BEFORE THE COMPETITION AND MARKETS AUTHORITY

AN APPEAL UNDER SECTION 23B OF THE GAS ACT 1986

BETWEEN:

NORTHERN GAS NETWORKS LIMITED

Appellant

and

THE GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

NOTICE OF APPEAL
GAS DISTRIBUTION LICENCE MODIFICATION
RIIO-GD2 PRICE CONTROL

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PART I
INTRODUCTION

1 Overview

(1) Northern Gas Networks Limited ("**NGN**") (the "**Appellant**") is a gas distribution network ("**GDN**") operating across Yorkshire, the North East and Northern Cumbria.

(2) This appeal concerns the second determination for gas distribution ("**GD**") made by the Gas and Electricity Markets Authority ("**GEMA**")[1] under the RIIO price control regime (setting **R**evenue using **I**ncentives to deliver **I**nnovation and **O**utputs). This price control, known as "**RIIO-GD2**", will operate from 1 April 2021 to 31 March 2026.

2 Request for permission to appeal

(3) The Appellant seeks permission under sections 23B(1) and (3) of the Gas Act 1986 ("**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 licence published on 3 February 2021 (the "**Decision**") under section 23 GA86.[2]

(4) The Appellant seeks permission to bring this appeal in its capacity as a relevant licence holder. Section 23B(2)(a) GA86 provides that a relevant licence holder (within the meaning of section 23 GA86) may bring an appeal. Accordingly, the Appellant has standing to bring this appeal.

(5) The Appellant notes that in case of an appeal brought by a relevant licence holder, section 23B(4)(d) GA86 provides that the Competition and Markets Authority ("**CMA**") may refuse permission to appeal only on one of the following statutory grounds listed in that section:

(i) the appeal is brought for reasons that are trivial or vexatious; and

(ii) the appeal has no reasonable prospect of success.

Neither of these potential grounds to refuse permission to appeal is applicable to any of the grounds raised by the Appellant in this appeal.

3 Scope of the Appellant's appeal

(6) The Appellant has given careful consideration to the overriding objective of the appeals regime, that is, for the CMA to dispose of appeals fairly and efficiently and at proportionate cost within the time periods prescribed by GA86 (and for all parties to an appeal and any intervener to assist the CMA to further the overriding objective),[3] and to the CMA's guidance that it will seek to narrow the issues and points in dispute during the course of the appeal.[4]

(7) As such, the Appellant has focused its appeal on the four key areas which represent material errors on GEMA's part and are of material importance to the Appellant. More specifically, the particular areas where GEMA is "*wrong*" within the meaning of section 23D(4) GA86 concern, respectively: (i) cost of equity (ii) outperformance wedge; (iii) ongoing efficiency/productivity; and (iv) the Business Plan Incentive ("**BPI**") Stage 4 assessment and the level of the efficient cost benchmark used to calculate

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[1] In this Notice, all references to GEMA include references to the Office of Gas and Electricity Markets ("**Ofgem**") or its staff in their capacity as delegates of GEMA.

[2] A copy of the Decision is included as NGNNOA1_172. The Decision is also available online at: https://www.ofgem.gov.uk/publications-and-updates/decision-proposed-modifications-riio-2-transmission-gas-distribution-and-electricity-system-operator-licences.

[3] CMA70 Energy Licence Modification Appeals Rules, rules 4.1 and 4.2 (NGNNOA1_179)

[4] CMA71 Energy Licence Modification Appeals Guide, para. 3.6 (NGNNOA1_180).

modelled totex costs. The grounds of appeal in respect of these issues are summarised in Part II (Summary of the Grounds of Appeal and Relief Sought) below.

4 Key documents

(8) The Appellant has provided written evidence for this appeal, principally in the form of the Witness Statements of Mark Horsley ("**MH1**"), Gareth Mills ("**GM1**") and David Pearson ("**DP1**"). The Exhibits to these Witness Statements also include correspondence and other exchanges with GEMA over the course of the RIIO-GD2 price control review.

(9) The Appellant has also exhibited the documents in Exhibit **NGNNOA1** to this Notice. GEMA's reasoning for the Decision is contained primarily in the following documents, which are contained in **NGNNOA1**:[5]

(i) "RIIO-GD2 Final Determinations: Core Document" (revised) (3 February 2021) ("FD") (NGNNOA1_166);

(ii) "RIIO-GD2 Final Determinations: NGN Annex" (revised) (3 February 2021) ("FD (NGN Annex)") (NGNNOA1_169);

(iii) "RIIO-GD2 Final Determinations: Finance Annex" (revised) (3 February 2021) ("FD (Finance Annex)") (NGNNOA1_167); and

(iv) "RIIO-GD2 Final Determinations: GD Sector Annex" (revised) (3 February 2021) ("FD (GD Sector Annex)") (NGNNOA1_168).

5 Contact details

5.1 Appellant

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[5] On 3 February 2021, GEMA published its final licence modification decision, following a consultation period under section 23 of GA86 and updated versions of all the Final Determination documents published in December 2020.

5.3 Solicitors to the Appellant

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6 Structure of this Notice

(10) Part I (Introduction) of this Notice provides an overview of the basis on which the Appellant brings its Appeal. Part II (Context of RIIO-GD2 and this Appeal) explores the context of RIIO-GD2 and this Appeal. Part III (Summary of the Grounds of Appeal and Relief Sought) summarises the grounds of appeal and relief sought. Part IV (Statutory Framework) explores the relevant statutory framework. Parts V (Appeal Ground 1: Cost of Equity), VI (Appeal Ground 2: Outperformance Wedge), VII (Appeal Ground 3: Ongoing Efficiency) and VIII (Appeal Ground 4: BPI Stage 4) consider each ground of appeal in detail.

PART II
CONTEXT OF RIIO-GD2 AND THIS APPEAL

1 Overview

(11) The Appellant supports incentive-based regulation and also welcomes several of aspects of the RIIO-GD2 framework, in particular GEMA's approach to innovation and commitment to establishing a framework for further investment to deliver the ambitious net zero target by 2050.

(12) The Appellant is concerned, however, that the RIIO-GD2 framework fails to sufficiently differentiate and incentivise the frontier company. The Appellant also believes that GEMA had focused disproportionately on short-term reductions to customer bills at the expense of promoting long-term investment in efficiency and service improvements.[6]

2 Pathway to RIIO-GD2 and incentive-based regulation

2.1 The RPI-X regime from 1986-2013

(13) RPI-X was the regulatory price control system that was applied from 1986-2013 following the privatisation of British Gas.[7] Under the RPI-X price control system, GEMA broadly assessed a regulated company's case for the inputs required to carry on its operations (e.g. asset value, cost of capital, operating and capital expenditure, etc.) for the purpose of determining the revenue that it was permitted to recover.[8] Each company was given a revenue allowance in the first year of the control period which was allowed to rise by reference to general inflation, less a factor "X" (also referred to as the "efficiency factor", but which was designed simply to put downward pressure on prices).[9]

2.2 The RIIO-GD1 regime

(14) Following a detailed review of the RPI-X regime, known as RPI-X@20, GEMA decided to replace the RPI-X with the RIIO model.[10] This was intended to place greater responsibility on the regulated companies working together with their stakeholders, to determine the best way of providing sustainable network services ("**Outputs**") for the long term, including by achieving long term value for money.[11] Once the Outputs were set, the regulated companies were required to identify the optimal balance between operating and capital expenditure and to take investment decisions from a long-term perspective, extending beyond the price control period.[12] Subsequently, GEMA assessed each company's business plan for achieving these Outputs in the coming price control period and set revenues.[13] This would be subject to inflation but after taking into account productivity improvements and efficiencies that formed a part of the plan.[14] The first RIIO price control in the gas distribution section was the RIIO-GD1 price control, which covered the period 2013-21.

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6 MH1, paras. 46 and 76.

7 RIIO Handbook, p. 2 (NGNNOA1_235).

8 History of Energy Network Regulation, pp. 23 to 26 (NGNNOA1_181).

9 FD Core (revised), p. 192 (NGNNOA1_166).

10 RIIO Handbook, pp. 1 and 2 (NGNNOA1_235).

11 RIIO Handbook, para. 1.10 (NGNNOA1_235).

12 RIIO Handbook, paras. 1.10 and 1.12 (NGNNOA1_235).

13 RIIO Handbook, p. 8 (NGNNOA1_235).

14 RIIO Handbook, p. 29 (NGNNOA1_235).

2.3 The RIIO-GD2 regime

(15) The RIIO-GD2 price control covers a 5-year period, which runs from 1 April 2021 to 31 March 2026.[15] GEMA's stated objective for RIIO-GD2 is to ensure that regulated network companies deliver the value for money services that both existing and future consumers need through the following outcomes:

(i) meeting the needs of consumers and network users by delivering a high quality and reliable service, including to those consumers who are in vulnerable situations;

(ii) maintaining a safe and resilient network that is efficient and responsive to change; and

(iii) delivering an environmentally sustainable network to support the transition to a smart, flexible, low cost and low-carbon energy system.[16]

(16) GEMA is seeking to deliver these objectives for RIIO-GD2 by:

(i) giving consumers a stronger voice in setting outputs and in shaping and assessing Business Plans;

(ii) allowing network companies to earn returns that are fair, represent value for consumers, and properly reflect the risks faced by network companies in the prevailing financial market conditions;

(iii) incentivising network companies to respond, in ways that benefit consumers, to the risks and opportunities created by potentially dramatic changes in how networks are used;

(iv) using the regulatory framework, or competition where appropriate, to drive innovation and efficiency; and

(v) simplifying the price controls by focusing on items of greatest value to consumers.[17]

(17) GEMA expects RIIO-GD2 to deliver for consumers:

(i) a regulatory regime that supports the transition to net zero;

(ii) clear outputs to ensure a high quality of service;

(iii) reductions in the cost of service by setting high expectations for the GDNs to deliver efficiency improvements; and

(iv) an overall package that drives efficient delivery whilst being flexible to meet future needs.[18]

3 Context to this appeal

(18) This appeal should be considered in light of the Appellant's position as the frontier company in the sector since 2005.[19] The Appellant was benchmarked as the most efficient company with respect to RIIO-GD1 cost benchmarking and, over the intervening eight years, has invested significantly to drive forward the efficiency frontier further.

(i) Based on GEMA's final models published in the FD, the Appellant is the most efficient GDN, 4.5% ahead of the next most efficient GDN, 7% ahead of the sector average and close to 15% ahead of the least efficient.[20]

[15] FD Core (revised), p. 8 (NGNNOA1_166).

[16] FD Core (revised), pp. 29 to 41 (NGNNOA1_166).

[17] RIIO-GD2 Framework Decision, p. 92 (NGNNOA1_146).

[18] FD GD Annex (revised), pp. 5 to 9 (NGNNOA1_168).

[19] MH1, paras. 8 to 9.

[20] Final Model Cost Assessment, 'Cal_Efficiency' tab, rows 92 to 99 (NGNNOA1_176).

(ii) The Appellant was one of only two GDNs to meet or exceed all the targets set during RIIO-GD1, delivering all the workload funded over the period leaving no cost or risk behind and no legacy issues carried forward into RIIO-GD2.[21]

(iii) The Appellant has been amongst the best performing GDNs for customer service since 2013, with an average satisfaction rating of 9.07 out of 10 (ranked just behind SGN Scotland at 9.1).

(19) The Appellant has achieved this position by being innovative in its thinking and by introducing commercially focussed business solutions across its business. These initiatives include measures such as moving to a new contracting model for its replacement programme and transforming its workforce terms and conditions. These changes have been hard to deliver and have required support from its shareholders. During the RIIO-GD1 period to date, the Appellant's board invested c.£80 million through a range of direct equity injection, outperformance reinvestment and the deferral of dividends to maintain the Appellant's position as the frontier company.[22]

(20) The Appellant is committed to delivering sustainable change over the RIIO-GD2 period in a way which benefits customers by extending its high standards of safety, reliability, customer service and value for money. The Appellant's business plan for 2021-2026 has been shaped by the most extensive consultation exercise in the company's history – involving over 189,000 voices. Over 92% of the Appellant's customers supported the proposals.[23] The business plan also responded to the challenge in GEMA's Open Letter of 2017[24] by proposing a significant reduction in customer bills (with average domestic customer bills being 8.6% lower over the five-year period to 2026) and the lowest cost of equity of any GDN.[25]

(21) The Appellant's ability to extend the efficiency frontier at RIIO-GD2 relies on a stable and predictable regulatory model which provides adequate incentives to efficient firms to continuously improve service quality, invest and take appropriate commercial risks. As the Appellant has consistently raised with GEMA, the RIIO-GD2 price control impacts the incentives for the Appellant to continue delivering the sustainable improvements in performance which are in the best interests of its customers.[26] Rather, GEMA has taken a number of decisions including the introduction of an outperformance wedge, imposing an excessive ongoing efficiency target and setting an overly stretching efficient cost benchmark at the 85th percentile, which adversely impact the incentives of the frontier company:

(22) The Appellant considers that GEMA's overwhelming focus in the RIIO-GD2 price control has been to keep customer bills as low as possible, reduce shareholder returns and in large part remove the opportunity for additional financial return for exceptional performance. This overarching focus has led GEMA to make a number of material errors, which are detailed in this Notice in the Parts below. In summary:

(i) In relation to **cost of equity**, throughout its assessment, for every parameter, GEMA has chosen ranges of estimates that are consistently and systematically at the lower end or below those suggested by the proper approaches to estimation. Within these already downwardly skewed ranges, GEMA has chosen not to 'aim up'. This is despite the weight of academic thought, empirical evidence and regulatory precedent which unequivocally support selecting a point estimate for the cost of equity above the middle of the range to prevent exit of capital over time by long-term investors in the sector, underinvestment in new assets and the consequent loss in consumer welfare that follows; risks which are particularly acute for GDNs. These errors will

[21] RIIO-GD2 Business Plan, p. 3 (NGNNOA1_001).

[22] MH1, paras. 19 and 51.

[23] MH1, para. 23.

[24] Open Letter (NGNNOA1_144).

[25] MH1, para. 32.

[26] GM1, para. 29.

have a material impact on the Appellant's ability to attract investment and to convince its equity holders to continue investing to remain at the frontier of the sector.

(ii) The **outperformance wedge** represents a final, unevidenced deduction from allowed revenues on top of, and separate to, the targets contained within RIIO-GD2. GEMA has introduced the outperformance wedge on the basis of flawed evidence, inadequate justification and a fundamental lack of rigour in its calibration at 25bps. As such, it falls far short of the high evidential threshold needed to introduce novel measures into the regulatory framework as a matter of law. The outperformance wedge will also distort investment incentives, erode investor confidence and weaken clarity over how the price control is calibrated.

(iii) Some aspects of the **cost assessment** are not supported by the evidence. GEMA sets an ongoing efficiency target at the very top end of the range recommended by its economic experts which does not reflect a feasible target for expected productivity growth in the GD sector. On top of this overly stretching target, GEMA applies an unprecedented "innovation uplift" which results in a fundamental double-counting of the benefits of innovation. Moreover, the excessively stretching ongoing efficiency challenge disproportionally impacts the Appellant given the greater challenge for the frontier company to make incremental efficiency improvements.

(iv) The **incentive package** under the BPI Stage 4 assessment fails to adequately incentivise the frontier company and therefore to promote efficiency. The Appellant's total reward under the BPI Stage 4 (at £3.9 million[27]) represents a very small portion of the total benefit that KPMG estimates to have been brought by the frontier company at RIIO-GD1 (over £200 million).[28] As such, the FD reduces the incentives for all GDNs to aspire to the frontier position at RIIO-GD3 and thereby extend the efficiency frontier to the benefit of all customers. This is compounded by (i) a technical error in the way that GEMA has calculated the BPI Stage 4 reward which arbitrarily penalises the Appellant; and (ii) GEMA's error in imposing an unprecedented efficient cost benchmark at the 85th percentile, which further reduces the Appellant's incentive via the BPI Stage 4 mechanic.

(23) The Appellant submits that the impact of the errors noted above is that the FD provides inadequate incentives for the Appellant – as a frontier company – to deliver the improvements in efficiency that its own customers specifically support. Given the challenges over the RIIO-GD2 period associated with the pathway to net zero, the Appellant considers it is more important than ever that network price controls are calibrated in a way which delivers sustained investment in the most efficient manner for its customers.

(24) GEMA's approach would have significant adverse effects for both present and future customers. Moreover, the loss of consumer welfare is not just of relevance to the Appellant's customers, but for all GDN customers in Great Britain. By pushing the efficiency frontier, the Appellant has driven improvements which are being reflected across all network businesses going forward, and therefore driving value for all gas customers across the UK. KPMG's Frontier Report conservatively estimates that its position at the frontier of performance in the sector can be said to deliver in excess of £200 million to UK gas customers.[29]

(25) For further information on the Appellant, the rationale for its decision to appeal the FD and the Appellant's engagement with GEMA with respect to the failure of the RIIO-GD2 framework to adequately incentivise the frontier company, please refer to the following evidence:

[27] The Appellant believes that the FD incorrectly states the Appellant's BPI Stage 4 reward at £ 5.9 million. See FD Core (revised), para. 10.97 (NGNNOA1_166).

[28] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

[29] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

(i) First Witness Statement of Mark Horsley (MH1); and

(ii) First Witness Statement of Gareth Mills (GM1).

PART III
SUMMARY OF THE GROUNDS OF APPEAL AND RELIEF SOUGHT

1 Overview

(26) Under section 23D(4) GA86, 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 and/or to give the appropriate weight to its principal objective under section 4AA GA86 and/or its statutory duties under sections 4AA; 4AB and 4A GA86 (sections 23D(4)(a) and (b) GA86);

(ii) the Decision was based, wholly or partly, on errors of fact (section 23D(4)(c) GA86);

(iii) the licence modifications fail to achieve, in whole or in part, the effect stated by GEMA (section 23D(4)(d) GA86); or

(iv) the Decision was based, wholly or partly, on errors of law (section 23D(4)(e) GA86).

(27) This Part summarises the grounds of appeal, which are further developed in Part V (Appeal Ground 1: Cost of Equity) to Part VIII (Appeal Ground 4: BPI Stage 4) below.

2 Appeal Ground 1: Cost of Equity

(28) As can be inferred from a number of public statements during the RIIO-GD2 process, GEMA's approach has focussed on reducing customer bills during the life of the RIIO-GD2 price control.[30] This mindset has led to a failure to strike an appropriate balance between reducing customer bills in the short term and ensuring appropriate rewards and incentives that protect investment. This blinkered approach has led GEMA to commit a number of errors which the Appellant now seeks to have corrected on appeal.

(29) Throughout its cost of equity assessment, for every parameter, GEMA has chosen ranges of estimates that are consistently and systematically at the lower end or below those suggested by the proper approaches to estimation. Furthermore, within these already downwardly skewed ranges (and despite the weight of academic thought, empirical evidence and regulatory precedent which clearly support selecting a point estimate for the cost of equity above the middle of the range) GEMA has chosen not to 'aim up'.

(30) GEMA's approach to setting the cost of equity allowance in the FD is flawed and starts from the premise of using methodologies and benchmarks that result in low range estimates, which then lead to a choice of a point estimate which is lower than the evidence and academic and regulatory methodology can support.

2.1 Risk-free rate

(31) The Appellant submits that in calculating the risk-free rate ("**RFR**"), GEMA has inappropriately disregarded financial instruments other than Index Linked Gilts ("**ILGs**"). Notably:

[30] GM1, Section III; Framework Decision Press Release (NGNNOA1_218) ("[GEMA]*'s plans to deliver savings of over £5bn to consumers through tougher price controls for energy networks moved a step closer today*."; "[GEMA] *estimates [the cost of equity range] would result in savings of over £5 billion for household consumers (or about £15 - £25 per year on the dual fuel household bill)*."); SSMD Press Release (NGNNOA1_219) ("*A lower allowed return on equity of 4.3%, combined with a lower allowed return on debt, would reduce costs passed on to consumers by £6 billion over the five years of the RIIO-[GD]2 price control period (2021-2026) when compared to RIIO-1.*"); DD Press Release (NGNNOA1_220) ("*Now more than ever, we need to make sure that every pound on consumers' bills goes further.*"; "[GEMA]*'s proposals as they stand would lead to an expected £20 fall in network charges on bills per household a year at the start of RIIO-[GD]2.*"); FD Press Release (NGNNOA1_221) ("*Customers will also see a £2.3 billion saving over the course of RIIO-[GD]2, equivalent to an average bill reduction of about £10 before inflation*.").

(i) GEMA has placed weight only on ILGs, thereby dismissing highly material evidence that a cost of equity model based solely on ILGs as a proxy for the RFR may underestimate the return required by investors. ILGs fail to recognise that even the highest rated borrowers are unable to borrow at the rate of the UK Government and that ILGs also contain distortions;

(ii) GEMA has applied flawed reasoning in rejecting alternative financial instruments, such as AAA-rated corporate bonds, including its incorrect focus on the marginal investor in the water sector rather than the marginal market investor; and

(iii) GEMA's approach is in stark contrast with the CMA's *PR19 Provisional Findings*, which incorporates AAA-rated corporate bonds as part of its range for its estimate of RFR.

(32) In conclusion, GEMA's approach materially underestimates the RFR.

2.2 Beta

(33) The Appellant submits that GEMA's methodology for setting the beta in the Decision is based on materially flawed methodologies, assumptions and factual errors.

