back the pre-modelling adjustments made for regional factors and workload adjustments… We took the modelled costs for each GDN post reversal of*

[505] See RIIO-2 FD Cost Assessment Guide, paras 1.73 to 1.74 (SGN1_071).

[506] Workload adjustments serve as a negative adjustment that reduces modelled costs.

[507] See FD GD Annex, para. 3.47 (SGN1_012).

adjustments, and multiplied these by the benchmark efficiency score to determine modelled costs post efficiency challenge…"[508]

(593) The upper quartile was applied at a different stage in RIIO-GD1, namely only to any modelled costs that had been determined through the benchmarking models themselves.

7.6 Conclusions on Ground 4

(594) GEMA has erred by setting the efficiency benchmark at a level higher than the upper quartile when this is not supported by the evidence (noting in particular that the evidence suggests that GEMA's modelling is not sufficiently robust to support the selection of such a benchmark) (Ground 4A). Further, the Appellants consider that GEMA has erred by wrongly applying the efficiency benchmark to costs that have been removed from the regression model (e.g. regional adjustments) (Ground 4B).

(595) Both individually and together, these errors risk efficient sector costs being under-funded. By imposing this efficiency benchmark, GEMA acted disproportionately, inconsistently with its prior reasoning (and the advice of its own economists, CEPA) and failed to target its regulation only where action is needed.

(596) In terms of legal consequences, the Appellants submit, in making these errors GEMA has erred and/or breached its duties in the manner described in Section 2 above and the Appellants therefore respectfully seek the relief described at Section 7.1.3 above.

[508] RIIO-2 DD Cost Assessment Guide, paras 1.72 to 1.73 (SGN1_072). A similar statement was made at FD – see RIIO-2 FD Cost Assessment Guide, paras 1.73 to 1.74 (SGN1_071).

8 Chronology

This chronology details the key steps leading up to the Decision, beginning with the consultation on the RIIO-2 framework.

Date	Event
12 July 2017	GEMA publishes an open letter seeking views from stakeholders on the RIIO-2 framework
7 March 2018	GEMA publishes a formal consultation on the RIIO-2 Framework
30 July 2018	GEMA publishes its decision on RIIO-2 Framework
September 2018	SGN's Consumer Engagement Group holds its first meeting.
November 2018	GEMA introduced its RIIO-2 Challenge group to provide independent scrutiny to licensees' business plans
18 December 2018	GEMA publishes its Sector Specific Methodology Consultation
24 May 2019	GEMA publishes its Sector Specific Methodology Decision (supporting documents available here)
June 2019	GEMA publishes its initial business plan guidance
1 July 2019	SGN submits first draft of business plan and associated data
9 September 2019	GEMA publishes updated business plan guidance
1 October 2019	SGN submits second draft of business plan and associated data
30 October 2019	GEMA publishes an open letter requesting clarification from the CMA on the Price Control Licence Modification Statutory Appeals Mechanism
30 October 2019	GEMA publishes response clarifying its position on potential Energy Licence Modification Appeals
31 October 2019	GEMA publishes final business plan guidance
9 December 2019	SGN submits its final business plan to GEMA following the final business plan guidance
Late December 2019	CEG issues its report on SGN's final business plan and the quality of SGN's engagement with the CEG in the lead up to its submission. The CCG issues a report on SGN's final business plan shortly thereafter in January 2020.
9 July 2020	GEMA published its draft determinations (and GD Sector, Finance and company-specific annexes) in respect of SGN and the other gas distribution companies currently operating in England, Wales and Scotland
14 July 2020	GEMA publishes open letter asking for views on the COVID-19 contingency plans for RIIO-2 price control
4 September 2020	SGN submitted its response to GEMA's draft determination
23 September 2020	GEMA commences statutory consultation on a proposal to modify licences in extraordinary circumstances due to COVID-19
30 September 2020	GEMA consults on the proposed changes to the licence conditions required to implement the RIIO-2 price control settlement

12 October 2020	GEMA commences RIIO-2 Informal re-opener application guidance consultation for Transmission, Gas Distribution and Electricity System Operator licences
7 December 2020	GEMA publishes decision not to modify licences in extraordinary circumstances due to COVID-19
8 December 2020	GEMA releases RIIO-2 Final Determinations for Transmission and Gas Distribution network companies and the Electricity System Operator
17 December 2020	GEMA publishes statutory consultation on licence modifications required to implement the Final Determinations
22 December 2020	GEMA publishes revisions to some Final Determination documents
3 February 2020	GEMA publishes revisions to the Final Determination documents
3 February 2020	GEMA publishes its decision on licence modifications required to implement the Final Determinations
1 April 2021	RIIO-2 licence conditions come into force

9 Statement of Truth

The Appellants believe that the facts stated in this Notice of Appeal are true.

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Signature of Authorised Representative

Name of Authorised Representative: David Handley

Date: 3 March 2021

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Signature of Authorised Representative

Name of Authorised Representative: Mike Bedford

Date: 3 March 2021

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

Appendix – Glossary

Term	Definition
AAA	The highest bond rating by S&P and Fitch
Act or GA86	Gas Act 1986
AICR	Adjusted Interest Cover Ratio
Allowed Revenue	The annual revenue a company is permitted to recover in respect of its network business through charges
Appellants	Southern Gas Networks plc and Scotland Gas Networks plc
Better Regulation Framework	The Better Regulation Taskforce's Principles of Good Regulation
BoE	The Bank of England
BGT	British Gas Trading Ltd
BPDT	Business Plan Data Template
BPG	Business Plan Guidance
BPI	Business Plan Initiative
Capex	Capital expenditure
CAPM	Capital Asset Pricing Model
CAPM CoE	CAPM Cost of Equity
CC	Competition Commission
CCG	Customer Challenge Group
CED	Consumption Expenditure Deflator
CEG	Customer Experience Groups
CEPA	Cambridge Economic Policy Associates
CEPA's DD Report	Report prepared by GEMA's economists, CEPA, ahead of DD
CISBOT	Cast Iron Sealing roBOT
CMA	Competition and Markets Authority
CoE	Cost of equity
CPI	Consumer Price Index, a measure of inflation published monthly by the Office for National Statistics
CPIH	Consumer Price Index (includes a measure of owner occupiers' housing costs)
CSV	Composite Scale Variable
DD	Draft Determination
DD Response	A stakeholder's submissions in response to a Draft Determination