(34) While the methodology for assessing the asset beta in the Decision is opaque and GEMA has failed to provide further detail despite the Appellant's reasonable requests,[31] the information available indicates that GEMA has made a number of material errors of assessment and has disregarded or misrepresented relevant areas. These include:

(i) GEMA has failed to adequately consider the systematic risk profile of GDNs relative to other regulated sectors;

(ii) GEMA has used UK listed water companies as well as National Grid as comparators for its beta estimation. It ignores other relevant comparators and evidence from European comparators that demonstrate the greater systematic risk faced by GDNs, places too much emphasis on water company betas, and has failed to consider decomposition of the National Grid comparator such that it is more relevant for a UK GDN;

(iii) GEMA's methodology has a number of statistical flaws, including the failure to account for structural breaks and the use of econometrically unsound rolling betas; and

(iv) GEMA has failed to consider or test potential exclusion of some or all of the COVID-19 period which risks giving exceptional circumstances unrepresentative weight in beta assessment.

(35) Consequently, GEMA's approach biases its estimate of beta for GDNs downwards.

2.3 Total market return

(36) The Appellant submits that GEMA's methodology for setting total market return ("**TMR**") is based on materially flawed methodologies, assumptions and factual errors.

(37) First, GEMA's approach to deflating the historical long-run average realised nominal total equity market return to give an estimate of TMR on a real basis relies excessively on the consumer prices index ("**CPIH**") for the period after 1947.[32] This approach ignores the problems with the CPI series and ignores relevant alternative evidence. In particular:

(i) in using CPIH exclusively as its inflation series, GEMA relies on estimated, back-cast data (for the period prior to 1988), ignoring the caution urged by the Office of National Statistics ("**ONS**") against relying on this back-cast data;

[31] GM1, para. 38.

[32] O'Donoghue (2004), the consumer expenditure deflator ("**CED**") is used between 1900 and 1947 (NGNNOA1_182).

(ii) GEMA has failed to place weight on appropriate alternative metrics such as the retail price index ("**RPI**"), which is available as a reported statistic for the whole period; and

(iii) GEMA's approach is in contrast to the approach adopted by the CMA in the *PR19 Provisional Findings* where the CMA recognised the presence of data and methodological issues in inflation measurement and chose to construct its range for the TMR with weight given to both CPI and RPI.[33]

(38) Consequently, GEMA's approach disregards methodological flaws in inflation measurement and understates real long-term market returns.

(39) Second, GEMA has not provided sufficient uplift from the geometric average, applying just 1.25 percentage points, when the weight of evidence supports a 1.5 percentage points uplift. In this regard:

(i) GEMA's approach represents a narrowing of the range proposed in the UKRN's March 2018 Study,[34] which is heavily relied on elsewhere by GEMA;[35]

(ii) GEMA applies an insufficient uplift to geometric average returns, apparently relying on a PwC paper[36] which contains statistical errors;

(iii) in so doing, GEMA places insufficient weight on alternative averaging estimators supported by finance theory;[37] and

(iv) GEMA's approach is also in contrast to the approach adopted by the CMA in the *PR19 Provisional Findings* where the CMA considered a wide range of estimation methods for horizons of 10 to 20 years.

(40) Consequently, GEMA's approach inappropriately disregards or fails to give appropriate weight to evidence on the range of estimation methods, in a way which biases its estimate downwards. GEMA cites cross-checks, in the form of a Dividend Growth Model ("**DGM**") and investment manager surveys, first discussed in GEMA's Sector Specific Methodology Decision ("**SSMD**").[38] However, GEMA ignores their widely-recognised flaws and ignores alternative, more reliable cross-checks which indicate a higher value for TMR.

2.4 Aiming-up

(41) In selecting the point estimates for each parameter in the cost of equity, GEMA has generally adopted the mid-point of its estimated range. In other words, GEMA has rejected the principle of "aiming up" (where a point estimate is selected above the mid-point of the range), in a departure from regulatory precedent.

(42) The Appellant submits that, in rejecting aiming up, GEMA has failed to account for uncertainty as well as for the asymmetric nature of the risks facing GDNs.

(43) In relation to uncertainty, GEMA's approach fails to recognise the significant uncertainties in cost of equity estimation and the relatively more substantial societal detriments from setting the cost of equity allowance too low:

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[33] In particular, to calculate the TMR, the CMA placed the most weight on historical ex post returns (from 1900 to the present day) and placed some weight on both historic ex ante approaches and forward-looking evidence as a cross-check when selecting its range (see *CMA's PR19 Provisional Findings*, para. 80(d) (NGNNOA1_186)).

[34] UKRN Study (NGNNOA1_183).

[35] The range was first identified in the RIIO-GD2 Sector Specific Methodology Consultation (NGNNOA1_147).

[36] PwC H7 Response for the CAA (NGNNOA1_184).

[37] See e.g. Appendix 2 below (Consultancy Reports 2) for further information on this. Oxera Cost of Equity Report (NGNNOA1_125).

[38] RIIO GD2 Sector Specific Methodology Decision Finance, para. 3.48 (NGNNOA1_151).

(i) There is a consistent regulatory track record, both in the UK and internationally, that supports the principle of aiming up. An approach of picking a point estimate higher than the midpoint was used in previous determinations by each of Ofwat, GEMA and the Competition Commission ("**CC**")/CMA, in recognition of the societal detriments from setting the cost of equity allowance too low.[39]

(ii) The CMA's Working Paper on cost of equity for PR19 clearly supports the fact that there are "*a number of benefits from choosing a point estimate for the cost of equity above the middle of the range*" (i.e. the principle of "aiming up").[40] This is based on the fact that there is a greater risk of consumer detriment from setting a WACC too low, given (i) the risks this would pose to an exit of capital from the long-term investors in the sector; (ii) the risks from underinvestment in new assets (albeit that market evidence suggests that these risks are quite low for AMP7).

(iii) The uncertainty over cost of equity estimation is even more apparent for GDNs as, for example, there is greater uncertainty around beta estimates for GDNs, since there are no direct listed comparators.

(44) In relation to asymmetric risks facing GDNs, GEMA has failed to account for the expected losses facing investors in GDNs as a result of significant uncertainty over and downside risk surrounding the long term future of the gas sector in light of net zero targets. This scale of uncertainty and downside risk is not present for water companies or other regulated industries. Under plausible future scenarios for the use of natural gas, volumes fall substantially, such that full cost recovery under the current regulatory model may not be possible. GEMA proposes to address this by fast tracking depreciation at some point in the future but this results in untenably high prices under plausible future scenarios. Investors in GDNs therefore face (albeit low probability) the possibility of incomplete cost recovery, which presents an asymmetric downside risk. GEMA has not priced this in the allowed cost of equity, such that the investment is not a "fair-bet". An uplift from the mid-point cost of equity is therefore required.

(45) GEMA's failure to "aim up" in the Decision ignores economic evidence that this concept is critical to protect incentives to invest and consumers' long term interests. Moreover, taking existing and future consumers together, the effect of this failure would aggravate intergenerational welfare issues, increasing cost for future consumers from suboptimal investment timing and amplifying uncertainties relating to the future role of gas. This would be contrary to GEMA's principal objective to protect the interests of existing and future consumers.

2.5 Legal consequences

(46) The Decision (as regards cost of equity) is wrong on the following grounds:

(i) By setting a cost of equity that is too low, GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its principal objective under section 4AA(1) GA86 and its statutory duties to secure that licence holders are able to finance their licensed activities under section 4AA(2)(b) GA86 and to contribute to the achievement of sustainable development under 4AA(2)(c) GA86.

(ii) When setting RFR, by disregarding financial instruments other than ILGs (and the substantive evidence put forward which supported an alternative view) and failing to provide adequate reasons for dismissing such evidence, GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. GEMA has also erred, wholly or partly in fact

[39] CMA 2020 Water Redeterminations Working Paper, para. 4 (NGNNOA1_185).

[40] CMA 2020 Water Redeterminations Working Paper, para. 115 (NGNNOA1_185).

(section 23D(4)(c) GA86), and in law (section 23D(4)(e) GA86) (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

(iii) When setting beta:

(a) by failing to provide for GDN-specific systematic risk, and thereby failing to incentivise investment in sustainable networks, GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its principal objective under section 4AA(1) GA86 and its statutory duties to secure that licence holders are able to finance their licensed activities under section 4AA(2)(b) GA86 and to contribute to the achievement of sustainable development under 4AA(2)(c) GA86;

(b) by failing to provide sufficient detail on the methodology used to estimate beta, despite NGN's reasonable requests, GEMA has also failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent; and

(c) by committing a number of material errors of assessment and disregarding or misrepresenting relevant evidence, GEMA has erred, wholly or partly in fact (section 23D(4)(c) GA86), and in law (section 23D(4)(e) GA86) (by failing to take into account relevant considerations, acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

(iv) When setting TMR, by relying on only one series of inflation (CPI) for the period 1948 onwards to deflate the historic long-run average realised nominal total equity market return and by not placing any weight on an alternative measure of inflation (RPI), GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. By using only one averaging approach, failing to have regard to the broad range of approaches and applying a lower uplift than the weight of evidence and precedent implies, GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. GEMA has also erred, wholly or partly in fact (section 23D(4)(c) GA86), and in law (section 23D(4)(e) GA86) (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence, and/or making mathematical or formula specification errors).

(v) When selecting a mid-point for the cost of equity within its heavily downward-skewed ranges, GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its principal objective under section 4AA(1) GA86 and its statutory duties to secure that licence holders are able to finance their licensed activities under section 4AA(2)(b) GA86 and to contribute to the achievement of sustainable development under 4AA(2)(c) GA86. GEMA has also failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

3 Appeal Ground 2: Outperformance Wedge

(47) GEMA proposes to make a downward adjustment of 25 bps to the allowed cost of equity for RIIO-GD2 to reflect its expectations that companies will outperform the targets that it sets at these price control reviews (the outperformance wedge). GEMA also includes an ex post top-up mechanism such that if a company fails to outperform by 25bps, the 25bps wedge is reimbursed.

(48) The Appellant submits that the outperformance wedge represents a final, unevidenced deduction from allowed revenues on top of, and separate to, the stretching targets contained within RIIO-GD2. The outperformance wedge is broadly equivalent to GEMA assuming that companies will outperform on the already carefully calibrated and stretching cost allowances by approximately 2% over the full five-year RIIO-GD2 period. GEMA has provided no analysis to justify such expected savings based on the RIIO-GD2 framework. Indeed, by definition, GEMA's own analysis of cost benchmarking and cost incentives did not identify these expected savings, otherwise they would already be factored in to the totex and ODI incentives.

(49) The Appellant believes that GEMA is not entitled to introduce such a deduction as a matter of law.

(50) The Appellant also contends that GEMA's flawed analysis of historical and other data does not meet the high evidential standard necessary to introduce a novel mechanism to the regulatory framework.

(51) In introducing and applying the outperformance wedge set out above, GEMA has made the following principal errors:

(i) GEMA has failed to adequately evidence and justify the introduction of the wedge to the requisite legal standard:

(a) GEMA's analysis of historical and other data to substantiate systematic outperformance relies on flawed methodologies, assumptions and factual errors. GEMA has given inadequate consideration to submissions from stakeholders that show that there is little or no prospect of outperformance based on GEMA's changes at RIIO-GD2.

(b) GEMA has not substantiated the existence of information asymmetries that the RIIO-GD2 framework has not addressed.

(ii) Without prejudice to the lack of evidenced basis for introducing the outperformance wedge, the introduction of the outperformance wedge is an error given that:

(a) GEMA has not considered the perverse incentive effects that introducing the outperformance wedge will entail. The introduction of an outperformance wedge will distort investment incentives, erode investor confidence, increase investor risk and weaken clarity over how the price control is calibrated. The outperformance wedge also creates a 'deadband' of performance within which companies are not incentivised to improve efficiency.

(b) The introduction of a wedge is inconsistent with the principles of incentive-based regulation. The regulatory system should provide incentives to companies to outperform against allowances to drive efficiencies which are then built into subsequent price controls.

(c) The appropriate correction for any anticipated outperformance would be for the regulator to identify causes of outperformance and correct these in its price control (as it has sought to do at RIIO-GD2).

(iii) GEMA has failed to adequately substantiate or evidence to the requisite legal standard its decision to set the wedge ***specifically*** at 25bps (as opposed to any other number).

(iv) In introducing the outperformance wedge, GEMA has not had due regard to the principles of best regulatory practice:

(a) GEMA's approach marks a departure from regulatory practice – no other regulator (e.g. Ofwat in England and Wales and the Utility Regulator ("**UR**") in Northern Ireland) has chosen to include an outperformance wedge.

(b) Given this departure from regulatory practice, GEMA should have (but has not) conducted an impact assessment to demonstrate (if such were to be the case) that the positive effects from the wedge will not be outweighed by its detrimental impact on consumers in the form of reduced investment and incentives.

(c) GEMA has failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

3.1 Legal consequences

(52) Accordingly, the Decision has the following legal consequences:

(i) The Decision was wrong under sections 23D(4)(a) and 23D(4)(b) GA86 for the following reasons:

(a) GEMA failed properly to have regard to and/or give appropriate weight to its principal objective under section 4AA(1) GA86 to protect the interests of existing and future consumers. In particular, by decreasing incentives to invest and to outperform, it fails to ensure that (i) licensees are granted appropriate incentives to invest and to increase efficiencies and (ii) gas networks are secure, reliable and efficient.

(b) GEMA failed properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent while at the same time provide a stable and predictable regulatory environment. The introduction of the outperformance wedge represents a significant departure from regulatory precedent and lacks any coherent conceptual underpinning.

(c) The Decision was based, wholly or partly, on errors of fact (section 23D(4)(c) GA86), given that GEMA's calibration of the outperformance wedge is empirically flawed.

(d) The Decision was based, wholly or partly, on errors of law (section 23D(4)(e) GA86), by GEMA's defiance of logic, failure properly to inquire, failure to consider relevant factors, reaching conclusions without adequate supporting evidence and acting in a procedurally unfair way.

4 Appeal Ground 3: Ongoing efficiency

4.1 Base ongoing efficiency challenge

(53) As part of its baseline totex allowance, GEMA sets an ongoing efficiency ("**OE**") challenge to reflect the productivity improvements that it considers even the most efficient company can achieve over the RIIO-GD2 period.

(54) GEMA set an OE challenge for RIIO-GD2 at the top end of its own economic advisers' (CEPA) recommended range, at c.1.2% p.a. (inclusive of an "innovation uplift" noted below).

(55) The Appellant submits that setting an OE challenge at the very top of the range recommended by CEPA does not reflect a balanced view of the available evidence from the EU KLEMS data. In particular, GEMA's analysis is based on materially flawed methodologies, assumptions and factual errors:

(i) GEMA's rationale for its decision to "aim up" within the range recommended by CEPA, on the basis that network companies are less exposed to negative shocks and drive higher efficiency gains as they are not subject to competitive pressure, is unevidenced and runs contrary to fundamental economic theory.

(ii) GEMA has placed insufficient weight on the extensive evidence of the structural slowdown in UK productivity growth since the financial crisis.

(iii) GEMA has placed insufficient weight on Gross Output ("**GO**")[41] measures of productivity. By placing disproportionate weight on value added ("**VA**")[42] measures, productivity estimates are biased upwards.

(iv) GEMA erroneously placed too much weight on an economy-wide comparator set, which is less comparable to GDNs.

(v) GEMA has made procedural errors by inconsistently applying the productivity estimates based on VA measures to the entirety of controllable totex; and the productivity estimates based on LP measures to the entirety of opex.

(vi) GEMA disregarded the evidence on the impact of the COVID-19 pandemic on the potential for productivity improvements in both the wider economy and GDNs.

(vii) GEMA failed to consider the unique challenges faced by the Appellant (as the frontier company) to deliver the incremental efficiencies needed to achieve the overly stretching OE challenge.

4.2 Innovation uplift

(56) On top of this challenging OE target, GEMA erroneously applied an additional "innovation uplift" of 0.2% p.a. to account for the innovation-driven efficiency improvements in RIIO-GD1. This is because the innovation uplift is not only unjustifiable in principle but also based on a materially flawed calculation methodology. In particular:

(i) GEMA has double-counted the efficiency improvements delivered by RIIO-GD1 innovation funding in the core ongoing efficiency challenge (based on KLEMS data) and in GDNs' costs allowances for RIIO-GD2 business plans.

(ii) GEMA incorrectly assumed that innovation funding received in RIIO-GD1 was incremental to R&D spend relative to comparator sectors.

(iii) GEMA's methodology was based on several flawed or unsubstantiated assumptions about the nature and reasonable level of returns from innovation funding as well as the type and timing for the delivery of RIIO-GD1 innovation-driven improvements.

(iv) The introduction of an innovation uplift distorts companies' incentives to innovate, as it creates a 'mechanistic" interlinkage between innovation spend in one price control and cost allowances in next price control.

(57) These errors, both individually and in aggregate, lead to a level of overall OE challenge which is unreasonably high and inconsistent with regulatory practice (including the CMA's provisional finding of a 1% OE challenge at PR19).

[41] GO is a measure of the value of the output of an industry, i.e. the combined turnover of the companies within that industry. The inputs for gross output are therefore capital, labour, energy, materials and services.

[42] VA is a measure of the value of gross output minus the value of intermediate inputs (energy, materials and services) required to produce the final output. The inputs for VA are therefore labour and capital.

4.3 Legal consequences

(58) The Decision (as regards the core OE challenge and innovation uplift for the GD sector (both individually and in aggregate)) was wrong on the following grounds:

(i) By imposing an excessively stretching OE target (for the frontier company in particular), GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its principal objective under section 4AA(1) GA86 and its statutory duties to:

(a) Secure that licence holders are able to finance their licensed activities under section 4AA(2)(b) GA86, given that level of cost allowances set by GEMA undermines the Appellant's ability to recover its efficient costs.

(b) Ensure that licence holders are granted appropriate incentives to increase efficiencies and that gas networks are secure, reliable and efficient. The level of cost allowances set by GEMA undermines the ability of GDNs (and frontier company in particular) to deliver their outputs and also distorts their ongoing incentives for innovation.

(ii) Further, with respect to the base efficiency challenge, by "aiming up" within the range recommended by CEPA, and by failing to provide adequate reasons for dismissing evidence that supports a less stretching target, GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. In its interpretation of CEPA's analysis of EU KLEMS data, GEMA has also erred, wholly or partly in fact (section 23D(4)(c) GA86), and in law (section 23D(4)(e) GA86) (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

(iii) By imposing an additional innovation uplift:

(a) GEMA has departed from regulatory precedent in a way which fails, under sections 23D(4)(a) and (b) GA86, properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(b) GEMA's assessment is also vitiated by a fundamental double counting error. In introducing a 0.2% innovation uplift, GEMA commits a number of material errors of assessment and disregards or misrepresents relevant evidence, which leads GEMA to err, wholly or partly in fact (section 23D(4)(c) GA86), and in law (section 23D(4)(e) GA86) (by failing to take into account relevant considerations, acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

5 Appeal Ground 4: BPI Stage 4

5.1 BPI Stage 4

(59) The RIIO-GD2 framework contains a major change to the way in which GEMA sets companies' totex allowances. Up to and including the RIIO-GD1 review, GEMA's practice had been to set allowances in line with a benchmark level of cost identified in its efficiency models. In RIIO-GD2, GEMA introduced a

new approach in which significant components of a GDN's totex allowance are set at the lower of the benchmark level of cost and the costs submitted by a company in its business plan.

(60) In conjunction with this change of policy, at RIIO-GD2, GEMA has included a BPI to encourage network companies to submit ambitious and high-quality Business Plans. The BPI contains four stages. Its purpose is to drive benefits for consumers by rewarding companies that offer consumers additional benefits and value for money. The BPI Stage 4 calculation is specifically designed to reward companies that submit efficient costs.

(61) First, it is submitted that the absolute level of reward under the BPI Stage 4 incentive provides inadequate incentives for the frontier company. The Appellant receives less than £4 million under the BPI Stage 4, which is low in the context of the c. £200 million of benefit to UK customers that KPMG (conservatively) estimates has been delivered by NGN's performance as the frontier company (and is also less than 10% of the incentives for the frontier company provided in RIIO-GD1).[43] While the BPI Stage 4 assessment is backward looking, the Appellant does not believe that such a limited incentive is consistent with a regulatory framework which should not only reward past performance, but also encourage all companies to bring forward efficiency improvements to be incorporated into their future business plans. As such, by providing an inadequate incentive package for the frontier company at RIIO-GD2, the FD will reduce the incentives for all GDNs to aspire to the frontier position at RIIO-GD3 which benefits all gas customers.

(62) GEMA has failed to undertake an impact assessment regarding the effects of such a significant reduction in the level of reward available to the frontier company. This is contrary to the principles of best regulatory practice.

(63) Second, GEMA's methodology for the calculation of the Appellant's BPI Stage 4 assessment is flawed. GEMA treats technically and non-technically assessed costs together as part of the same calculation. This is inconsistent with the stated rationale in the FD. This approach also results in a significant net reduction of £4.6 million in the Appellant's reward, which is arbitrary and inconsistent with the intended effect of the mechanism.

5.2 Efficient cost benchmark

(64) As part of setting an efficient cost benchmark, GEMA has to decide where it will position the efficiency frontier in its cost model.

(65) The choice of the efficient cost benchmark directly impacts the assessment under the BPI Stage 4. The BPI Stage 4 calculation provides an upfront reward to an efficient GDN that submits forecasts of high confidence costs that are lower than GEMA's efficient cost benchmark. As such, the level at which GEMA sets the efficient cost benchmark determines the level of rewards for an efficient company.

(66) At FD, GEMA set an overly challenging efficient cost benchmark at a glidepath to the 85th percentile in its model. The Appellant submits that this target:

(i) is inconsistent with regulatory good practice, which has typically been set no higher than the upper quartile (i.e. 75th percentile) (including provisionally by the CMA at PR19);

(ii) is not supported by the confidence appropriate for a single econometric (top-down totex) model, in particular given GEMA's modelling process was characterised by a number of errors (even subsequent to publication of the FD); and

(iii) adversely impacts the Appellant as the frontier company in the sector. An excessively challenging benchmark reduces the benefit for the frontier company under the BPI Stage 4

[43] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

assessment. This limits the Appellant's incentives to innovate and push the sector forward at the detriment of customers' interests.

5.3 Legal consequences

(67) As a result of the foregoing, the Decision is wrong for the following reasons:

(i) GEMA's BPI Stage 4 fails to deliver its stated objective of differentiating and rewarding the frontier company. As such, GEMA has failed under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its principal objective under section 4AA(1) GA86 to protect the interests of existing and future consumers by ensuring that licensees are granted appropriate incentives to increase efficiencies and gas networks are secure, reliable and efficient.

(ii) By using a flawed methodology for assessing technically and non-technically assessed costs together as part of the BPI Stage 4 calculation, GEMA has erred, wholly or partly in fact (section 23D(4)(c) GA86), and in law (section 23D(4)(e) GA86) (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence, and/or making mathematical or formula specification errors). In failing to provide adequate explanation for its methodology, GEMA fails under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(iii) By adopting a BPI Stage 4 assessment which materially reduces the level of incentive for the frontier company compared to RIIO-GD1 and failing to conduct an impact assessment with respect to this change, GEMA has departed from regulatory precedent in a way which makes it fail under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(iv) In its application of the efficient cost benchmark at a glidepath to the 85th percentile, GEMA has departed from regulatory practice in a way which fails under sections 23D(4)(a) and (b) GA86 properly to have regard to and/or give appropriate weight to its duty under section 4AA(5A) GA86 to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. By imposing an 85th percentile catch up target which is not substantiated by the reliability of GEMA's cost-modelling approach, it has also erred wholly or partly in fact (section 23D(4)(c) GA86) and in law (section 23D(4)(e) GA86) (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence, and/or making mathematical or formula specification errors).

6 Consequences for the Appellant

(68) GEMA's errors will, if not corrected, have material adverse consequences. These consequences are explained in the Parts that follow and in the Witness Statements accompanying this Notice.

(69) In summary:

(i) GEMA's errors in relation to cost of equity result in a shortfall of at least £5.76 million[44] and up to £15.45 million[45] p.a. (in 2018/19 prices);

(ii) GEMA's errors in relation to the outperformance wedge result in the unevidenced deduction of 25bps, equal to £11.4 million for the Appellant, from allowed revenues on top of, and separate to, the targets contained within RIIO-GD2;

(iii) GEMA's errors in relation to OE result in GEMA's view on total costs being in the range of £19-33 million lower than it otherwise would have been; and

(iv) GEMA's errors in the calculation of the BPI Stage 4 and the level of GEMA's efficient cost benchmark result in:

(i) The Appellant's reward being £6.07 million lower under the BPI Stage 4 than it should have been. This comprises of (i) £4.6 million for GEMA's flawed calculation methodology and (ii) £1.47 million with respect to GEMA's flawed efficient cost benchmark.

(ii) The Appellant being inadequately rewarded as the frontier company. To rectify this error, the Appellant submits that a remedy of 1% of totex is appropriate, worth £12.44 million in reward for the Appellant.

(70) For the reasons explained above, the Appellant submits that GEMA's errors, individually and in aggregate, undermine the incentives for the most efficient companies to invest in innovative solutions that bring efficiency, improve resilience and lower costs for consumers.

(71) GEMA's errors also threaten the short- and long-term financial health of the Appellant (and the industry more generally) by jeopardising its ability to attract financial capital and/or retain existing investment.

7 Consequences for customers

(72) The Appellant submits that the errors in this Notice reflect the fact that GEMA's approach at RIIO-GD2 has disproportionately focused on short-term reductions to customer bills at the expense of promoting long-term investment in efficiency and service improvements which are in the interests of existing and future customers (and compromises the delivery of broader customer value in both the short and longer term, as explained in the Part III of the Witness Statement of Gareth Mills (GM1)). The Appellant's comprehensive customer engagement exercise at RIIO-GD2 provided compelling evidence that NGN's customers have a rather wider set of priorities.

(73) By using materially flawed methodologies, assumptions and factual errors which are inconsistent with best regulatory practice and which fail to give due weight to well-established financial principles and, as a result, setting the allowed return on equity too low, introducing an arbitrary and unevidenced outperformance wedge and providing insufficient incentives for the frontier company, GEMA's approach creates a misalignment between companies and consumers, where the latter want the marginal investments but the company is not able to undertake that investment as its investors may not be able to recover their required return. Incentivising investment – particularly for the frontier company – is key under steady-state circumstances to ensuring a prudent stewardship of its assets. However, given the potential investment required to support achieving net zero legislation, ensuring that the right incentives exist for companies has to be a regulatory priority.

[44] This conservative estimate has been calculated by comparing GEMA's assessed cost of equity point estimate of 4.55% with the lower end of the market-implied CAPM-based cost of equity (5.18%) as set out in the Cost of Equity Report. This estimate does not reflect the necessary (i) aiming-up allowance to compensate for the risk that the allowance is set too low given the uncertainty in the CAPM parameter estimates; or (ii) aiming-up allowance to compensate investors for the asymmetric risk faced by GDNs due to the net zero agenda and related gas sector specific factors.

[45] This estimate has been calculated by comparing GEMA's assessed cost of equity point estimate of 4.55% with the upper end of the market-implied CAPM-based cost of equity (6.24%), as estimated by the Cost of Equity Report, exhibited at (KPMG_COE1_1).

(74) GEMA's approach also risks costs for necessary improvements being pushed into the next price control which means companies become less efficient than they would otherwise have become. This will have an adverse impact on customers as the efficiency benchmark in the next price control is apt to be lower than it could and (and should) be. This will have significant detrimental consequences for both current and future consumers.

(75) Finally, in relation to the errors set out in this Notice, the Appellant submits that GEMA has failed to adequately assess the evidence in a rigorous and even-handed manner, engage meaningfully with the submissions of stakeholders and to adequately justify many of its decisions. The Appellant is concerned that this will result in a perceived lack of consistency and transparency that risks undermining confidence in the regulatory process and the stability and reliability of the sector. This not only weakens the predictability of the regulatory system but also erodes the trust and confidence of the investors (existing and prospective). There is a risk that companies' incentives become short-termist while at the same time investment is disincentivised.

8 Relief Sought

(76) The Appellant seeks leave to appeal the Decision.

(77) If permission is granted, the Appellant requests that the CMA quash the Decision under section 23E(2)(a) GA86 and substitute its own decision to the extent necessary to remedy the errors in the Decision. The specific relief sought is explained in the remainder of this Notice.[46] In summary:

(i) in relation to cost of equity, the Appellant requests that the CMA quash the Decision and substitute its own by setting a cost of equity within 5.18% to 6.24% (which is the relevant range following correction of GEMA's errors relating to RFR, TMR and beta) and selects a point estimate that includes necessary aiming-up; and

(ii) in relation to the outperformance wedge, the Appellant requests that the CMA quash the Decision and substitute its own by removing the outperformance wedge from the RIIO-GD2 regulatory framework.

(iii) in relation to OE, the Appellant requests that the CMA quash the Decision and substitute its own which:

(a) selects an appropriate point within the lower half of the range recommended by CEPA for the base OE challenge (specifically, the Appellant contends that a balanced interpretation of the evidence would support a range from 0.5 to 0.8% for each of capex/repex and opex); and

(b) removes the 0.2% p.a. innovation uplift in its entirety from the OE challenge (which has the effect of reducing the OE challenge by 20bps).

(iv) in relation to BPI Stage 4, the Appellant requests that the CMA quash the Decision and substitute its own which:

(a) Provides a new additional income reward calculated as 1% of allowed totex;

(b) Treats technically-assessed and non-technically assessed costs separately under the BPI Stage 4 assessment calculation; and

[46] Parts V (Appeal Ground 1: Cost of Equity), VI (Appeal Ground 2: Outperformance Wedge), VII (Appeal Ground 3: Ongoing Efficiency) and VIII (Appeal Ground 4: BPI Stage 4) and Annex III.

(c) Sets GEMA's benchmarked modelled cost allowance in the BPI stage 4 calculation on the basis of meeting the 75th percentile of efficiency rather than the glide-path to the 85th percentile.

(78) The changes to the Appellant's licence conditions needed to effect these changes are considered at Annex III.

(79) In the alternative, the Appellant requests that the CMA remit the matter to GEMA under section 23E(2)(b) GA86 for reconsideration and determination in accordance with such directions as are necessary adequately to address the errors.

9 The facts and reasons supporting the appeal

(80) The grounds of this Appeal, reasons and supporting evidence are contained in this Notice, in NGNNOA1 and in the Witness Statements and Exhibits to the Witness Statements.

(81) The Appellant has endeavoured to provide all the facts, reasons, documentary evidence and witness statements with this Notice. If permission to appeal is granted, however, it may be necessary for the Appellant to provide further material, particularly following publication of the CMA's final decision in relation to the PR19 price control redetermination and receipt of GEMA's response and any disclosure.

PART IV
STATUTORY FRAMEWORK

1 Overview

(82) In Part III, the Appellant identifies the statutory framework that governs this appeal under GA86 and, in particular:

(i) the statutory grounds of appeal to the CMA;

(ii) the standard of review to be applied by the CMA in this appeal;

(iii) the materiality threshold that applies to this appeal;

(iv) the issue of interlinkages that may be considered by the CMA; and

(v) the relief sought.

2 Statutory grounds of appeal

(83) Under section 23B(1) GA86, an appeal against GEMA's licence modification decision adopted under section 23 GA86 is made by way of an application to the CMA. Section 23D(4) GA86 provides that the CMA may only allow the appeal if it is satisfied that the decision appealed against was wrong on one (or more) of the statutory grounds in sub-sections (4)(a)-(e). These grounds are described below.

2.1 Sub-section 23D(4)(a): GEMA failed properly to have regard to any matter in sub-section (2)

(84) The matters listed in sub-section (2) are the matters to which GEMA must have regard:

"(a) in the carrying out of its principal objective under section 4AA;

(b) in the performance of its duties under that section; and

(c) in the performance of its duties under sections 4AB and 4A".

(85) In this appeal, the Appellant submits that GEMA has failed properly to have regard to one (or more) of its obligations[47] and hence the CMA must allow the appeal.

2.1.1 The principal objective under section 4AA

(86) Under section 4AA(1) GA86, GEMA's principal objective in carrying out its functions under Part 1 GA86 (which also includes GEMA's function of licence modifications under section 23 GA86) is to *"protect the interests of existing and future consumers in relation to gas conveyed through pipes."*

(87) Section 4AA(1A) GA86[48] clarifies that the "interests of existing and future consumers are their interests taken as a whole, including: [...]

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

(c) their interests in the fulfilment by [GEMA], when carrying out its designated regulatory functions, of the designated regulatory objectives."

(88) Section 4AA(5B) GA86 defines the "*designated regulatory objectives*" as the objectives set out in Article 40(c) to (h) of the Gas Directive,[49] but read with certain modifications. In particular, under Article 40 of

[47] The term "obligations" was used by the Competition Commission to describe GEMA's duties under GA86 in *E.ON* (NGNNOA1_187).

[48] As amended by regulation 8 of The Electricity and Gas etc. (Amendment etc.) (EU Exit) Regulations 2019, S.I. 2019/530.

[49] Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning rules for the internal market in natural gas and repealing Directive 2003/55/EC OJ [2009] L211/94 (the "**Gas Directive**"). The provisions of the Gas Directive constitute EU retained law, in accordance with the terms of the European Union (Withdrawal) Act 2018.

the Gas Directive, as modified by section 4AA(5B) GA86, GEMA is under an obligation to take all reasonable measures to, among others:

"(d) helping to achieve, in the most cost-effective way, the development of secure, reliable and efficient non-discriminatory systems that are consumer oriented, and promoting system adequacy and energy efficiency as well as the integration of large and small scale production of gas from renewable energy sources and distributed production in both transmission and distribution networks;

(f) ensuring that system operators and system users are granted appropriate incentives, in both the short and the long term, to increase efficiencies in system performance;

(g) ensuring that customers benefit through the efficient functioning of the energy market in Great Britain, promoting effective competition and helping to ensure consumer protection".

(89) In previous cases, the CC has interpreted GEMA's additional objectives under the Gas Directive as being "*part and parcel of an overall objective to further the interests of consumers*."[50]

(90) Sections 4AA(1B) and (2) GA86 provide a series of specific duties with which GEMA must comply in relation to its principal objective and sections 4AA(1C) and (3) GA86 provide a series of considerations to which GEMA must have regard in performing those duties. More specifically, under section 4AA(1B) GA86, GEMA is required to carry out its functions under GA86 in a manner which it considers "*is best calculated to further the principal objective, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with the shipping, transportation or supply of gas conveyed through pipes*".

(91) Before deciding to carry out its functions in a particular manner with a view to promoting competition, GEMA must consider under section 4AA(1C) GA86:

"(a) to what extent the interest of consumers would be protected by the manner of carrying out those functions; and

(b) whether there is any other manner (whether or not it would promote competition) in which [GEMA] could carry out those functions which would better protect those interests".

(92) Under section 4AA(3) GA86, GEMA must have regard specifically to the interests of vulnerable consumers including individuals who are disabled or chronically sick, of pensionable age or with low income and individuals residing in rural areas.

(93) As acknowledged by GEMA itself, GEMA's principal objective "*informs [GEMA's] whole approach to regulation in Great Britain and the way that [GEMA] work with stakeholders. It obliges [GEMA] to evaluate almost any situation or proposed change through the lens of energy consumers*".[51] Whilst section 4AA GA86 does not include a definition of consumers (apart from the fact that this includes both existing and future consumers), GEMA's strategy document provides a helpful clarification that "*Consumers are of all types, including: households, micro-businesses, SMEs, public sector and voluntary bodies, and industrial and commercial companies. All of these are affected by what happens across the energy value chain*".[52] The Appellant submits that the consumer for the purposes of GA86 should also mean gas end-users in Great Britain, which are in fact direct customers of the Appellant.

(94) Consequently, in determining this appeal, the CMA must consider if, in making the Decision, GEMA had proper regard to its principal objective to protect the interests of existing and future consumers, wherever appropriate by promoting effective competition. The Appellant considers that this primary obligation

[50] *NIE Determination* (NGNNOA1_211).

[51] GEMA's priorities and objectives (NGNNOA1_210).

[52] GEMA's strategic narrative for 2019-23 (NGNNOA1_213).

should not be limited to the short-term goal of reducing customers' bills through the network operators' cost minimisation but instead, as the CMA has established, this should be interpreted more widely with a long-term lens.[53]

(95) GEMA's aim for RIIO-GD2 price controls is to "ensure energy consumers across GB get better value, better quality of service and environmentally sustainable outcomes from their networks",[54] acknowledging in that way that consumers' interests are multifaceted. This also accords with the economic regulation principle that "cost minimisation might not always be efficient, as lowering costs can sometimes lead to foregoing bigger benefits to consumers".[55]

(96) The Appellant considers the Decision to be inconsistent with the principal objective of GEMA. The Decision prioritises short-term bill reduction over the long-term interests of customers, resulting in a disproportionate future burden of costs for customers and higher costs overall. This is at a time when the long-term challenges facing the Appellant (and the wider GD sector) require significant investment to secure future resilience at the best long-term value to customers (who have, as the evidence shows, expressed themselves willing to pay for better services).

2.1.2 The need to secure that all reasonable demands for gas are met

(97) As set out above, under section 4AA(2) GA86, GEMA has a number of additional obligations with which GEMA must comply in relation to its principal objective. The Appellant submits that these additional obligations are not subordinate to the principal objective but instead are statutory duties with which GEMA must comply to further its principal objective.

(98) More specifically, under section 4AA(2)(a) GA86, GEMA, when carrying out its regulatory functions, must have regard to "the need to secure that, so far as is economical, all reasonable demands in Great Britain for gas conveyed through pipes are met".

(99) The Appellant submits that this obligation involves not only the availability of gas from generators and distributors, but also the need to secure that all reasonable demands for gas are delivered to an appropriate standard of service by generators and distributors.

2.1.3 The need to secure that licence holders are able to finance their regulated activities

(100) Further, section 4AA(2)(b) GA86 provides that in carrying out its regulatory functions, GEMA must 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".*

(101) The Joint Regulators Group report summarises this duty (the "**Financeability Duty**") as follows: "In setting price controls, regulators should have regard to the ability of efficient companies to secure financing in a timely way and at a reasonable cost in order to facilitate the delivery of their regulatory obligations. However, regulators have to balance this consideration with the need to protect consumers and constrain the returns provided by the regulatory framework, and to avoid encouraging inefficiency or rescuing a company that has encountered financial distress as a result of its own decisions."[56]

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[53] In *NIE Determination*, para. 1.12 (NGNNOA1_211), the CC noted "*Therefore protecting the interests of consumers may not be a matter of keeping prices for consumers, or individual groups of consumers (some of which may be particularly vulnerable) as low as possible. A licence holder must be able to finance its activities to fulfil its obligations under the Licence, which means that these various objectives and considerations should be seen not just in the short term*".

[54] DD Core, p. 3 (NGNNOA1_155).

[55] BIS Principles for Economic Regulation Report, para. 40 (NGNNOA1_208).

[56] JRG Report on Cost of Capital and Financeability, p. 10 (NGNNOA1_209).

(102) Further, the CMA and its predecessor have considered that there are two strands to this duty: "The first strand is that an efficiently managed and financed company was able to earn a return at least equal to the cost of capital. The second is to ensure that revenues, profits and cash flow must allow companies to raise finance on reasonable terms in the market".[57]

(103) In its City Briefing when introducing the RIIO Model, GEMA considered the existence of efficiently financed licensees as a necessary requirement for the protection of the consumers' interests:

"It is in the interest of consumers that efficient network companies are able to secure equity and debt financing in a timely way and at a reasonable cost in order to facilitate the delivery of their regulatory obligations."[58]

2.1.4 Promoting efficiency and economy

(104) Subject to the above duties as well as the duty under section 132(2) Energy Act 2013[59] to carry out functions in the manner best calculated to further the delivery of policy outcomes, GEMA must carry out its regulatory functions 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; […] and

(c) to secure a diverse and viable long-term energy supply…".

(105) In practice this translates into ensuring that incentives are in place to promote such efficiency and reward frontier companies for driving the standards of the sector forward.

2.1.5 Best regulatory practice

(106) Finally, section 4AA(5A) GA86 provides that in performing its duties, GEMA 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 principle appearing to it to represent the best regulatory practice."

(107) The Better Regulation Task Force has defined these five principles of good regulation as follows:[60]

(i) Transparency: Regulators should be open and keep regulations simple and user-friendly. This principle includes that effective consultation must take place before proposals are developed, to ensure that stakeholders' views and expertise are taken into account.

(ii) Accountability: Regulators must be able to justify decisions and be subject to public scrutiny. This principle includes that there should be well-publicised, accessible, fair and effective complaints and appeals procedures.

(iii) Proportionality: Regulators should only intervene when necessary. Remedies should be appropriate to the risk posed, and costs identified and minimised. This principle includes that all the alternative options for achieving policy objectives must be considered - not just prescriptive regulation - given alternatives may be more effective and cheaper to apply.

[57] See, the CC's approval of Ofwat's understanding of the duty to secure that companies are able to finance the proper carrying out of their functions in *Sutton and East Surrey Water plc*, para. 4.65 (NGNNOA1_189).

[58] GEMA City Briefing (NGNNOA1_190).

[59] Section 4AA(5) GA86.

[60] BRTF Less is More Report (NGNNOA1_188).

(iv) Consistency: Government rules and standards must be joined up and implemented fairly. This principle includes that regulation should be predictable in order to give stability and certainty to those being regulated.

(v) Targeting: Regulation should be focused on the problem and minimise side effects. This principle includes that regulations should be systematically reviewed to test whether they are still necessary and effective. If not, they should be modified or eliminated.[61]

(108) Further background and context to these principles is provided in the publication of the Department for Business, Energy & Industrial Strategy's ("**BEIS**") *"Principles for Economic Regulation" (2011)* and its *"Better Regulation Framework: Interim Guidance" (2020)*.[62] The BEIS Principles for Economic Regulation highlight the importance of predictability and stability in economic regulation, stating that the framework for economic regulation:

"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"; and "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."[63]

(109) The CMA has also held that the "*stability, predictability and transparency of the regulatory regime"*[64] are decisive factors for investment decisions. In *Bristol Water*, the CC found that significant changes to the regulatory framework or approach require greater justification "*as there are benefits to a stable and well understood regulatory framework"*.[65] Separately, in *Phoenix Gas* the CC found that any revision of previous regulatory determinations *"should be well-reasoned, properly signalled, subject to fair and effective consultation, clear and understood, and, normally, forward-looking"*.[66] Accordingly, if the regulator is perceived to behave inconsistently without giving sufficient signposting, then the predictability of the regulatory system is eroded, whilst investment is disincentivised in this sector as well as in all other UK regulatory sectors.

(110) GEMA's approach in RIIO-GD2 has focused on delivering short-term reductions in customer bills. This is reflected in a number of what the Appellant submits to be wrong choices GEMA has made throughout RIIO-GD2 by imposing unachievable efficiency targets, moving high proportions of totex allowances to uncertainty mechanisms, introducing an unsupported and unprecedented downward adjustment to cost of equity for outperformance and reducing returns on equity. These wrong choices are an unwarranted departure from established regulatory practice.

(111) This mindset has led GEMA to commit a number of errors which need to be corrected on appeal because if left in place they will have a material impact on the Appellant's ability to attract investment and persuade equity holders to continue investing (and pushing the Appellant to remain at the frontier of the sector). This would have a significant adverse impact for present and future customers and will undermine investor confidence going forward.