Term	Definition
DECC	Department of Energy and Climate Change (now defunct)
Decision	Decision of GEMA to proceed with modifications to the Licences published on 3 February 2021
DMS	Dimson Marsh and Staunton Yearbook
DNOs	(Gas) Distribution Network Operators
DPCR4	Distribution Price Control Review for electricity DNOs for the period from 1 April 2005 to 31 March 2010
DPCR5	Distribution Price Control Review for electricity DNOs for the period from 1 April 2010 to 31 March 2015
EA89	Electricity Act 1989
ENA	Energy Networks Association
EO	Expected outperformance
EoE	East of England
ET	UK Electricity Transmission
EU KLEMS	EU level analysis of capital (K), labour (L), energy (E), materials (M) and service (S) inputs
FD or Final Determination	GEMA's Final Determination
Frontier	Frontier Economics, who prepared expert reports for the Appellants
FTSE All Share	The Financial Times Stock Exchange Group All-Share index
GARCH	Generalised Autoregressive Conditional Heteroskedasticity
Gas Directive	Directive 2009/73/EC
GBP	British pound sterling
GD	Gas Distribution
GDN	Gas Distribution Networks
GDPCR	The Ofgem's Gas Distribution Price Control Review
GEMA	Gas and Electricity Markets Authority
Ground	The grounds of appeal as set out in section 1.3.2
GT	UK Gas Transmission
GO	Gross output
IFI	Innovation Funding Incentive
ILD	Index-Linked Debt
ILG	Index-Linked Gilts
IQI	Inverse Quadratic Interpolation

Term	Definition
IRM	Innovation Roll-Out Mechanism
KPMG	KPMG LLP
LCNF	Low Carbon Networks Fund
Licences	A distribution licence under section 7(2)(a) of the GA86
LO	London
LP	Labour productivity
MAR	Market to Asset Ratio
NAO	National Audit Office
National Savings Products	National Savings and Investment Products offered by HM Treasury
National Statistic	A statistic reported by the UK Office for National Statistics
Net Zero	The UK government's target of bringing all greenhouse gas emissions to net zero by 2050 compared to 1990 levels
Net Zero Agenda	The UK government's agenda for achieving the Net Zero target
NG	National Grid plc
NG Group	The corporate group of which National Grid plc forms part
NG UK	National Grid UK Ltd
NGN	Northern Gas Networks Ltd
NIA	Network Innovation Allowance
NIC	Network Innovation Competition
NIUR	Northern Ireland Utility Regulator
NW	Northwest
ODI	Outcome Delivery Incentive
Ofgem	Office for Gas and Electricity Markets
Ofwat	The Water Services Regulation Authority in England and Wales
OLS	Ordinary Least Squares
Ongoing Efficiency Challenge	A challenge implemented in GEMA involving the reduction of each energy company's efficiently incurred costs
ONS	Office for National Statistics
Opex	Operating expenditure
PCD	Price Control Deliverable
PR14	Ofwat's price control review for 2015-20
PR19	Ofwat's price control review for 2020-25

Term	Definition
PR19 PFs or PR19 Provisional Findings	The CMA's provisional findings in the PR19 redetermination
PwC	PricewaterhouseCoopers International Limited
R&D	Research and Development
RAV	Regulatory Asset Value
Repex	Replacement expenditure
RFR or Risk-Free Rate	Risk-free rate
RIIO	Revenue = Incentives + Innovation + Outputs
RIIO-1	GEMA's price control reviews for 2013-21, including RIIO-GD1
RIIO-2	GEMA's price control reviews for 2021-2026, including RIIO-GD2
RIIO-ED1	Electricity distribution price control review for 2015-23
RIIO-GD1	Gas distribution price control review for 2013-21
RIIO-GD2	Gas distribution price control review for 2021-2026
RIIO-GD2 Final Determination	The Final Determination of the gas distribution price control review for 2021-2026
RoRE	Return on regulatory equity
RPEs	Real Price Effects
RPI	Retail Price Index, a measure of inflation published monthly by the Office for National Statistics
RTNR	Return adjustment for the licensee over the Price Control Period
SC	Scotland
SGB	Smart Grid Benefit
SGN	Southern Gas Networks plc and Scotland Gas Networks plc
Scotland	Scotland Gas Networks plc
SML	Security market line
Southern	Southern Gas Networks plc
SO	Southern
SSM or Sector Specific Methodology	The methodology used by GEMA in its price controls
SSMC	GEMA's sector specific methodology consultation
SSMD	Ofgem's sector specific methodology decision
TIM	Totex Incentive Mechanism
TMR or Total Market Return	Total Market Return

Term	Definition
TRL	Technology Readiness Levels, a method for assessing the maturity of technologies during the acquisition phase
Totex	Total Expenditure
UK Government	The government of the United Kingdom of Great Britain and Northern Ireland
UKRN	The UK Regulators Network
Wright et al Report	2018 report by Wright et al prepared for the UK Regulators Network
UQ	Upper Quartile
VA	Value added
WACC	Weighted Average Cost of Capital
WM	West Midland