2.2 Sub-section 23D(4)(b): GEMA failed to give the appropriate weight to any of its obligations

(112) This ground of appeal is made out if GEMA gives insufficient, undue or excessive weight to any of its obligations listed above. In *E.ON*, the CC interpreted this ground as follows:

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[61] *Ibid*., Annex B ("The Five Principles of Good Regulation").

[62] BEIS Better Regulation Framework Interim Guidance (NGNNOA1_215).

[63] BIS Principles for Economic Regulation Report (NGNNOA1_208).

[64] *Phoenix Gas* (NGNNOA1_192).

[65] *Bristol Water plc,* para. 9.21 (NGNNOA1_193).

[66] *Phoenix Gas*, paras. 32 and 9.112 (NGNNOA1_192).

"[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."[67]

(113) The same approach was adopted in *BGT Determination*, in which the CMA considered as part of this ground whether GEMA *"gave undue or unsupported weight to financeability concerns".*[68]

2.3 Sub-section 23D(4)(c): GEMA's decision was based, wholly or partly, on an error of fact

(114) This ground is made out if GEMA's decision is wrong as a matter of fact: i.e. that GEMA has made a factual error and that error materially affected its decision.

(115) In *E.ON*, the CC explained that this ground is made out if "*GEMA has based its decision on a plain error of fact*."[69] Similarly, in *BGT Determination*, the CMA adopted the CC's reliance on the Court of Appeal's decision in *Azzicurazioni Generali Spa v Arab Insurance Group* where it held that an error of fact is one that lies "*outside the bounds within which reasonable disagreement is possible"* and *"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*".[70]

(116) In *NPG Determination*, the CMA described its jurisdiction to make factual judgments in a licence modification appeal context by clarifying that it "*ha[s] not limited [itself] to errors of law or judicial review grounds, but [has] duly taken the merits of the case into account when considering whether any of the statutory grounds of appeal is made out"*.[71]

2.4 Sub-section 23D(4)(d): The licence modifications fail to achieve, in whole or in part, the effect stated by GEMA

(117) Under section 23(7)(b) GA86, GEMA must include in its licence modification decision a statement of the effect of the modifications.

(118) In *BGT Determination*, the CMA, in assessing the effect GEMA had intended by its licence modification decision in relation to setting a particular incentive mechanism, took into account the following factors, which were considered as sufficient to inform GEMA's policy and hence its intended effect:

(i) GEMA's policy statements and explanations during the RIIO-ED1 price control including at the strategy consultation, Draft and Final Determination stages;

(ii) GEMA's responses to consultees in relation to its policy statements; and

(iii) evidence given by GEMA at a CMA oral hearing.

2.5 Sub-section 23D(4)(e): GEMA's decision was wrong in law

(119) This ground of appeal is made out if GEMA has misdirected itself as to its obligations in making its licence modification decision or as to the application of the relevant law. In *E.ON*, the CC held that the wording "wrong in law" also includes the public law concept of procedural unfairness/breach of natural justice.[72]

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[67] *E.ON*, para. 7.16 (NGNNOA1_187).

[68] *BGT Determination*, para. 7.44 (NGNNOA1_191).

[69] *E.ON*, para. 5.16 (NGNNOA1_187).

[70] *BGT Determination*, para. 3.30 (NGNNOA1_191).

[71] *NPG Determination*, para. 3.40 (NGNNOA1_194).

[72] *E.ON*, para. 5.18 (NGNNOA1_187).

(120) In particular, the well-established error of law based on procedural unfairness[73] will arise if:

(i) the decision-maker has not properly observed the relevant statutory procedures, such as a failure to consult or to give reasons; or

(ii) there has been a failure to observe the principles of natural justice in the decision-making process (such as if the decision-maker has shown bias[74] or has failed to hear an affected party).[75]

(121) The fundamental requirements for a consultation to be fair have been laid down in *Coughlan,*[76] where it was held that a consultation must be carried out properly irrespective of whether it is prescribed by statute or not.[77] In particular, in order to be proper a consultation:

"(a) must be undertaken at a time when proposals are still at a formative stage;

(b) must include sufficient reasons for particular proposals to allow those consulted to give intelligent consideration and an intelligent response;

(c) adequate time must be given for this purpose; and

(d) the product of consultation must be conscientiously taken into account when the ultimate decision is taken."[78]

(122) The same principles are adopted by GEMA in its consultation guidelines[79] as well as by the UK Cabinet Office in its consultation principles.[80]

(123) Further, irrationality will constitute an error in law. This ground arises if a decision "*is so unreasonable that no reasonable authority could ever have come to it*"[81] and specifically if a decision is "*so outrageous in its defiance of logic or of accepted moral standards that no sensible person who had applied his mind to the question to be decided could have arrived at it*".[82] Irrationality may also be established if in reaching its decision, the decision-maker took into account irrelevant matters, or failed to consider relevant matters.[83] This arises if "*there is a demonstrable flaw in the reasoning which led to it – for example, that significant reliance was placed on an irrelevant consideration, or that there was no evidence to support an important step in the reasoning, or that the reasoning involved a serious logical or methodological error*."[84]

3 Standard of review

(124) Under section 23D(4) GA86, the CMA may allow an appeal only to the extent it is satisfied that the decision appealed against was "wrong" on one or more of the grounds described above. Accordingly, the standard of review for regulatory appeals is clearly to be distinguished from the standard applicable

[73] The three main heads of challenge to a decision were set out by Lord Diplock in *Civil Service Unions v Minister* (NGNNOA1_196). These are (i) illegality; (ii) irrationality; and (iii) procedural impropriety.

[74] *Pinochet (No 2)*, p. 132 (NGNNOA1_197).

[75] *Doody* (NGNNOA1_198).

[76] *Coughlan* (NGNNOA1_199). The fundamental requirements for a consultation as formulated in Coughlan do not adopt the language of "fairness"; however, fairness is still a requirement of a lawful consultation and is an aspect of what is "proper". See *Medway Council*, para. 28 (NGNNOA1_200).

[77] *Coughlan*, para. 108 (NGNNOA1_199).

[78] *Coughlan*, para. 108 (NGNNOA1_199).

[79] GEMA Consultation Policy (NGNNOA1_216).

[80] UK Cabinet Consultation Principles (NGNNOA1_212).

[81] *Wednesbury* (NGNNOA1_201).

[82] *Civil Service Unions v Minister* (NGNNOA1_196).

[83] *Tesco Stores* (NGNNOA1_202).

[84] *Law Society v Lord Chancellor*, para. 98 (NGNNOA1_203).

to judicial review proceedings and requires a review of the merits of the decision appealed against. This was confirmed in *BGT Determination* where the CMA held that:

"the [CMA] is not limited to reviewing the decision on conventional judicial review grounds and that [the CMA is] not only able, but required by [GA86], to consider the merits of the decision under appeal, albeit by reference to the specific grounds of appeal laid down in the statute."[85]

(125) The Government's response to the Department of Energy and Climate Change's ("**DECC**") consultation on the 'Implementation of the EU Third Internal Energy Package' is consistent with this approach. It states that "*It is the Government's intention that the proposed grounds for appeal for licence modification decisions also enable the appeal body to take into account the merits of the case in a similar manner".*[86]

(126) The CMA has confirmed that it has the power to make "*certain factual judgments*"[87] and should not limit itself to considerations of errors of law or judicial review. Nonetheless, the CMA should limit itself to the grounds raised by the appellant and refrain from undertaking a re-run of GEMA's original decision-making process or holding a de novo rehearing of all the evidence.[88]

(127) When the CMA considers whether a regulator's decision is wrong, it is not expected to impose its own judgment in place of that of the regulator, provided that the regulator's decision is appropriate and reasonable in the circumstances.[89] In *E.ON*, the CC stated that:

"The function of the [CMA] is to provide accountability in relation to the substance of code modification decisions. However, leaving to one side errors of law, it is not our role to substitute our judgment for that of GEMA simply on the basis that we would have taken a different view of the matter were we the energy regulator."[90]

(128) While E.ON relates to a different statutory appeal mechanism, in BGT Determination the CMA confirmed that the CC's statement accurately reflects the approach that should also be adopted in licence modification appeals.

(129) Based on the above, the Appellant submits that the CMA is required to consider the merits of the grounds raised in its appeal including making its own factual judgments where appropriate.

4 Materiality

(130) In previous energy appeals, the CMA and its predecessor have consistently held that "*[the CMA] should only interfere with the Decision if [the CMA] consider[s] that the error identified is material*".[91] In E.ON, the CC noted that "*it is not enough to succeed […] for an appellant to demonstrate that some error of fact, whether consequential or inconsequential, has been made […] Rather, an appellant will need to demonstrate that the error was material to the outcome of the decision. Only if the error was material in this way will we regard the decision as 'wrong'*".[92]

(131) Whilst there is no statutory definition of "materiality", the CMA and the CC have provided helpful guidance as to what constitutes a "material error", which should be assessed on a case by case basis:

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[85] *BGT Determination*, para. 3.24 (NGNNOA1_191).

[86] UK Government's Response to DECC Consultation, para. 2.24 (NGNNOA1_217).

[87] *BGT Determination*, para 3.41 (NGNNOA1_191); *NPG Determination*, para 3.40 (NGNNOA1_194).

[88] *NPG Determination*, para. 3.36 (NGNNOA1_194).

[89] *BGT Determination*, para 3.43 (NGNNOA1_191); *SONI Determination*, paras. 3.29 and 3.36 (NGNNOA1_205).

[90] *E.ON*, para 5.11 (NGNNOA1_187).

[91] *NPG Determination*, para. 3.57 (NGNNOA1_194); *BGT Determination*, para. 3.60 (NGNNOA1_191); *Firmus*, para. 3.22 (NGNNOA1_206); *SONI Determination*, para. 3.39 (NGNNOA1_205).

[92] *E.ON*, para. 5.17 (NGNNOA1_187).

(i) "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."[93]

(ii) *"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."*[94]

(132) The same approach was adopted by the CC in its price control determinations under the Communications Act 2003, in which it held that "*where the impact of the error as a percentage of the charge control is below 0.1%, the error is unlikely to be capable of producing a material effect on the charge control. In such circumstances, it falls within an acceptable margin of error for a regulator".* However, the CC noted that this test *"is not intended to be a 'bright–line test; it is one factor in an overall assessment based on all the circumstances of the case".*[95] The CC laid down other relevant factors for the assessment of materiality, including (i) whether the mistake has a distortive effect in that it works in different directions or impacts to a different extent on products or services, thus potentially distorting competition; and (ii) the impact of the mistake on any particular companies that are affected if the error is not corrected, and whether this could distort competition between different providers.[96]

(133) More recently, in its response to GEMA's open letter on the price control licences modification appeals,[97] the CMA confirmed that the notion of a "material error" goes beyond its ability to refuse permission to appeal on the basis of "trivial or vexatious reasons".[98] Instead, "materiality" is a broader concept than size alone and this means that the threshold for materiality may be lower in some cases and higher in others. In fact, some errors may be low value but have broader implications from a regulatory perspective while other large errors may only arise due to the "*aggregation of smaller and potentially immaterial errors*" or may be seen as immaterial when considered in the broader regulatory framework.

(134) The Appellant submits that the errors identified in its appeal are not only of significant value but also relate to matters of economic and regulatory principle that are likely to have considerable effect on future price controls.

(135) Based on the above, it is submitted that none of the errors relied upon in this appeal are of insignificant or negligible impact on the Appellant and on the overall level of price control. Therefore, the Appellant submits that the materiality threshold applicable to this appeal is satisfied in relation to the grounds of appeal it advances.

5 Relief sought

(136) The Notice of Appeal must state, among others, (i) the grounds of appeal on which the appellant wishes to rely; and (ii) the relief sought and any directions necessary to give effect to that relief.[99]

(137) As supported by the CMA's past decisional practice, the grounds of appeal are treated separately from the question of the relief sought. If permission to appeal is granted, the CMA must consider whether or

[93] *NPG Determination*, para. 3.58 (NGNNOA1_194); *BGT Determination*, para. 3.61 (NGNNOA1_191); *BT*, para. 2.35 (NGNNOA1_204).

[94] *NPG Determination*, para. 3.57 (NGNNOA1_194); *BGT Determination*, para. 3.60 (NGNNOA1_191); *Firmus*, para. 3.22 (NGNNOA1_206); *SONI Determination*, para. 3.39 (NGNNOA1_205).

[95] *BT*, para. 2.35 (NGNNOA1_204); *Firmus*, para. 3.24 (NGNNOA1_206); *CityFibre*, para. 2.28 (NGNNOA1_207).

[96] *CityFibre*, para 2.28 (NGNNOA1_207); *BT*, para. 1.60 (NGNNOA1_204).

[97] CMA Clarification of position on potential energy licence modification appeals (NGNNOA1_214).

[98] See section 23B(4)(d) GA86.

[99] CMA70 Energy Licence Modification Appeals Rules, para. 5.2 (NGNNOA1_179).

not to allow the appeal by reference to the grounds of appeal advanced.[100] The relief to be sought only falls for consideration, if and when the appeal has been allowed.

(138) If the appeal is allowed, the CMA must do one or more of the following:

(i) quash the decision (to the extent that the appeal is allowed);

(ii) remit the matter back to GEMA for reconsideration and determination in accordance with any directions given by the CMA; and

(iii) substitute the CMA's decision for that of GEMA (to the extent that the appeal is allowed) and give any directions to GEMA or any other party to the appeal.[101]

[100] Section 23D GA86.

[101] Section 23E (2) GA86.

PART V
APPEAL GROUND 1: COST OF EQUITY

1 Overview

(139) This ground is concerned with GEMA's assessment of the cost of equity, as set out in the Finance Annex to GEMA's FD.[102]

(140) This section will draw on the following expert reports and witness statements:

(i) Estimating the Cost of Equity for RIIO-GD2 ("**Cost of Equity Report**");[103]

(ii) Future of Gas ("**Future of Gas Report**");[104] and

(iii) Witness Statement of Mark Horsley (MH1) and Witness Statement of Gareth Mills (GM1).

(141) The allowed return on equity in GEMA's FD is constructed through a series of steps. First, GEMA arrives at an assessed cost of equity, and, second, it sets an overall allowed return on equity after also assessing what it terms 'expected outperformance'. This ground covers only the assessed cost of equity. The expected outperformance (and impact on the overall allowed return on equity) is discussed in Part VI (Appeal Ground 1: Outperformance Wedge).

(142) To construct its cost of equity estimate, GEMA first estimates a cost of equity using the capital asset pricing model ("**CAPM**")[105] framework. This entails estimating a number of parameters which are used to calculate an estimated cost of equity: the risk-free rate ("**RFR**"), beta and total market return ("**TMR**"). GEMA then conducts further cross-checks, before arriving at an assessed cost of equity.

(143) As can be inferred from a number of public statements during the RIIO-GD2 process, GEMA's approach has focussed on reducing customer bills during the life of the RIIO-GD2 price control.[106] This mindset has led to a failure to strike an appropriate balance between reducing customer bills in the short term and ensuring appropriate rewards and incentives that protect investment. By failing to protect investment GEMA's FD will harm consumer welfare in the long-term. This general approach is apparent throughout GEMA's FD.[107] This blinkered approach has led GEMA to commit a number of errors which the CMA is invited to identify and correct in this appeal.

(144) Throughout its cost of equity assessment, for every parameter, GEMA has chosen ranges of estimates that are consistently and systematically at the lower end or below those suggested by the proper approaches to estimation. Furthermore, GEMA has chosen not to 'aim up' within its (already downwardly biased) range of cost of equity estimates. This is despite the weight of academic thought, empirical evidence and regulatory precedent which clearly supports selecting a point estimate for the cost of equity above the middle of the range to prevent exit of capital over time by long-term investors in the sector, underinvestment in new assets and the consequent loss in consumer welfare that follows. While the

[102] FD Finance Annex (revised) (NGNNOA1_167).

[103] Cost of Equity Report, exhibited at (KPMG_COE1_1).

[104] Future of Gas Report, exhibited at (KPMG_FOG1_1).

[105] Cost of Equity Report, para. 4.2.1, exhibited at (KPMG_COE1_1).

[106] GM1, Section III; Framework Decision Press Release (NGNNOA1_218) ("*Ofgem's plans to deliver savings of over £5bn to consumers through tougher price controls for energy networks moved a step closer today*."; "*Ofgem estimates [the cost of equity range] would result in savings of over £5 billion for household consumers (or about £15 - £25 per year on the dual fuel household bill)*."); SSMD Press Release (NGNNOA1_219) ("*A lower allowed return on equity of 4.3%, combined with a lower allowed return on debt, would reduce costs passed on to consumers by £6 billion over the five years of the RIIO-2 price control period (2021-2026) when compared to RIIO-1*."); DD Press Release (NGNNOA1_220) ("*Now more than ever, we need to make sure that every pound on consumers' bills goes further*."; "*Ofgem's proposals as they stand would lead to an expected £20 fall in network charges on bills per household a year at the start of RIIO-2.*"); FD Press Release (NGNNOA1_221) ("*Customers will also see a £2.3 billion saving over the course of RIIO-2, equivalent to an average bill reduction of about £10 before inflation*.").

[107] GM1, section III; MH1, para. 46.

principles underpinning "aiming-up" are relevant to a number of industries, the extent and scope of these are particularly acute for gas distribution networks ("**GDNs**"). In particular, the estimation uncertainty is further exacerbated by the paucity of direct comparators in beta estimation and by specific asymmetric downside risk stemming from uncertainty over the future role of gas which has not been priced by GEMA, as discussed in the Future of Gas Report.[108]

(145) Consequently, GEMA's approach to setting the cost of equity allowance in the FD is flawed and starts from the premise of using methodologies and benchmarks that result in low range estimates, which then lead to a choice of a point estimate which is lower than the evidence and academic and regulatory methodology can support. The Cost of Equity Report which accompanies this Notice provides further detail on the reasons why GEMA's approach is fundamentally flawed and therefore ought to be corrected by the CMA.

(146) In particular, GEMA's downward skew at the choice of ranges and parameters fails to take account of its principal objective and the need to maintain sustainable development of gas networks and incentivise and encourage investment. This is particularly important for NGN which, as the frontier company, has a key role in driving efficiencies forward. It is imperative for such a role that investors are rewarded in line with the risks they take. Similarly, GEMA's interpretation and use of evidence to support the position it has taken in the FD regarding cost of equity is selective and inconsistent with well-established regulatory precedent (including from the CMA) and academic literature.

(147) In relation to the impact of GEMA's choices on investment and incentives, as well as the sustainable development of gas networks, the cost of equity in the FD:

(i) will fail to compensate fairly equity providers for the corresponding risks associated with their investment and consequently, fail to incentivise them to invest further in improvements to GDNs. The need for appropriate returns in order to stimulate investment in GDNs is particularly marked given the uncertainty over the future of the gas distribution sector in light of the UK Government's legally binding target of reaching net zero carbon emissions by 2050[109] and the general shift away from fossil fuels. Investors need fair returns for investment to compensate for the risks associated with legacy businesses with limited lifetime and potential stranded assets. GEMA's approach fails to take proper account of these risks, putting at stake continued investment in the sector;

(ii) will fail to incentivise NGN as a frontier company to continue making investment in efficiency improvements.[110] This has consequences not only for NGN's own efficiency, but for the efficiency of the sector as a whole. Investment by the frontier company is critical for pushing forward the frontier and allowing the benefits of comparative regulation to be realised; and

(iii) will lead to consumers suffering from reduced investment. Academic literature is clear that sacrificing long-run investment in favour of short-term bill reductions will have significant adverse consequences for consumer welfare.[111] In particular, if the allowed return is set too high, customers pay slightly more on their bills than they would have, had the allowance been set at the true cost of capital. 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, had the allowed return been set at the true cost of capital. The result in this case is a considerable

[108] Future of Gas Report, exhibited at (KPMG_FOG1_1).

[109] UK Net Zero News Story (NGNNOA1_222).

[110] *See* e.g. MH1, Section 5.2; Incentives Report, Section 3.4, exhibited at (IA1_1).

[111] The UKRN study, for example, demonstrates that the consumer welfare loss from underinvestment is greater than the consumer welfare loss from marginally higher prices, noting that "*with relatively low elasticities, the reduction in consumer surplus from setting the RAR, and hence the regulated price, too high is relatively small. In contrast, the welfare loss from setting the RAR (and hence the price) too low is relatively large. This leads to considerable aiming-up, as the optimal choice by the regulator*." See UKRN Study, p. 72 (NGNNOA1_183).

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.

(148) GEMA's downward skewed estimate of the cost of equity is the result of the use of materially flawed methodologies, assumptions and factual errors which are inconsistent with best regulatory practice and which fail to give due weight to well-established financial principles and evidence. In particular:

(i) GEMA has been **selective in its use of evidence**. It has used limited methodologies or pieces of evidence, rather than the full range of evidence available to it and which a regulator would be expected to use; it has selectively referred to academic literature and CMA precedent to support its chosen approach, while ignoring other approaches equally or more supported by literature and precedent; it has used selective quotes or statements from precedent that it claims support its approach while not presenting others which point to different conclusions. Examples of this can be seen in relation to:

(a) the RFR, with its use of only one instrument rather than other benchmarks supported by literature and finance theory, and GEMA's selective and misleading citation of CMA precedent;

(b) the risk facing GDNs, especially in the transition to a net zero economy, where GEMA has undertaken a limited assessment of those risks, resulting in flawed beta estimates and unpriced systematic and asymmetric risks;

(c) TMR, with GEMA's selective use of inflation series and averaging approaches; its analysis of cross-checks to the TMR; and its selective and misleading reference to CMA precedent; and

(d) the cross checks against which GEMA compares its assessed cost of equity, where GEMA has been selective and not used alternative cross-checks which suggest a materially higher cost of equity.

(ii) GEMA has **failed to take proper account of the weight of evidence and regulatory precedent** in support of approaches or methodologies other than the ones it uses. Examples of this include:

(a) RFR, where GEMA ignores evidence highlighting that its chosen approach will underestimate the RFR;[112]

(b) TMR, where GEMA has failed to consider other cross-checks, or evidence, suggesting weight should be placed on alternative inflation series and averaging approaches;[113] and

(c) its failure to aim up in spite of the clear economic benefits from doing so consistent with academic literature and regulatory precedent.

(iii) GEMA has **relied on evidence with fundamental weaknesses**, which it has not accounted for or explained. This is the case for evidence used in GEMA's analysis of, for example:

(a) the RFR, where it relies on arguments which are inconsistent with the fundamental principles of the economic framework underlying its approach – the CAPM;

(b) beta, where the set of comparators used by GEMA do not reflect the risk profile of GDNs and where statistical approaches GEMA used contain a number of methodological flaws;

[112] See e.g. Oxera Sovereign Yields Report (NGNNOA1_131).

[113] Oxera Cost of Equity Q4 Update, p. 16 (NGNNOA1_191).

(c) TMR, where it relies exclusively on an inflation series with significant flaws, and where it relies on an econometric study which has statistical flaws which invalidate its conclusions as well as cross-checks widely recognised as unsuitable for TMR estimation in a regulatory context;

(d) the appropriate point estimate for the cost of equity, where GEMA's justification for failing to aim up (despite claims to the contrary) is based on fundamentally incorrect economic reasoning in relation to the importance of aiming up for uncertainty; and

(e) the use of cross-checks for its cost of equity estimate, where GEMA has used flawed cross checks that do not reflect the risk profile of GDNs.

(iv) GEMA has **failed to justify properly** key parts of its conclusions. This for example is the case in relation to:

(a) the RFR, where it fails to explain effectively how its cross-checks support its conclusion;

(b) beta, where GEMA has not sufficiently explained how beta comparators have informed its range;

(c) TMR, where GEMA has not explained its methodology for the level of uplift required or the evidence it uses to justify a materially smaller uplift than recommended in other sources it cites; and

(d) the appropriate point estimate for the cost of equity, where GEMA has not justified or tested its assumption that asset stranding risk can be dealt with within the regulatory framework through changes to depreciation schedules and has not accounted for the asymmetry in the RIIO-GD2 package.

(v) GEMA has applied **approaches which are internally inconsistent**, thereby failing to have regard to the principle of best regulatory practice under which regulatory activities should be consistent. This is evident in GEMA's analysis of:

(a) the RFR, where its approach is inconsistent with the principles of the CAPM model which underlies GEMA's whole approach; and

(b) in its analysis of beta, where GEMA's chosen comparators do not reconcile with GEMA's statements about the specific risks facing GDNs.

(149) The net results of these errors, separately and cumulatively, is that GEMA has set a cost of equity which is too low. The combined effect of GEMA's errors is a shortfall of at least £5.76 million[114] and up to £15.45 million[115] p.a. (in 2018/19 prices).

(150) The rest of this Part proceeds as follows:

(i) Section 2 describes the framework for setting the cost of equity, the approach taken by NGN in its business plan ("**Business Plan**") and the developments that have taken place since then.

(ii) Section 3 sets out the risks facing GDNs.

[114] This conservative estimate has been calculated by comparing GEMA's assessed cost of equity point estimate of 4.55% with the lower end of the market-implied CAPM-based cost of equity (5.18%) as set out in the Cost of Equity Report. This estimate does not reflect the necessary (i) aiming-up allowance to compensate for the risk that the allowance is set too low given the uncertainty in the CAPM parameter estimates; or (ii) aiming-up allowance to compensate investors for the asymmetric risk faced by GDNs due to the net zero agenda and related gas sector specific factors.

[115] This estimate has been calculated by comparing GEMA's assessed cost of equity point estimate of 4.55% with the upper end of the market-implied CAPM-based cost of equity (6.24%), as estimated by the Cost of Equity Report, exhibited at (KPMG_COE1_1).

(iii) Section 4 discusses the errors in GEMA's estimate of the risk-free rate, beta, total market return and point estimate for its assessed cost of equity.

(iv) Section 5 concludes why GEMA's FD on cost of equity is wrong.

(v) Section 6 sets out the relief sought.

2 Framework for setting the cost of equity, NGN's Business Plan approach and subsequent developments

(151) The cost of equity in regulatory charge controls is set using the CAPM, which is described by the following equation:

$$CoE = RFR + \beta\,(TMR - RFR)$$

(152) Where:

(i) RFR is the risk-free rate, i.e. the return expected from investing in riskless assets.

(ii) TMR is the total market return, which is the return expected by investors from a suitably diversified portfolio of equities.[116]

(iii) β is the equity beta, which is a measure of the systematic riskiness of equity assets of the sector in question, relative to markets as a whole.[117]

(153) The resultant cost of equity captures the return investors can expect on the market portfolio, given the systematic risks taken (measured by beta). It therefore directly estimates the opportunity cost to investors from investing in an average network company as it estimates what return investors can expect to achieve on the market portfolio, if they take risks commensurate with those in the regulated firm(s).

(154) As set out in the Witness Statement of Mark Horsley (MH1), the Appellant's Business Plan incorporated a challenging cost of equity value (5% CPIH real), which was consistent with the stretching approach NGN adopted in relation to other building blocks of its Business Plan.[118] This cost of equity put forward in the Business Plan was both provisional and subject to change, as well as conditional on the broader package set out within NGN's Business Plan.[119]

(155) The Appellant notes that since submission of its Business Plan, the risks faced by the Appellant (and other GDNs) have increased in magnitude and scope. The Future of Gas Report sets out the significant recent developments in UK Government policy in relation to decarbonisation of heat.[120] Since the business plan stage, a number of organisations, from Government and Government Agencies and industry, have expressed opinions on the potential future supply and demand mixes, such that there is a very wide range of potential pathways to decarbonisation, ranging from almost full electrification to hydrogen replacing and expanding the role of natural gas. For GDNs, these two scenarios (and the range of options in between) represent very different futures, with the former leading effectively to the decommissioning of GDNs' assets and at worst the risk of stranded assets; while the latter requires significant investment to repurpose and reinforce GDNs' assets to support hydrogen.

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[116] More accurately, the returns to investing in the market portfolio.

[117] More specifically, beta is estimated by computing the covariance of returns of a portfolio of comparable stocks with returns to the market portfolio, and normalising by the variance of returns to the market portfolio. Beta therefore captures systematic risk only, or risk that affects the market as a whole, as opposed to unsystematic risk or specific risks.

[118] MH1, para. 32.

[119] "*NGN's proposed financial RIIO-2 was designed to work only if all of its elements, including the overall WACC and the proposed Totex levels, were to be taken in the round. Therefore, without prejudice to our Business Plan submission, NGN supports industry-endorsed findings on the individual elements of CAPM and reiterates its disagreement with Ofgem's combined analysis and conclusions derived through Steps 1-3*". See DD Response Finance Annex, p. 23 (NGNNOA1_117).

[120] Future of Gas Report, p. 8, exhibited at (KPMG_FOG1_1).

3 The risks facing GDNs

(156) As set out in paragraph (147), the UK Government's legally binding target of reaching net zero carbon emissions by 2050[121] and associated shift away from fossil fuels gives rise to a significant degree of uncertainty over the future role of gas in the UK. As set out in the Future of Gas Report,[122] the challenge of decarbonising heat is significant and is less progressed than in other sectors. There is currently a range of potential scenarios for the evolution of the gas sector, which are to some extent bookended by a scenario which sees almost full electrification of heat and one which sees hydrogen effectively replace and expand the role of gas.

(157) These two different scenarios represent very different futures for GDNs. One leads at best to an ordered decommissioning of the assets as they become economically unviable, and at worst a risk of stranded assets. The other requires significant and rapid investment in repurposing and reinforcing existing assets. This results, as set out in the Future of Gas Report,[123] in a level of uncertainty which is unique to GDNs. No other regulated infrastructure sector faces such a spectrum of potential futures, with such polar opposite extremes, and such high a degree of uncertainty.

(158) This unique situation facing GDNs affects all aspects of the GDNs' business model, from recruitment and workforce planning, to financing and capital raising. It also means that investors in GDNs are currently experiencing heightened risk exposure, as set out in the Cost of Equity Report.[124] This risk exposure for investors, in turn, must be factored into any properly arrived at cost of equity allowance. The specific areas of relevance to the cost of equity allowance are:

(i) **Systematic risk**: This risk affects the market as a whole and cannot therefore be avoided through diversification. The step change in uncertainty and risk for GDNs arising from the net zero agenda has a systematic component, such that GDNs face greater systematic risk than, for example, electricity and water companies. This systematic component of the uncertainty facing GDNs stems, for example, from factors such as the likely greater ease or speed of transformation/repurposing of assets when the economy is doing well, and the greater likelihood of asset stranding in an economic downturn if the regulator is less likely to bring forward depreciation and raise prices to prevent asset stranding from occurring.

(ii) **Real options**: For investments whose payoffs depend on the resolution of uncertainty in the future, investors hold "real options" to, for example, delay investments and adopt a "wait and see" approach until uncertainty resolves. Investors will need a premium to be incentivised to give up that real option, and this needs to be factored into the allowed cost of equity. Investment in GDNs clearly has real option value, given the uncertainty facing the future of the sector and the discretionary nature of certain investment projects set out in paragraphs (156) to (157).

(iii) **Asymmetric risk**: Extreme events may create downside risk with no commensurate upside. This is the case for GDNs, where, as set out in the Future of Gas Report,[125] there is an extreme downside scenario where assets are stranded with a significant loss of value. While only one of a number of outcomes, the existence – even with very low probability – of such a scenario means that the risks facing GDNs are skewed asymmetrically such that investors face an expected loss overall. These extreme downside scenarios, and therefore the existence of asymmetric risk, is not present for other regulated utilities: in particular electricity and water. In addition, the

[121] UK Net Zero News Story (NGNNOA1_222).

[122] Future of Gas Report, p. 36, exhibited at (KPMG_FOG1_1).

[123] Future of Gas Report, p. 36, exhibited at (KPMG_FOG1_1).

[124] Cost of Equity Report, paras. 7.4.1 to 7.4.5, exhibited at (KPMG_COE1_1).

[125] Future of Gas Report, para. 9.1.4, exhibited at (KPMG_FOG1_1).

asymmetry in the RIIO-GD2 financial package as discussed in Part VI (Appeal Ground 2: Outperformance Wedge), creates asymmetric risk for GDNs.

(159) These points need to be factored into the return on equity allowance, through the beta estimate and the selection of a point estimate for the regulator's allowed return on equity where appropriate.

(160) However, GEMA's cost of equity assessment does not analyse, assess or provide for these GDN-specific risks. This gives rise to specific errors both in GEMA's beta estimation and in GEMA's selecting of a particular point estimate, set out in section 4.

4 GEMA's errors in its approach to cost of equity

4.1 RFR

(161) The RFR is the rate of return expected by investors for holding an asset with a future payoff with zero risk. As set out in the Cost of Equity Report,[126] within the standard CAPM framework, this riskless asset is assumed to exist, and investors can borrow and lend unlimited amounts at this riskless rate of interest without restriction.

(162) As a recognised hypothetical concept, such perfectly riskless rate of interest does not, in fact, exist. In practice, however; the RFR is estimated by selecting an instrument or instruments which are considered to have negligible risk over the relevant holding period and observing market evidence of the expected return from investing in those over the same period.

4.1.1 GEMA's approach

(163) GEMA has estimated the RFR based on the yields on 20-year RPI-linked gilts ("**ILGs**"). It adjusts RPI-linked bonds to a CPIH basis using Office of Budget Responsibility ("**OBR**") forecasts of Retail Price Index ("**RPI**") and CPIH inflation (and specifically, the wedge between the two).

(164) GEMA has introduced an indexation mechanism for the RFR, whereby a one-month average of the 20-year ILG rate (adjusted so that it is on a CPIH basis) will be used to annually update the RFR (and thereby, the cost of equity).

(165) GEMA also looked at 20-year SONIA[127] swap rates and 20-year nominal gilts, concluding that estimates of the RFR based on these instruments are similar to its estimate based on ILGs, ultimately not placing any separate weight on these alternative estimates in its RFR calculation.

4.1.2 GEMA's errors in setting the RFR within cost of equity

(166) GEMA's estimate of the RFR, therefore, is based exclusively on yields on 20-year ILGs, which is, according to GEMA, "*simpler, more principled, and supported by greater precedent, than other methods or combinations of methods*".[128]

(167) GEMA, contrary to what would be reasonably expected from a regulator, has not given any weight to alternative instruments for the purposes of its RFR calculation, despite evidence submitted by GDNs in the form of expert reports and the CMA's provisional findings in PR19 ("**PR19 Provisional Findings**"). In particular, GEMA has not placed any weight on AAA-rated corporate debt. GEMA has also ignored the fact that its own cross-checks (SONIA rates or nominal gilts (even with their flaws set out in the Cost of Equity Report)), also suggest a figure higher than the RFR estimated solely using ILGs. Choosing ILGs as the sole basis for estimating the RFR leads to an incorrect view of the RFR faced by GDNs.

[126] Cost of Equity Report, para. 6.3.2, exhibited at (KPMG_COE1_1).

[127] Sterling Overnight Index Average.

[128] FD Finance Annex (revised), p. 31 (NGNNOA1_162).

(168) While the CMA has previously looked at ILGs, it has also considered AAA-rated corporate bonds. GEMA's explanation for why it would not be appropriate to refer to this alternative instrument is not consistent with CMA precedent and fails to recognise the need to more closely reflect the cost of borrowing for market investors (as opposed to governments). GEMA's erroneous approach to RFR can be summarised as follows:

(i) As set out in the Cost of Equity Report,[129] non-government market participants are not able to issue debt on the same basis as the Government, due to Government bonds offering further additional benefits compared to other comparable securities. The result of this is that the Government can borrow at rates substantially lower than even highly rated non-government market participants. In other words, ILGs do not represent the riskless rate at which non-government market participants can borrow. Market participants, including investors in listed equity markets (the reference point for GEMA's evaluation), are predominantly non-government entities.

(ii) In relying exclusively on ILGs, GEMA's approach is thereby inconsistent with the principles of the CAPM framework, that being the framework on which GEMA states it has based its approach to estimating the cost of equity. As referred to in paragraph (161) and as discussed in the Cost of Equity Report,[130] the RFR in CAPM is based on a rate which is available to the marginal investor in the market portfolio *to both borrow and lend*. If non-government market participants cannot borrow at the rate implied by GEMA's chosen instrument for estimating the RFR, then this clearly implies that the instrument used is inconsistent with the principles of the CAPM framework.

(iii) GEMA's decision to continue to rely on ILGs is based on an argument from a submission made to the CMA in the context of the *PR19 Provisional Findings* by two academics, Stephen Wright and Robin Mason.[131] However, this argument is flawed, since it too is based on a fundamental misapplication of the principles of the CAPM framework. GEMA argues that it is not appropriate to distinguish between lending and borrowing rates for CAPM without considering whether marginal investors in regulated utility companies are net lenders or borrowers. Arguing that the marginal investor in energy networks is effectively a net lender, GEMA concludes that ILGs are appropriate for estimating the RFR. As can been seen from this discussion, GEMA (and Wright and Mason) focus on the marginal investor in an energy network. However, as set out in the Cost of Equity Report,[132] the relevant marginal investor within the CAPM framework is the investor in the market as a whole, not in energy networks specifically. GEMA's argument supporting its continued reliance exclusively on ILGs is therefore fundamentally inconsistent with the core model (CAPM) on which its approach is based.

(iv) GEMA states that its indexation of the RFR should "*reduce the risk that the allowances would necessarily underestimate RFR – to the extent that ILG are, currently, underestimates of the RFR, it is more difficult to suggest this would remain the case for all future periods*".[133] This argument is incorrect, and demonstrates GEMA's failure to have due regard for the underlying reasons why sole reliance on ILGs is inappropriate. As set out in the Cost of Equity Report,[134] the yields on ILGs have consistently, over a period of 20 years, been below those of AAA-rated corporate debt. The reason for this difference is, as set out in point (i), that government bonds

[129] Cost of Equity Report, para. 6.3.12, exhibited at (KPMG_COE1_1).

[130] Cost of Equity Report, para. 6.3.2, exhibited at (KPMG_COE1_1).

[131] FD Finance Annex (revised), para. 3.14 (NGNNOA1_162); Wright & Mason PR19 Report (NGNNOA1_224); Cost of Equity Report, para. 6.3.16, exhibited at (KPMG_COE1_1).

[132] Cost of Equity Report, para. 6.3.27, exhibited at (KPMG_COE1_1).

[133] FD Finance Annex (revised), para. 3.20 (NGNNOA1_162).

[134] Cost of Equity Report, para. 6.3.5, exhibited at (KPMG_COE1_1).

confer additional benefits such as a convenience premium, such that the Government is able to borrow at lower rates than other non-government market participants. Indexing the RFR does not remove this fundamental reason for why ILGs will underestimate the appropriate RFR within the CAPM framework, as demonstrated by the evidence on yields over time.

(v) In claiming that "*the overwhelming weight of academic theory and of suggested practice, regarding RFR estimation, supports the use of ILGs*",[135] GEMA presents an unfortunately partial view of the academic literature and regulatory practice, which is apt to mislead. As set out in the Cost of Equity Report,[136] there is a substantial body of corporate finance literature which points to the need to adjust the RFR derived from ILGs due to it not being a borrowing rate that is achievable by all market participants. As regards regulatory practice, the decision by GEMA in RIIO-GD2 (and also Ofwat in PR19), towards setting the RFR based on spot yields, rather than a more robust approach, citing only the high level recommendation in the UKRN Study, means that the CMA's detailed consideration of this approach in *PR19 Provisional Findings* is the relevant regulatory precedent for setting the RFR using spot market data . GEMA's statement is therefore inapt.

(vi) GEMA's approach is at odds with the approach taken by the CMA in the *PR19 Provisional Findings*, where the CMA calculated the RFR "*by placing weight on both long-tenor index-linked gilts and AAA-rated non-government bonds (the highest quality commercial debt)*".[137] In particular, in the *PR19 Provisional Findings*, the CMA (i) adopted the use of a range for the RFR where the upper bound was based on the AAA corporate debt rate;[138] and (ii) applied a 6-month average extending from the 1-month average used by GEMA, acknowledging that averaging periods that are too short risk the introduction of inappropriate levels of volatility into the estimation process.[139]

(vii) Further, GEMA's interpretation of the CMA position is highly selective and self-serving. GEMA refers to the CMA's statement that "*ILGs closely but imperfectly match the key requirements of the RFR*", concluding that this implies that "*using ILGs is not necessarily wrong in the CMA's view*".[140] However, the CMA also stated that "*yield on ILGs is likely to sit below the 'true' estimate of the theoretical RFR*"[141] and that ILGs "*are unlikely to provide a perfect (or **wholly sufficient**) proxy for the RFR in isolation*"[142] (emphasis added). These quotes demonstrate that, contrary to GEMA's conclusion, the CMA has found that using ILGs in isolation is wrong. Furthermore, mirroring the CMA quote that GEMA cites to support its reliance on ILGs, the CMA used the exact same language to describe AAA-rated corporate bonds, stating that they "*closely but imperfectly match the key requirements of the RFR*".[143] For GEMA to use this quote from the CMA to support its chosen instrument, while simultaneously dismissing AAA-rated corporate bonds, an approach that the CMA states meets the exact same criteria, is in itself rather surprising, but it gives a telling insight into the 'blinkered' approach that GEMA has adopted.

(viii) GEMA states that it does not use nominal corporate bonds, as the CMA does, because this "*risks introducing errors*".[144] GEMA refers to nominal corporate bonds embedding an inflation risk

[135] FD Finance Annex (revised), para. 3.13 (NGNNOA1_162).

[136] Cost of Equity Report, para. 6.3.11, exhibited at (KPMG_COE1_1).

[137] *CMA's PR19 Provisional Findings*, para. 12.44 (NGNNOA1_186).

[138] *CMA's PR19 Provisional Findings*, para. 9.137 (NGNNOA1_186).

[139] *CMA's PR19 Provisional Findings*, para. 9.126 (NGNNOA1_186).

[140] FD Finance Annex (revised), para. 3.10 (NGNNOA1_162).

[141] *CMA's PR19 Provisional Findings*, para. 9.135 (NGNNOA1_186).

[142] *CMA's PR19 Provisional Findings*, para. 9.88 (NGNNOA1_186).

[143] *CMA's PR19 Provisional Findings*, para. 9.137 (NGNNOA1_186).

[144] FD Finance Annex (revised), para. 3.16 (NGNNOA1_162).

premium in their yield, as well as making brief reference to liquidity premia.[145] However, the sole use of ILGs also introduces error, and GEMA's dismissal of an alternative instrument on that basis is selective. GEMA's approach, relying solely on ILGs, introduces error by selecting an instrument that does not reflect the rate at which market participants can borrow and is distorted by a convenience premium and therefore underestimates the RFR, as explained above. GEMA has been partial and selective in dismissing alternative approaches, in particular its dismissal of placing weight on AAA-rated corporate debt as the CMA has done in the *PR19 Provisional Findings*.

(169) GEMA states that it has "*looked for other measures as a cross-check to the use of ILGs*",[146] and presents estimates of the RFR based on SONIA 20-year swap rates and 20-year nominal gilts. GEMA concludes that these cross-checks demonstrate that "*multiple methods can arrive at a similar value*"[147] for the RFR. These statements and conclusion are however not supported by the evidence to which GEMA refers and relies on:

(i) Both of those alternative instruments give materially higher estimates of the RFR in CPIH real terms,[148] and it is unclear on what basis GEMA seeks to present these values as being 'similar' to its own estimate.

(ii) SONIA swap rates suffer from a number of serious distortions, as set out in the Cost of Equity Report.[149] First, the Bank of England only publishes rates that have been derived using SONIA contracts up to a maximum maturity of 5 years, because of diminished liquidity for maturities in excess of five years. The 20-year SONIA swap rate is therefore likely to embed a liquidity premium. Second, SONIA swap contracts are typically collateralised, such that an investor attempting to replicate a risk-free asset by purchasing SONIA -based swaps will have to post and receive collateral in the amount of the prevailing value of the swap. These in-period cashflows violate the strict assumptions underpinning the concept of the risk-free asset. GEMA has failed to consider these serious shortcomings.

(iii) Further, SONIA 20-year swap rates are accessible only to financial institutions. As with ILGs, these cannot therefore represent a reference point for the RFR achievable to all market participants. As such, this cross-check – while producing a higher RFR estimate – also fails properly to correct for the fundamental weakness which causes GEMA's preferred instrument (ILGs) to underestimate the RFR.

(iv) GEMA's estimate of the RFR based on nominal gilts gives an estimate 51bps higher than GEMA's estimate using ILGs. As explained in the Cost of Equity Report,[150] this difference cannot be explained purely by the inflation risk premium, and therefore the yields on nominal government rates indicate that GEMA's ILG benchmark is not reflective of the full set of evidence on the RFR available.

(v) As noted in paragraph (169), the 'multiple methods' that GEMA is referring to is a selective set of measures. In particular, GEMA has not included AAA-rated corporate bonds which are a better benchmark for the risk-free borrowing rate, as recognised by the CMA, which relied on this instrument in the *PR19 Provisional Findings*. A methodology for estimating the RFR which places

[145] FD Finance Annex (revised), para. 3.10 and footnote 61 (NGNNOA1_162).

[146] FD Finance Annex (revised), para. 3.17 (NGNNOA1_162).

[147] FD Finance Annex (revised), para. 3.20 (NGNNOA1_162).

[148] FD Finance Annex (revised), Table 8 (NGNNOA1_162).

[149] Cost of Equity Report, para 6.4.7, exhibited at (KPMG COE1_1).

[150] Cost of Equity Report, para. 6.4.7, exhibited at (KPMG_COE1_1).

weight on AAA-rated corporate bonds produces a materially higher estimate than that of GEMA, as set out in the Cost of Equity Report.[151]

(vi) Overall, GEMA's statement that multiple different methods arrive at the same conclusion is wrong, since its methods are flawed, including some of the methods it chooses suffering from similar (or the same) problems as its main estimate based on ILGs.

(vii) Some of the alternative methods demonstrate higher values for the RFR, and GEMA fails to consider these methods and provide an explanation for not taking them into account despite the number of submissions put forward during the RIIO-GD2 process to this effect.[152] This is particularly the case in relation to AAA-rated corporate bonds, which give materially higher estimates of the RFR.[153]

4.1.3 The impact of GEMA's errors on its RFR estimate

(170) Overall, the errors in GEMA's approach lead it to erroneously underestimating the RFR. These errors are the result of its selective use of evidence, its failure to put proper weight on other approaches or to have due regard to the weight of evidence which demonstrates that its RFR sits below the 'true' estimate of the theoretical RFR.

(171) As such, GEMA's interpretation of the evidence appears to be skewed towards producing a lower estimate for the RFR.

(172) The -1.58% RFR set by GEMA is 42 bps lower than the RFR estimated in the Cost of Equity Report,[154] which places equal weight on both ILGs and AAA debt to derive RFR.

(173) GEMA's errors in estimating the RFR have a material impact on the value for the RFR included within its cost of equity estimate. In particular, the Cost of Equity Report estimates that the appropriate RFR over the RIIO-GD2 period is -1.16 %, post forward rate uplift, informed by the average yield achievable on 20-year ILGs and corporate AAA-rated bonds.[155] These estimates are supported by the nominal Gilt cross check. Consequently, the -1.58% RFR set by GEMA is 42 bps lower than this estimate, illustrating the material impact of GEMA's error.

4.2 Beta

(174) Beta is a parameter in the CAPM which measures the exposure to systematic (or undiversifiable) risk of the company or sector in question. It defines where, with reference to the expected returns on a suitable risk-free asset and the risky market, the expected returns on an investment in the company or sector should lie. If the company is listed, beta can be estimated directly based on the publicly available information on the company's shares. Similarly, if there are at least some listed companies within a sector, then information on those companies' share price can also be used to estimate beta for the sector as a whole.

(175) Where there are no listed companies in a sector, beta has to instead be estimated by reference to the observed betas for companies in comparable sectors. This is the case for the GDN sector, where there are no listed operators in the UK. There are only two companies listed on the UK stock exchange with GB energy network subsidiaries – National Grid ("**NG**") and Scottish and Southern Energy ("**SSE**") – but neither is a pure-play GB energy network let alone a pure play GDN. Comparators can be sought in

[151] Cost of Equity Report, para. 6.2.15, exhibited at (KPMG_COE1_1).

[152] Oxera Cost of Equity Report, pp. 9 – 15 (NGNNOA1_225).

[153] See e.g. Ofwat Price Determinations Submission by Energy Networks Association (ENA), paras. 2.7 to 2.10, exhibited at (KPMG_COE1_2_046); Oxera Cost of Equity Report, p. 18 (NGNNOA1_225); DD Response Finance Annex, pp. 18 to 19 (NGNNOA1_117).

[154] Cost of Equity Report, para. 6.4.15, exhibited at (KPMG_COE1_1).

[155] Cost of Equity Report, Table 9, exhibited at (KPMG_COE1_1).

other sectors, including water companies listed on the UK stock market and energy network companies listed on stock markets outside the UK.

(176) When appropriate comparators are selected, beta is estimated through statistical modelling of the comparators' share prices as compared to a market index.

4.2.1 GEMA's approach

(177) GEMA acknowledges that there are no listed GDNs and that there is therefore a need to refer to comparators.[156]

(178) The main comparators chosen by GEMA to proxy GB energy networks' beta include NG and the listed UK water companies (Severn Trent, United Utilities and Pennon). GEMA's use of water comparators as 'good proxies'[157] for GB energy networks was informed by analysis by GEMA's advisers, CEPA, at the draft determinations ("**DD**") stage.[158] GEMA states that it places relatively more weight on the NG beta rather than water companies, in response to company submissions and market evidence.[159]

(179) GEMA considers evidence from European comparators in its DD,[160] but these do not appear to form a part of GEMA's estimate for beta in the FD.

(180) As regards the statistical modelling of the comparator betas, GEMA:

(i) uses a range of estimation windows (2-year, 5-year and 10-year) and uses a range of averaging techniques (spot, 2-year, 5-year), though it places relatively more weight on larger samples of data, such as the 10-year estimation window or 10-year average of the smaller windows;

(ii) relies on the evidence from ordinary least squares ("**OLS**") regressions, but takes into account the downward pressure on the OLS values from GARCH regression results, risk reduction policies for RIIO-GD2 and specific recent events;

(iii) with regard to sampling frequencies, relies solely on daily data; and

(iv) uses a cut-off date of October 2020, and therefore includes 9 months of data where markets were impacted by COVID-19.[161]

(181) Overall, GEMA arrives at a point estimate of 0.31 (the mid-point of a range of 0.285 to 0.335) for the asset beta on a 0-debt beta basis. Combined with a debt beta of 0.075 and notional gearing of 60%, this results in an asset beta estimate of 0.35 and an equity beta estimate of 0.76.[162]

4.2.2 GEMA's errors in setting the Beta within Cost of Equity

(182) When assessing how to account for the risks faced by GDNs[163] within its beta estimate, GEMA's approach has been selective and fails to provide sufficient explanation for the choices made by GEMA. GEMA fails to explain how it has addressed and taken account of those risks, has dismissed some alternative approaches and not discussed others. Ultimately, its approach to incorporating the systematic risk faced by GDNs in its cost of equity estimate amounts to stating that it has placed "*greater weight on*"[164] the NG group-level beta, as well as noting that it will keep the issue under review for RIIO-

[156] FD Finance Annex (revised), para. 3.69 (NGNNOA1_162).

[157] FD Finance Annex (revised), para. 3.69 (NGNNOA1_162).

[158] CEPA's Beta Estimation Issues Report (NGNNOA1_226).

[159] FD Finance Annex (revised), para. 3.69 (NGNNOA1_162).

[160] DD Finance Annex, para 3.51 (NGNNOA1_156).

[161] This assumes that the effects of COVID-19 started in March 2020.

[162] FD Finance Annex (revised), para. 3.63 (NGNNOA1_162).

[163] *See* section 3 which sets out the risks facing GDNs.

[164] FD Finance Annex (revised), para. 3.69 (NGNNOA1_162).

3. In light of the extensive submissions made by GDNs (including by NGN) during the RIIO-GD2 process regarding beta,[165] GEMA has failed to provide for GDN-specific risks.

(183) This is evident through the following specific points.

(184) First, GEMA does not appear to have reached a clear conclusion on the risks facing GDNs, as compared to water companies and as compared to other energy networks. The evidence, reasoning and logic used to arrive at its beta estimates is opaque:

(i) GEMA states that it saw "*merit in placing greater weight on NG's observed beta*", in order to "*reflect network company submissions and market evidence*".[166] It is not clear whether this is because it views energy networks as systematically riskier than water companies or for another reason.

(ii) Furthermore, GEMA states that it places relatively more weight on NG relative to water company betas, but it has failed properly to explain how the NG beta has actually informed its beta range, as set out in the Cost of Equity Report.[167]

(iii) It is also not clear whether GEMA considers that GDNs have a higher risk profile than other energy networks. While GEMA makes a statement recognising the additional risk faced by GDNs from possible asset stranding,[168] besides water company betas, GEMA uses only NG's group-level beta as a comparator. NG Group includes electricity transmission and gas transmission, as well as US operations (as well as gas distribution for part of the period). Therefore, even if GEMA placed more weight on the NG group-level beta (and it is not clear the extent that it does), this does not fully capture the specific systematic risks faced by GDNs as a result of asset stranding.

(185) Second, GEMA has not taken into account clear evidence showing that beta estimates for UK GDNs should be higher than water companies and higher than other energy networks (and specifically than NG group-level):

(i) As set out in section 3, investors in GDNs are currently experiencing heightened risk exposure, a component of which is systematic. As set out in the Cost of Equity Report,[169] GEMA's use only of water companies and NG-group as beta comparators does not provide for this GDN-specific systematic risk.

(ii) Empirical evidence from European comparators demonstrates the beta for GDNs is significantly above the value GEMA has arrived at, as set out in the Cost of Equity Report. GEMA's advisers, CEPA, endorse the view that European energy networks are suitable comparators for UK energy networks.[170] Against that background it is rather surprising that GEMA has failed to place any weight on any evidence from European comparators in the FD, and they do not inform its range.

(iii) GEMA's lack of inclusion of these comparators may be because the inclusion of European comparators based on the sample developed by CEPA at the DD stage would not have altered the estimate materially.[171] However, CEPA's sample of European comparators is likely to

[165] See e.g. DD Response Finance Annex, p. 19 (NGNNOA1_117); Proposed Financial Packages, p. 6 (NGNNOA1_092); Oxera Cost of Equity Q4 Update, Section 3 (NGNNOA1_091).

[166] FD Finance Annex (revised), para. 3.69 (NGNNOA1_162).

[167] Cost of Equity Report, section 7.3, exhibited at (KPMG_COE1_1).

[168] FD Finance Annex (revised), para. 3.62 (NGNNOA1_162).

[169] Cost of Equity Report, para. 7.5.1, exhibited at (KPMG_COE1_1).

[170] CEPA's Beta Estimation Issues Report (NGNNOA1_226).

[171] GEMA notes in the DD that using the "*preferred sample of comparators, CEPA find evidence of asset beta that is consistent with, if not lower, than GB water networks. This indicates that evidence from the most relevant European comparators, supports, or even puts*

produce downwardly biased estimates of beta, as set out in the Cost of Equity Report.[172] GEMA has failed to include evidence from a sample of European comparators that are sufficiently comparable with UK GDNs. Results from this sample demonstrate that the asset beta of GDNs is likely to be materially higher than GEMA's estimate, as set out in the Cost of Equity Report.[173]

(iv) Data from European comparators finds powerful evidence of the systematically higher risk for gas, compared to electricity companies. GEMA, and its advisers CEPA, failed to consider this evidence at all. The Cost of Equity Report sets out analysis that compares the betas of gas networks with electricity networks within Spain and within Italy.[174] The analysis finds that the gas networks have materially higher asset betas than electricity networks, and that this difference increases over time. Specifically, the 5-year asset beta for Enagas (Spanish gas transmission) is 0.06 above Red Electrica (Spanish electricity transmission), and the 5-year asset beta for Snam (Italian gas transmission) is 0.05 above Terna (Italian electricity transmission). Given that the gas and electricity networks compared through this analysis operate in the same countries under the same regulatory regime, as concluded in the Cost of Equity Report, the key difference explaining this divergence is likely to be the greater systematic risk faced by the gas sector.[175] This provides strong evidence on the particular risks faced by GDNs, which GEMA has failed to take into account.

(v) Analysis of the NG beta reveals the significant difference in risk faced by GDNs versus GEMA's comparators. The NG group-level beta has sat above the beta of water companies, in particular over the last five years, demonstrating the material difference between energy and water companies. This highlights the problems associated with the issue discussed in paragraph (184) where it is not clear whether GEMA has placed greater weight on NG rather than water company betas.

(vi) Furthermore, GEMA uses only the group-level NG beta. NG's US business generated c. 40% of NG's group operating profits in the last ten years and is primarily subject to a lower risk regulatory regime. This means that the group-level NG beta incorporates a material proportion of lower risk cashflow and does not accurately reflect the riskiness of the UK regulated business. The Cost of Equity Report[176] sets out decomposition analysis which strongly suggests that the UK network business of NG has an asset beta which is significantly in excess of NG group-level, and of GEMA's beta estimate.

(186) Third, GEMA's measurement of beta, even within its inappropriate comparator set, also suffers from a number of methodological shortcomings. In particular:

(i) GEMA has failed appropriately to weight the data derived from the COVID-19 period. As noted in paragraph (180), GEMA's betas are estimated using data up to October 2020, and thereby include a substantive portion of the impact COVID-19 on the data. GEMA has not, however, included any discussion of how this period might have affected the beta estimates. GEMA's approach places undue weight on this period into the estimates. For example, a 5-year beta assumes that a similar global pandemic will happen c.1 in every 7.5 years in the future.[177]

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downward pressure on asset beta estimates, compared to our preferred four comparator stocks". DD Finance Annex (revised), p. 47 (NGNNOA1_156).

[172] Cost of Equity Report, para. 7.4.44, exhibited at (KPMG_COE1_1).

[173] Cost of Equity Report, para. 7.4.55, exhibited at (KPMG_COE1_1).

[174] Cost of Equity Report, paras. 7.4.56 and 7.4.57, exhibited at (KPMG_COE1_1).

[175] Cost of Equity Report, para. 7.4.61, exhibited at (KPMG_COE1_1).

[176] Cost of Equity Report, paras. 8.4.13 – 8.4.24, exhibited at (KPMG_COE1_1).

[177] Assuming the effects of COVID-19 on beta started in March 2020, or once every five years if a full year of COVID-impacted data was used.

(ii) GEMA incorporates rolling averages of beta estimates into its assessment. This is statistically unjustified. The rolling average approach effectively introduces an unequal weighting scheme, that places least weight on the most recent (and most early) observations.

(iii) 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 bias the betas estimated for the water companies GEMA seeks to rely on as comparators. For a fuller discussion of this issue see paragraphs 8.3.6 to 8.3.9 of the Cost of Equity Report.

(iv) 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 to 8.3.43 of the Cost of Equity Report.

(v) 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 they add considerable complexity. For a fuller discussion of this issue see paragraphs 8.3.21 to 8.3.25 of the Cost of Equity Report.

4.2.3 The impact of GEMA's errors on its beta estimate

(187) Overall, these errors amount to GEMA consistently choosing comparators for estimating beta that fail to provide for the systematic risks faced by GDNs and incorrectly estimating the betas for its chosen comparators.

(188) The Cost of Equity Report sets out a range for the beta estimate within the assessed cost of equity which reflects a robust analysis of risk and balanced review of the evidence, in contrast to GEMA's approach.[178] The approach takes into account the systematic risk faced by GDNs by including within the range a prudent interpretation of the evidence from NG group, NG decomposition analysis and European comparators.

(189) The Cost of Equity Report also corrects for the methodological errors in GEMA's approach referred to in paragraph (186).

(190) The 0.35 beta set by GEMA is lower than the 0.38 mid-point of the range estimated in the Cost of Equity Report.[179] The nature of GEMA's error is material and has a significant impact on the allowed return on equity.

4.3 Total Market Return

(191) The TMR is the return expected by investors from investing in a portfolio of equities known as the market portfolio. It is not directly observable, as it is a forward-looking estimate of investors' expectations. As such, the TMR must be estimated.

(192) As set out in the Cost of Equity Report,[180] there are several approaches in principle available to estimate TMR: historical ex post returns; forward-looking estimates; or historical ex ante returns. The approach used most commonly by regulators is the historic ex post approach, which amounts to using averages

[178] Cost of Equity Report, para. 7.5.2, exhibited at (KPMG_COE1_1).

[179] Cost of Equity Report, para. 8.5.9, exhibited at (KPMG_COE1_1).

[180] Cost of Equity Report, para. 5.2.2, exhibited at (KPMG_COE1_1).

of historical long-run returns (typically since 1900) as estimates of the TMR. Within the historic ex post method, there are two key methodological choices, as discussed in the Cost of Equity Report:[181]

(i) Inflation series: the inflation index used in order to deflate nominal historic returns and derive TMR in real terms.

(ii) Averaging: the approach to averaging annual historic returns. At the headline level, the choice is between geometric and arithmetic averages. The arithmetic average is the best estimate of TMR over a one year holding period, and the geometric average is the best estimate of the returns for holding a portfolio of equities over the full 120-year period. However, when setting the regulatory cost of equity, consideration of the appropriate averaging approach to derive a TMR for a long-run investment horizon of 10 to 20 years is required. If annual returns are independent and there is no predictability in equity returns over time (i.e. returns are serially uncorrelated), then the arithmetic average will provide an unbiased estimate of TMR for 10- and 20-year investment horizons. However, if there is some predictability (or serial correlation) in returns, the return on a 10 to 20-year investment horizon will lie somewhere between the geometric and arithmetic average.

(193) As set out in the Cost of Equity Report,[182] the other two approaches (forward-looking and historic ex ante approaches) have largely been used as cross-checks for the historic ex post approach, though as discussed further in paragraph (200), significant concerns have been expressed about the reliability of forward-looking approaches in particular:

(i) Forward-looking dividend discount models: estimate TMR based on the implied return from current share prices and dividend forecasts, with the implied discount rate across the market portfolio being the estimate of TMR.

(ii) Historic ex ante approaches: apply forward-looking dividend discount models over the long-run past.

4.3.1 GEMA's approach

(194) GEMA has stated that it used long-run outturn average returns to estimate TMR (a historic ex post approach), while also placing due weight on forward-looking expectations.[183]

(195) GEMA's estimated range for TMR based on its historic ex post approach is 6% to 7% (in CPIH real terms).

(196) GEMA then uses forward-looking approaches as a cross-check. GEMA's final estimated range for TMR is 6.25% to 6.75% (in real CPIH real terms).

4.3.2 GEMA's errors in setting the TMR within Cost of Equity

(197) Within its historic ex post approach for estimating TMR, GEMA has used a composite inflation series in order to translate nominal historical returns into real terms: the consumer expenditure deflator ("**CED**") for the returns between 1900 and 1947; and the consumer price index ("**CPI**") for returns since 1947. GEMA cross checks the real TMR using this approach with the real TMR earned by a USD investor in UK equities.[184] In doing so, GEMA has:

(i) selectively relied on only one measure of inflation (CPI) for the period 1948 onwards, not placing any weight on an alternative measure of inflation (RPI). This approach pays insufficient attention to the clear flaws with the CPI series, a series whose accuracy cannot be ascertained during a

[181] Cost of Equity Report, para. 5.2.6, exhibited at (KPMG_COE1_1).

[182] Cost of Equity Report, para. 5.3.4 - 5.3.6, exhibited at (KPMG_COE1_1).

[183] RIIO-GD2 Sector Specific Methodology Decision, para. 3.104 (NGNNOA1_149).

[184] FD Finance Annex (revised), para. 3.90-3.91 (NGNNOA1_167).

large portion of the estimation window and whose accuracy is questioned by its own producers. As noted by the Office of National Statistics in relation to the CPI series "*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. For the same reason, these estimates are not National Statistics*";[185]

(ii) as a result, failed to give proper weight to RPI. While there are recognised flaws in RPI, it also has the advantage of being an official statistic and, crucially, being based on actual data for the large majority of the estimation window, whereas CPI is based on a statistical derivation from underlying data. The flaws in RPI predominantly impact the period from 2010 onwards and are largely forward-looking considerations. GEMA has therefore provided an inadequate and flawed justification for rejecting RPI in its entirety when estimating TMR;

(iii) been inconsistent in its treatment of different discrepancies and flaws in different inflation series. While GEMA places no weight on the RPI series due to the flaws which affect RPI predominantly from the period 2010 onwards, the older data on which GEMA relies also has significant data quality issues. In particular, the CED series prior to 1938 has particular reliability issues yet is included in full in GEMA's TMR estimate. The estimates of market returns for this period, based on this inflation series, are significantly lower than in later periods, as set out in the Cost of Equity Report.[186]

(iv) followed an approach which is inconsistent with CMA and other regulatory precedent,[187] which supports putting weight on both inflation series;

(v) selectively used international TMR evidence in placing weight on the USD return in UK equities. Evidence from a wider range of countries with comparable corporate governance shows that both USD and GBP returns are materially higher than GEMA's TMR. Evidence in the Cost of Equity Report demonstrates that the average real TMR from international evidence is 7.4 to 7.7% (real CPIH);[188] and

(vi) overall, chosen an approach which leads to lower TMR estimates than would be the case were a more balanced approach, consistent with precedent, adopted.

(198) Within its historic ex post approach for estimating TMR, GEMA has used one approach to averaging historic long-run returns, using an uplift from the geometric average of 1.25 percentage points. As a result, GEMA has:

(i) applied an uplift which is below the mid-point of the uplift recommended by the UKRN Study of 1 to 2 percentage points, and is thereby selective even in terms of how it uses the approach set out by the UKRN Study which it relies on heavily in its analysis;

(ii) failed to have proper regard to the range of approaches in the finance literature. As set out in the Cost of Equity Report,[189] the finance literature sets out a range of approaches to average long-run returns, which support an average uplift of 1.5 percentage points (higher therefore than GEMA's uplift);

(iii) placed weight on a study with statistical errors in order to justify its selection of a low TMR range and point estimate. Specifically, GEMA cites a PwC report in support of an uplift towards the

[185] Oxera Cost of Equity Q4 Update, p. 16 (NGNNOA1_191).

[186] Cost of Equity Report, paras. 5.4.32 and 5.4.33, exhibited at (KPMG_COE1_1).

[187] See e.g. *CMA's PR19 Provisional Findings*, paras. 9.160, 9.161 (NGNNOA1_186); *NATS Final Report*, para. 13.198 (NGNNOA1_223); *NIE Determination*, para. 13,126 (NGNNOA1_211).

[188] Cost of Equity Report, table 7, exhibited at (KPMG_COE1_1).

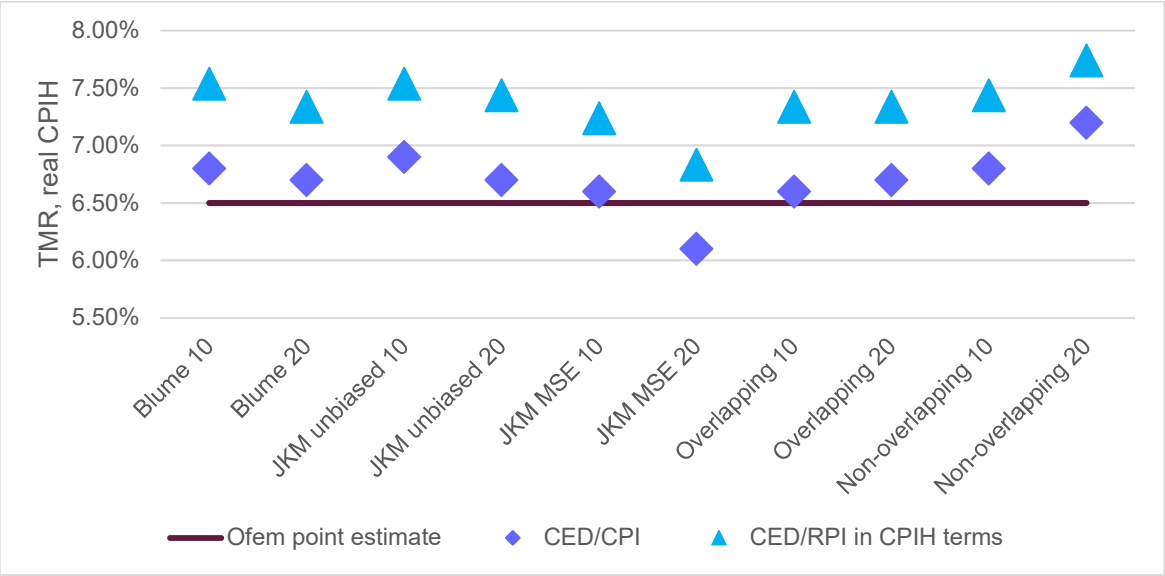
[189] Cost of Equity Report, para. 5.5.11, exhibited at (KPMG_COE1_1).

lower end of the range proposed by the UKRN Study. From Ofwat's latest submission to the CMA, the PwC low end of the range is incorrectly low due to a statistical mistake in its analysis.[190] It appears that GEMA did not properly test the conclusions of the PwC study before relying on it – despite PwC's low estimate being significantly out of line with that of other sources; and

(iv) followed an approach which is inconsistent with CMA (and CC) precedent, which in a number of previous decisions, as well as the recent *PR19 Provisional Findings*,[191] puts weight on a range of approaches to averaging in arriving at a final TMR estimate. The average uplift from the geometric average in the CMA's estimate is 1.5 percentage points.

(199) Taking the 1.5 percentage point uplift, which is supported by the UKRN Study, regulatory precedent and analysis in the Cost of Equity Report supports a TMR of 6.75%, solely relying on the CED/CPI approach.[192] GEMA's underestimate of the uplift required from the geometric average is evident from Figure 1 below, which compares GEMA's 6.5% estimate to the real TMR's estimated using the range of averaging techniques employed in the Cost of Equity Report and CMA precedent. GEMA's point estimate of 6.5% is plotted against real TMR estimates derived using either the CED/CPI (purple diamonds) or CED/RPI (blue triangles).

Figure 1: Comparison of GEMA's TMR estimate



Source: KPMG, based on *PR19 Provisional Findings* and GEMA FD

(200) GEMA has looked at forward-looking cross-checks in the form of: (i) a dividend growth model ("**DGM**") provided by its consultant advisers CEPA; and (ii) investment manager forecasts. After considering these cross-checks, GEMA narrows its estimated range for TMR compared to the range it arrives at following its historic ex post method. In this regard, GEMA has:

(i) selectively used only forward-looking cross-checks. As set out in the Cost of Equity Report,[193] finance literature and regulatory precedent point to other forms of cross-checks (based on historic ex ante approaches) being more reliable. However, GEMA has not presented any estimates from these alternative approaches, nor justified why its cross-checks focus exclusively on forward-looking approaches. The Cost of Equity Report sets out the results from a historic ex

[190] Ofwat, Reference of the PR19 final determinations: Cost of capital – final response to working papers (revised), para. 2.54, exhibited at (KPMG_COE1_2_028). See also Cost of Equity Report, para. 5.4.60, exhibited at (KPMG_COE1_1).

[191] *CMA's PR19 Provisional Findings*, paras. 9.176 to 9.184 (NGNNOA1_186).

[192] Cost of Equity Report, para. 5.4.62, exhibited at (KPMG_COE1_1).

[193] Cost of Equity Report, para. 5.4.71, exhibited at (KPMG_COE1_1).

ante approach (DMS decomposition), which point to TMR estimates above GEMA's range of 6 – 7% (CPIH real);[194]

(ii) placed significant weight on unreliable approaches. As set out in the Cost of Equity Report,[195] DGMs of the kind relied on by GEMA are widely recognised to be reliant on dividend forecasts and sensitive to assumptions about the long-term growth in dividends, making them unreliable. Further, the DGM used by GEMA (from its advisers CEPA) is likely to be downwardly biased due to its failure to apply a bias adjustment and use of depressed UK GDP growth rates. GEMA's other cross-check, forecasts from surveys of investment managers, are also recognised to have significant limitations, due to their reliance on the particular risk assessment of the fund manager and tendency to produce a wide range of estimates;[196]

(iii) provided inadequate justification for how its estimated range (and therefore point estimate) is arrived at. GEMA's historic ex post approach arrives at a range of 6% – 7% (CPIH real). While GEMA refers to cross-checks, the FD provides no clarity on how its cross-checks have factored into its estimate, since these are no longer discussed, but the range nevertheless is narrowed compared to that which was arrived at through GEMA's application of the UKRN Study approach. The basis on which GEMA arrives at its specific and narrow range of 6.25% – 6.75% is not clear; and

(iv) followed an approach which is inconsistent with CMA precedent. In the *PR19 Provisional Findings*,[197] the CMA has placed no weight on forward-looking approaches, noting their significant shortcomings. In the *NIE Determination*, while using forward-looking approaches as a cross-check, the CC also noted the significant limitations of both DGMs and investor surveys (the two approaches relied on by GEMA).[198] GEMA's discussion of the CMA view in the *PR19 Provisional Findings* is misleading. GEMA suggests that its range is not "*necessarily wrong*" in the CMA view but ignores the much clearer conclusion that its range is different from the CMA's (even more different when GEMA's narrower, unjustified range is used).

4.3.3 The impact of GEMA's errors on its TMR estimate

(201) Overall, the errors in GEMA's approach lead it to systematically underestimate the TMR. These errors are the result of its selective use of evidence, its failure to put proper weight on other approaches, and its use of evidence with fundamental weaknesses to support its position. As such, GEMA's interpretation of the evidence appears to be skewed towards producing a lower estimate for TMR.

(202) GEMA's errors in estimating the TMR have a material impact on the value for the TMR included within its cost of equity estimate.

(203) The Cost of Equity Report sets out an estimate of TMR based on a balanced review of the evidence and regulatory precedent and best practice. This concludes with an estimate of TMR of 7.0% to 7.2% (CPIH real). This is therefore significantly higher than GEMA's estimate of 6.25% to 6.75% (CPIH real), demonstrating the significant downward bias in GEMA's erroneous approach.

4.4 Setting a point estimate of cost of equity

(204) The CAPM framework (the parameters of which are discussed in the preceding sections) provides a market-based cost of equity. That is, the best estimate of the cost of equity from market data, over a particular time horizon.

[194] Cost of Equity Report, para. 5.5.4, exhibited at (KPMG_COE1_1).

[195] Cost of Equity Report, para. 5.4.68, exhibited at (KPMG_COE1_1).

[196] Oxera Review of Finance Issues Report (NGNNOA1_125); Oxera Cost of Equity Q3 2020 Update (NGNNOA1_140).

[197] *CMA's PR19 Provisional Findings*, paras. 9.204 to 9.215 (NGNNOA1_186).

[198] *NIE Determination*, paras. 13.131 to 13.147 (NGNNOA1_211).

(205) In a regulatory setting, there is then a second consideration of whether an adjustment to that market-based estimate should be applied for regulatory or policy considerations. The regulator needs to select a particular point estimate within that range, which, for regulatory or policy reasons may not be the mid-point.

(206) There is a well-established principle (known as 'aiming-up') whereby an estimate above the mid-point of the range is chosen due to the uncertainty around the parameter estimates, and the relatively worse consequences for consumer welfare of selecting a cost of equity that is too low. There are good reasons for choosing a point estimate from the upper end of that range, including to (i) promote long-term investment and address the risk of an exit of capital if the cost of equity is set too low; (ii) reflect structural asymmetries; and (iii) take into account a cross-check on financeability.[199] The paucity of direct comparators in estimating beta for GDNs in the UK, the asymmetric risk facing GDNs and the existence of real options given the uncertainty over the future of the GDN sector are factors that need to be taken into account specifically when setting the allowed return on equity for GDNs.

4.4.1 GEMA's approach

(207) In selecting the point estimates for each CAPM parameter, GEMA generally adopted the mid-point of its estimated range for each parameter (noting that as set out in the preceding sections, GEMA's range for each parameter was downwardly biased).

(208) In the FD, GEMA considered the rationale for selecting an estimate above the mid-point of the range, but concluded that none of asymmetric information, financeability considerations nor consumer welfare arguments warranted an estimate above the mid-point.[200]

(209) GEMA settles on a point estimate for its assessed cost of equity of 4.55%, being the mid-point of its range using its CAPM analysis. Despite its estimate being the mid-point of its CAPM-derived range, GEMA argues that its cost of equity assessment is "*arguably consistent with*" a degree of aiming-up, by reference to cross-checks it has considered.[201] Specifically, GEMA argues that since its estimate is above the mid-point of its range derived from cross-checks, it has effectively "*aimed up*".[202]

4.4.2 GEMA's errors in setting the point estimate for cost of equity

(210) In selecting the mid-point of its CAPM-derived range, GEMA has failed to aim-up to account for (i) the inherent uncertainty within CAPM-estimation; (ii) the expected loss facing GDNs as a result of the asymmetric risks unique to the gas sector; (iii) the real options available to investors in GDNs; and (iv) the asymmetry in the RIIO-GD2 financial package. Additionally, because GEMA's cross-checks are flawed, there is no basis for considering that it has "*arguably*"[203] aimed up.

(211) In selecting a point estimate at the mid-point of its CAPM-based range, GEMA has failed to adjust its estimate to account for the inherent uncertainty of CAPM-derived cost of equity estimates, which is particularly acute for GDNs in the UK. As such, it has failed to maximise consumer welfare through enabling investment:

(i) GEMA has failed to have proper regard for the fundamental economic principles that demonstrate that aiming-up is needed to protect consumers. As set out in the Cost of Equity Report,[204] the consumer welfare loss of setting a cost of equity that is too low is greater than the consumer welfare loss of setting a cost of equity that is too high. While too high a cost of equity

[199] CMA 2020 Water Redeterminations Working Paper, para. 22 (NGNNOA1_185).

[200] FD Finance Annex (revised), paras. 3.179 to 3.186 (NGNNOA1_167).

[201] FD Finance Annex (revised), para. 3.186 (NGNNOA1_167).

[202] FD Finance Annex (revised), para. 3.186 (NGNNOA1_167).

[203] FD Finance Annex (revised), para. 3.186 (NGNNOA1_167).

[204] Cost of Equity Report, para. 9.3.3, exhibited at (KPMG_COE1_1).

allowance will lead to higher consumer bills, too low a cost of equity allowance will lead to sub-optimal investment, which has relatively worse consequences for consumers than any short-term gain from lower prices. In particular, 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, had the allowed return been set at the true cost of capital. The result in this case is a 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.

(ii) GEMA's conclusion appears to be based on the view that aiming-up is not needed because it does not incentivise more investment.[205] Here GEMA has fundamentally misunderstood the economic principle behind aiming-up. As the CMA and the UKRN Study acknowledge, the principal objective of aiming-up is not to incentivise higher investment, but to mitigate the risk of applying the wrong cost of equity and therefore facilitating suboptimal investment. If the cost of equity is set too low, this would tend to result in businesses in the sector being unable to attract financial capital, lead to the early exit of capital and/or lead to an opex bias, as discussed in the Cost of Equity Report.[206]

(iii) GEMA's position is in contrast to the recognition by the UKRN Study of the importance of aiming-up in order to protect consumer welfare. The UKRN Study notes that "*with relatively low elasticities, the reduction in consumer surplus from setting the RAR, and hence the regulated price, too high is relatively small. In contrast, the welfare loss from setting the RAR (and hence the price) too low is relatively large. This leads to considerable aiming-up, as the optimal choice by the regulator.*"[207]

(iv) GEMA's position is also at odds with the latest CMA precedent from the *PR19 Provisional Findings*[208] and subsequent cost of capital working paper, which clearly supports the principle of aiming-up in order to avoid the greater risk to consumer welfare from setting the cost of equity too low.[209] In the cost of capital working paper, the CMA clearly supports the principle of applying an uplift to, or 'aiming up' on, market-based cost of equity, stating that there are "*a number of benefits from choosing a point estimate for the cost of equity above the middle of the range*".[210] GEMA's attempt to downplay this clear, recent, CMA view, by contrasting it with the approach the CMA took in the NATS Final Report, ignores the obvious differences between NATS Final Report and the water appeals which the CMA stated led to its differing approach. In particular, the CMA placed significant weight on government ownership in the *NATS Final Report*,[211] which was not relevant in water and does not apply to energy networks.

(v) GEMA's arguments that these core economic principles do not apply to energy networks is based on fundamentally flawed reasoning. Specifically, GEMA suggests that energy companies will be forced to invest even if the cost of equity is set too low, through tools such as output delivery incentives ("**ODIs"**), licence obligations ("**LOs**"), price control deliverables ("**PCDs**") and uncertainty mechanisms ("**UMs**").[212] This is clearly incorrect, as explained in the Cost of Equity Report, since companies need to raise finance to invest and will only do so if the allowed rate of

[205] DD Finance Annex, p. 80 (NGNNOA1_156).

[206] Cost of Equity Report, para. 9.3.10, exhibited at (KPMG_COE1_1).

[207] UKRN Study, p. 72 (NGNNOA1_183).

[208] *CMA's PR19 Provisional Findings*, paras. 9.667 (NGNNOA1_186).

[209] CMA 2020 Water Redeterminations Working Paper, para. 115 (NGNNOA1_185).

[210] CMA 2020 Water Redeterminations Working Paper, para. 115 (NGNNOA1_185).

[211] *NATS Final Report*, para. 13.104 (NGNNOA1_223).

[212] FD Finance Annex (revised), para. 3.181 (NGNNOA1_167).

return at least equals the true (but unobservable) weighted average cost of capital ("**WACC**"). Furthermore, the impact of a cost of equity that is set too low will be felt over the longer term. Consequently, focussing on investment during RIIO-GD2, as GEMA's arguments do, is clearly wrong and has a negative impact on the interests of existing and future customers.[213]

(212) In selecting a point estimate at the mid-point of its CAPM-based range, GEMA has failed to adjust its estimate to account for the asymmetric risk exposure facing GDNs. As set out in the Cost of Equity Report,[214] where there are asymmetric downside risks that give risk to an expected loss, investors do not have a mean expectation of earning the cost of equity. In the presence of asymmetric risks, the cost of equity needs to be adjusted in order that investment in GDNs represents a 'fair bet' for investors. GEMA's failure to make such adjustment, therefore, means that investors are not appropriately provided with a fair bet when investing in GDNs, implying that investment will be sub-optimal:

(i) As set out in section 3, GDNs face unique risks as a sector, arising out of the net zero agenda and the resulting uncertainty of the future changes to the gas sector. This includes extreme downside scenarios, in the form of demand risk and potential asset stranding, which do not have commensurate upsides.[215] GEMA has, unaccountably, not assessed these risks, despite submissions describing these potential scenarios and has not adjusted its CAPM-derived cost of equity in order to compensate investors for (i.e. it has not aimed up for) these downside events.

(ii) GEMA's failure to take account of this asymmetric risk appears to be influenced by its advisers, CEPA, who view the asymmetric risk as not systematic, and hence find it hard to conclude this risk should be priced (as CEPA's report is focussed on beta estimation).[216] However not only is it incorrect to view none of this risk as systematic (as set out in section 4.2), but GEMA has failed to take account of this elsewhere in its cost of equity assessment. As set out in the Cost of Equity Report,[217] it is important for regulators to consider whether asymmetric risk exists and where it does and the risk has not been addressed elsewhere within the price control building blocks, uplift the cost of equity appropriately.

(iii) GEMA notes that it "*did see some basis for [asset stranding risk] being asymmetric*".[218] Nevertheless, GEMA concludes that no adjustments are needed, due to the protection afforded through its regulated status, in particular by adjusting depreciation through the charge control review.[219] However, GEMA has not analysed whether in fact adjustments in depreciation rates of the level needed to prevent asset stranding risk would be feasible, or appropriate, given the implications for consumer bills and other factors. The Future of Gas report analyses this question and demonstrates that the impact on bills is too severe to ensure total asset recovery.[220] GEMA's reasoning that GDNs are protected from this risk is therefore based on no sustainable evidence.

(iv) As set out in the Outperformance Wedge Report, a number of elements in the price control package are asymmetric (downwards for GDNs) by design. Converting asymmetry into a probability weighted expected loss is inherently difficult. However, where there is significant

[213] See e.g. CMA 2020 Water Redeterminations Working Paper, para. 46 (NGNNOA1_185) where the CMA noted "*the cost of capital today may have a knock-on impact on investment planning during AMP7 that will be actioned (or not) in subsequent price controls*."

[214] Cost of Equity Report, para. 9.3.17, exhibited at (KPMG_COE1_1).

[215] Cost of Equity Report, paras. 7.4.17 to 7.4.21, exhibited at (KPMG_COE1_1).

[216] CEPA's Beta Estimation Issues Report (NGNNOA1_226).

[217] Cost of Equity Report, para. 7.4.14, exhibited at (KPMG_COE1_1).

[218] FD Finance Annex (revised), para. 3.76 (NGNNOA1_167).

[219] FD Finance Annex (revised), para. 3.76 (NGNNOA1_167).

[220] Future of Gas Report, para. 6.3.5, exhibited at (KPMG_FOG1_1); Cost of Equity Report, para. 7.4.23, exhibited at (KPMG_COE1_1).

asymmetry by design, the case for aiming up for asymmetry is stronger, as there is an increased likelihood that investors do not have a mean expectation of earning the market cost of equity.

(v) GEMA's failure is at odds with established precedent from both regulators and the CMA, who have recognised this issue of asymmetric downside risk, and made adjustments to the allowed return, as a result. The CMA recognised the need for an adjustment to cost of capital to reflect asymmetry in its recent *PR19 Provisional Findings*.

(vi) The consequence of failing to aim-up for asymmetry is, as with failing to aim up for uncertainty, sub-optimal investment in GDNs. As discussed in paragraph (211), this has significant adverse consequences for consumer welfare, far greater than any short-term gains from lower energy bills from setting a lower cost of equity.

(213) As set out in paragraph (209), GEMA argues[221] that given the mid-point range of its cross-check estimates is below GEMA's assessed cost of equity, it has in practice aimed up to some degree. However, GEMA's cross-checks provide no reliable evidence to suggest GEMA has in practice 'aimed up' and if that was indeed its intention, GEMA has failed to achieve, in whole or in part, via its licence modification, the effect stated by GEMA:

(i) GEMA's cross-checks are ineffective, since they do not reflect the risks of GB gas networks. GEMA's cross-checks include Off-shore Transmission Owners Internal Rates of Return ("**OFTO IRRs**"), Market-to-asset ratios ("**MARS**"), infrastructure fund discount rates and investment manager forecasts. As shown in the Cost of Equity Report,[222] none of these cross-checks reflect the risk profile of a gas distribution network.

(ii) Without reflecting the risks facing gas distribution networks, GEMA's cross-checks will materially understate the required return for GB gas networks. GEMA's cross-checks therefore give entirely false comfort that any degree of aiming-up has occurred.

(iii) GEMA has not considered alternative, more reliable cross-checks, as set out in the Cost of Equity Report.[223] These cross checks also suggest that GEMA's cost of equity estimate is downwardly biased.

4.4.3 The impact of GEMA's errors on its cost of equity point estimate

(214) Overall, GEMA's estimate fails to 'aim up'. As such, GEMA's estimate fails to account for both uncertainty and asymmetric risks. In contrast with regulatory precedent and fundamental economic principles, GEMA's approach has thereby failed to prioritise protecting investment and thereby failed to maximise consumer welfare.

(215) The Cost of Equity Report models an appropriate degree of aiming-up, being 25bps for uncertainty, with an additional adjustment of 15 – 20bps to account for the asymmetry risk caused by the expected loss facing GDNs.[224]

5 Conclusion

(216) GEMA's Decision (as regards cost of equity) is wrong on the following grounds:

(i) By setting a cost of equity value that is too low, GEMA has failed properly to have regard to and/or give appropriate weight to its principal objective and its statutory duties to secure that

[221] FD Finance Annex (revised), para. 3.186 (NGNNOA1_167).

[222] Cost of Equity Report, paras. 11.3.1 to 11.3.38, exhibited at (KPMG_COE1_1).

[223] Cost of Equity Report, para. 11.4.1, exhibited at (KPMG_COE1_1).

[224] Cost of Equity Report, paras. 9.5.3 to 9.5.6, exhibited at (KPMG_COE1_1).

licence holders are able to finance their licensed activities and to contribute to the achievement of sustainable development.

(ii) When setting RFR, by disregarding financial instruments other than ILGs (and the substantive evidence put forward which supported an alternative view) and failing to provide adequate reasons for dismissing such evidence, GEMA has failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. GEMA has also erred in fact and in law (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

(iii) When setting beta:

(a) by failing to provide for GDN-specific systematic risk, and thereby failing to incentivise investment in sustainable networks, GEMA has failed properly to have regard to and/or give appropriate weight to its principal objective and its statutory duties to secure that licence holders are able to finance their licensed activities and to contribute to the achievement of sustainable development;

(b) by failing to provide sufficient detail on the methodology used to estimate beta, despite NGN's reasonable requests, GEMA has also failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent and accountable;

(c) by committing a number of material errors of assessment and disregarding or misrepresenting relevant evidence, GEMA has erred in fact and in law (by failing to take into account relevant considerations, acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

(iv) When setting TMR, by deflating the historic long-run average realised nominal total equity market return and by relying on only one series of inflation (CPI) for the period 1948 onwards and not placing any weight on an alternative measure of inflation (RPI), GEMA has failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. By using only one averaging approach, failing to have regard to the broad range of approaches and applying a lower uplift than the weight of evidence and precedent implies, GEMA has failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. GEMA has also erred in fact and in law (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence, and/or making mathematical or formula specification errors).

(v) When selecting a mid-point within its heavily downward-skewed ranges, GEMA has failed properly to have regard to and/or give appropriate weight to its principal objective and its statutory duties to secure that licence holders are able to finance their licensed activities and to contribute to the achievement of sustainable development. GEMA has also failed to have regard to the principles of best regulatory practice under which regulatory activities should be accountable and consistent.

(217) Consequently, GEMA's FD prioritises large short-term bill reductions over all other objectives, including ensuring appropriate rewards and incentives that protect investment. This will, in turn, harm consumer welfare in the long-term.

(218) This blinkered approach has led GEMA to commit a number of appealable errors which the CMA is invited to identify and correct in this appeal. Throughout its cost of equity assessment, for every

parameter, GEMA has chosen ranges of estimates that are consistently and systematically at the lower end or below those suggested by the proper approaches to estimation. Within these already downwardly biased ranges, GEMA has chosen not to 'aim up'. This is despite the weight of academic thought, empirical evidence and regulatory precedent which unequivocally support selecting a point estimate for the cost of equity above the middle of the range to prevent exit of capital over time by long-term investors in the sector, underinvestment in new assets and the consequent loss in consumer welfare that follows. This is also despite the significant evidence on the asymmetric risks unique to GDNs which also require aiming up.

6 Relief sought

(219) These errors have led GEMA to underestimate all of the parameters of the cost of equity: the RFR, TMR and beta. As a result, GEMA has produced a downwardly biased range for its cost of equity assessment and has then picked the mid-point of that range, which fails to apply any aiming-up for either uncertainty or asymmetric risk.

(220) The appropriate remedy to the catalogue of errors that have culminated in GEMA's underestimated assessed cost of equity is to provide a cost of equity allowance that is correctly assessed. The revised cost of equity should reflect a balanced review of the evidence, should factor in the risks faced by GDNs, and should be set at a level which does not deter investment in GDNs, thereby maximising consumer welfare.

(221) The Cost of Equity Report[225] accompanying this notice of appeal sets out a full and independent review of the evidence in relation to the appropriate estimation of the cost of equity for RIIO-GD2. Such evidence suggests that the cost of equity should be no lower than 5.18% and could be as high as 6.24% in CPIH real terms.

(222) For the reasons outlined above, the Appellant requests that the CMA quash the Decision and substitute its own by setting a cost of equity within 5.18% – 6.24% in CPIH real terms (which is the relevant range following correction of GEMA's errors relating to RFR, TMR and beta) and selects a point estimate that includes necessary aiming-up.

(223) The required amendments to the Licence are set out in Annex III.

[225] Cost of Equity Report, para. 2.2.2, exhibited at (KPMG_COE1_1).

PART VI
APPEAL GROUND 2: OUTPERFORMANCE WEDGE

1 Overview

(224) This Part of the Notice relates to GEMA's application of an adjustment to the allowed return on equity to reflect expected performance (termed the "**outperformance wedge**"), as set out in Section 2 below and the Finance Annex to the FD.[226]

(225) The supporting documents for this Appeal Ground are:

(i) The Frontier Economics report on the outperformance wedge commissioned by NGN *"Outperformance Wedge: Potential performance in RIIO-GD2 – report commissioned for NGN"* ("**Frontier Outperformance Wedge Potential Performance Report**").[227]

(ii) The KPMG report on "*GEMA's RIIO-GD2 outperformance wedge – Report prepared for NGN"* ("**Outperformance Wedge Report**").[228]

(iii) Witness Statement of Mark Horsley (MH1), with respect to Section 5.3.

(iv) Witness Statement of Gareth Mills (GM1), with respect to paragraphs 31-32 and 37.

(226) The outperformance wedge is a 25bps downwards adjustment, which GEMA makes to the allowed cost of equity to account for its anticipation that network companies are likely to outperform relative to the RIIO-GD2 regulatory targets on expenditure and service levels.[229]

(227) The outperformance wedge represents a final, unevidenced deduction of 25bps from allowed revenues on top of, and separate to, the targets contained within RIIO-GD2 - some of which are already overly stretching as explained elsewhere in this submission. GEMA is assuming, largely based on a flawed and selective reading of historical and other evidence, significant outperformance on totex /ODI rewards and incentives at RIIO-GD2 beyond the level identified in GEMA's extensive two-year long process, which set highly stretching allowances/targets.

(228) The Appellant submits that GEMA is not entitled to introduce such a deduction as a matter of law, given that it has failed to provide the "careful consideration" and "cogent justification" necessary to introduce novel measures into the regulatory framework.[230]

(229) The outperformance wedge also has significant perverse incentive properties, which have not been meaningfully considered by GEMA. They relate to both investment (compounding the errors introduced through GEMA's Cost of Equity assessment) and incentives to improve efficiency and service performance. Specifically:

(i) The outperformance wedge will fail to provide network companies that outperform above a certain level with a return that will prove sufficiently attractive for equity providers to make certain investments in improvements to GDNs. This further evidences GEMA's failure to strike an appropriate balance between short-term customer bill reductions and ensuring appropriate rewards and incentives that protect investment to deliver the improvements that customers expect and value in the longer term.

[226] FD Finance Annex (revised), Section 3 (NGNNOA1_167).

[227] Frontier Outperformance Wedge Potential Performance Report (NGNNOA1_137), which was submitted as an Annex to the DD Core Response (NGNNOA1_113).

[228] Outperformance Wedge Report, exhibited at (KPMG_OW1_1).

[229] FD Finance Annex (revised), paras. 3.167 to 3.168 (NGNNOA1_167).

[230] As discussed by the CMA in the *NPG Determination*, para. 4.101 (NGNNOA1_194).

(ii) The ex post top-up mechanism will not remove these disincentives to undertake investment in the circumstances described above, and GEMA appears not to have considered this important consequence. This has particularly detrimental consequences for the frontier company.

(iii) It will furthermore remove the incentives for GDNs well-placed to outperform but by less than 25bps, which will have deleterious effects both within the price control and in the longer term. Moreover, for a company that outperforms by more than the 25bps wedge considering an additional investment, if that investment does not itself generate outperformance, the marginal return on that investment will be below its cost of equity.

(iv) Through introducing an unprecedented mechanism which lacks proper empirical support, GEMA risks undermining investor confidence in the stability of the regulatory regime.

(v) In summary, it will lead to consumers suffering from reduced efficiency, service and investment. Academic literature is clear that sacrificing long-run investment in favour of short-term bill reductions can have significant adverse consequences for consumer welfare (as explained further in paragraph (284) below).

(230) GEMA's application of the outperformance wedge is an error, which results from the use of materially flawed methodologies, assumptions and factual errors that are inconsistent with best regulatory practice. In particular:

(i) GEMA **relied on evidence with fundamental weaknesses** in concluding that the outperformance wedge is necessary. GEMA's analysis of historical performance data suffers from fundamental limitations, not least given that RIIO-GD2 is a sufficiently different price control from RIIO-GD1 (and when contrasted against earlier price controls in energy and price controls relating to other industries), such that any inferences that can be drawn are limited. This does not meet the high evidential threshold for novel regulatory mechanisms required by the CMA.[231]

(ii) GEMA has been **selective in its use of evidence** in finding evidence of historical out-performance. GEMA has given inadequate consideration to submissions from stakeholders that show that there is little or no prospect of outperformance based on GEMA's changes at RIIO-GD2 (see paragraph (263) below).

(iii) GEMA has **not provided justification** for key parts of its conclusions to the requisite legal standard.[232] In particular, GEMA has failed to:

(a) Demonstrate why a final deduction off revenues in the form of the outperformance wedge is justified over and above its calibrated cost allowances and incentive mechanisms (some of which are overly stretching for the reasons explained elsewhere in this Notice).

(b) Demonstrate that the RIIO-GD2 framework will not address the information asymmetries that, according to GEMA, justify the introduction of the outperformance wedge.

(c) Consider and take into account the significant perverse incentives that the outperformance wedge creates, and the consequences to consumers.

(d) Conduct an impact assessment to demonstrate whether the positive effects from the outperformance wedge will not be outweighed by their detrimental impact on consumers in the form of reduced investment and incentives.

(e) Substantiate its decision to set the wedge ***specifically*** at 25bps. Consistent with the CMA's reasoning in *Firmus* (for error 2B), GEMA's calibration of the wedge has involved

[231] See *NPG Determination*, paras. 4.53, 4.90, 91 and 4.101 (NGNNOA1_194).

[232] *Ibid.*

a "*significant lack of rigour*" and the evidence does not support setting the wedge at 25bps "*or indeed any other specific figure"*.[233]

(iv) There is no **regulatory precedent** for the outperformance wedge. Given the importance of the stability and predictability of the regulatory regime,[234] significant changes to the regulatory framework require greater justification. Not only has the empirical justification for the outperformance wedge been inadequate, GEMA has also failed to have regard to the key principles of best regulatory practice set out by the Better Regulation Taskforce.[235]

(231) GEMA's introduction of the outperformance wedge in the FD is therefore wrong on the grounds set out in Section 4. For the Appellant, this leads to an error to the value of £11.4 million.

(232) The Appellant requests the relief outlined in Section 5.

(233) The rest of this Part proceeds as follows:

(i) Section 2 explains GEMA's approach and decision on the outperformance wedge.

(ii) Section 3 explains the errors that GEMA has made with respect to the outperformance wedge;

(iii) Section 4 concludes why the outperformance wedge is wrong; and

(iv) Section 5 sets out the relief sought.

2 GEMA's approach and decision on the outperformance wedge

(234) The outperformance wedge is a final deduction on revenues, through an adjustment to the allowed return on equity. Specifically, as described in Part V: (Appeal Ground 1: Cost of Equity), GEMA sets a baseline allowed return on equity, which is derived by:

(i) taking GEMA's assessed point estimate of the cost of equity from its CAPM approach and other cross checks;

(ii) concluding that investors should expect outperformance versus its totex allowances and ODIs; and

(iii) deducting an amount from the point estimate of the cost of equity in order to arrive at a baseline allowed return which factors in this so-called expected outperformance, termed the "outperformance wedge". This outperformance wedge was set at 25bps at the FD,[236] which is equivalent to an expectation that the Appellant will outperform its RIIO-GD2 totex allowance by approximately 2%.[237, 238]

(235) Alongside this deduction, the FD provides for an ex-post top up if outperformance were not to materialise as expected. Each licensee will, if its outperformance is less than 25bps, receive a top-up of up to 25bps.[239]

[233] *Firmus*, paras. 5.146 and 5.147 (NGNNOA1_206).

[234] *Phoenix Gas*, para. 8.85 (NGNNOA1_192). See also *Bristol Water plc,* para. 9.21 (NGNNOA1_193), where the CC found that significant changes to the regulatory framework or approach require greater justification "*as there are benefits to a stable and well understood regulatory framework*".

[235] BRTF Less is More Report (NGNNOA1_188).

[236] FD Finance Annex (revised), para. 3.165 (NGNNOA1_167).

[237] Outperformance Wedge Report, para. 4.5.1, exhibited at (KPMG_OW1_1).

[238] To replicate the cash-flow impact of the outperformance wedge during RIIO-GD2 the company would actually need to make significantly higher outperformance on totex.

[239] FD Finance Annex (revised), paras. 3.167 and 3.168 (NGNNOA1_167).

2.1 Development of GEMA's approach

(236) In its 2018 RIIO-GD2 Framework Decision, GEMA referred to a study commissioned by the UK Regulators Network (UKRN) in March 2018 on the Cost of Capital, *"Estimating the cost of capital for implementation of price controls by UK Regulators"* (the "**UKRN Study**").[240] This study distinguished the regulatory allowed return from the regulatory expected return and concluded that the regulatory expected return has often been greater than the regulatory allowed return. Drawing on the UKRN Study, GEMA stated that it would distinguish between expected and allowed return in RIIO-GD2.[241]

(237) In the Sector Specific Methodology Consultation ("**SSMC**"), GEMA considered different approaches for seeking to distinguish between expected and actual outperformance.

(238) GEMA proposed that it would set a point estimate for the allowed return on equity below the mid-point of its estimated range, and at a point equivalent to an assumption of 50bps of outperformance (i.e. a -50bps wedge).[242]

(239) This was reflected in the SSMD.[243]

2.2 GEMA's position at Draft Determinations

(240) At DD, GEMA applied a 25bps outperformance wedge to the cost of equity.[244]

(241) GEMA also introduced an ex post top-up mechanism if the expected outperformance were not to materialise as expected on a sector-wide basis. GEMA said that licensees would receive a top up to their allowed return of up to 25bps.[245]

(242) The Appellant (and other stakeholders) strongly challenged the outperformance wedge at DD, contesting the principle of the outperformance wedge as well as demonstrating that there is no evidenced basis for an assumption of expected outperformance during RIIO-GD2.[246] The Appellant submitted a report by Frontier Economics which concluded that there is no evidence to justify GEMA's 25 bps outperformance wedge.[247] NGN also drew GEMA's attention to the conclusions in a published research paper produced by John Earwaker and Nick Fincham "*Information Asymmetry and the Calibration of Price Controls*".[248]

2.3 GEMA's position at FD

(243) GEMA's FD maintained an outperformance wedge of 25bps, consistent with DD. GEMA explained that its "*decision to adjust by 0.25% reflects a cautious approach to deploying an important principle, based on the best available evidence alongside a reasonable degree of discretion*".[249]

(244) At FD, GEMA changed the basis of the ex-post adjustment mechanism compared to how that adjustment mechanism was applied in DD. In FD, this applies on a licensee basis – i.e. if an individual licensee fails to achieve outperformance of 25bps, the licensee will receive a top up worth up to 25bps, unlike the ex post top up at DD, which was to be applied on a sector-wide basis.[250]

[240] UKRN Study (NGNNOA1_183).

[241] RIIO-GD2 Framework Decision, para. 6.31 (NGNNOA1_146).

[242] RIIO-GD2 Sector Specific Methodology Decision Finance, para. 3.166 (NGNNOA1_151).

[243] RIIO-GD2 Sector Specific Methodology Decision Finance, para. 3.296 (NGNNOA1_151).

[244] DD Finance Annex, para. 3.139 (NGNNOA1_156).

[245] DD Finance Annex, para. 3.153 (NGNNOA1_156).

[246] DD Response Finance Annex, p. 29 (NGNNOA1_117).

[247] Frontier Outperformance Wedge Potential Performance Report (NGNNOA1_137).

[248] Earwaker and Fincham Report, p. 15 (NGNNOA1_134).

[249] FD Finance Annex (revised), para. 3.165 (NGNNOA1_167).

[250] FD Finance Annex (revised), paras. 3.167 and 3.168 (NGNNOA1_167).

3 GEMA's errors in the application of an outperformance wedge

(245) GEMA's application of an outperformance wedge in the FD contains a number of errors. These errors relate to GEMA's failure to: (i) adequately evidence and justify the introduction of the wedge; (ii) consider the perverse incentives of the wedge that will damage consumer welfare; and (iii) evidence the level of the wedge that GEMA has applied. The introduction of the wedge also breaches principles of regulatory best practice.

3.1 The outperformance wedge is arbitrary and unevidenced as a matter of principle

(246) GEMA decided to apply an outperformance wedge, in order to *"counteract the systematic risk of out-performance elsewhere in our package"*.[251] GEMA's view is therefore that this systematic risk results from information asymmetries not dealt with elsewhere in the package.

(247) The outperformance wedge is broadly equivalent to GEMA assuming that companies will outperform on the already tightly calibrated and stretching cost allowances by at least c.2% over the full five-year RIIO-GD2 period. GEMA has provided no analysis to justify such expected savings based on the RIIO-GD2 framework. Indeed, by definition, GEMA's own analysis of cost benchmarking and cost incentives did not identify these expected savings, otherwise they would already be factored in calibrating the totex and ODI incentives.

(248) GEMA's introduction of the outperformance wedge can be traced back to the concepts in the UKRN study. The UKRN study sets out the concept of expected performance exceeding allowed performance, and three of the authors recommend that regulators should seek to set numerical targets for expected outperformance.[252] One author, however, specifically cautioned against applying a policy such as the outperformance wedge on the (correct) basis that it would be suboptimal and increase regulatory discretion and risk.[253]

(249) As explained in Section 3.4 below, no other regulator has applied an outperformance wedge (including Ofwat and the UR which have both set price controls subsequent to the UKRN study).

(250) Survey evidence demonstrates that regulators overwhelmingly reject the notion of an outperformance wedge. In response to the DD, John Earwaker and Nick Fincham carried out a survey of 32 ex-regulators from across the UK's regulated sectors regarding such a mechanism.[254] Of these 32 respondents, only two agreed with the concept of applying a deduction from allowed revenues to capture otherwise overlooked scope for the regulatory firm to outperform. Conversely, 12 disagreed and 13 strongly disagreed, demonstrating the overwhelming strength of opinion among experts against GEMA's outperformance wedge. GEMA claims that in its view *"this report is supportive of the DD proposals in many respects"* and that these former regulators may change their mind after digesting the DD.[255] With respect, GEMA's conclusion is baseless given that the survey directly asked these former regulators whether they agreed with the outperformance wedge as a mechanism, and they overwhelmingly disagreed.

(251) It is well-established[256] that the evidential threshold for a regulator introducing novel deductions in a price control framework, which depart from regulatory precedent, is high. This was confirmed in the *NPG Determination* on the so-called smart-grid benefits, where the CMA held that a departure from established regulatory practice requires a "*careful consideration*" and "*cogent justification,*" especially

[251] FD Core (revised), para. 11.30 (NGNNOA1_166).

[252] UKRN Study, p. 73 (NGNNOA1_183).

[253] UKRN Study, p. 88 (NGNNOA1_183).

[254] Earwaker and Fincham Report (NGNNOA1_134).

[255] FD Finance Annex (revised), para. 3.159 (NGNNOA1_167).

[256] *NPG Determination*, para. 4.145 (NGNNOA1_194).

when this is heavily dependent on GEMA's judgements.[257] In the present case, GEMA's evidence and reasoning falls far short of being capable of supporting its decision to make a specific adjustment for outperformance that has not been addressed through GEMA's general calibration of the RIIO-GD2 framework.[258]

(252) GEMA recognises that the evidence that it has used to substantiate its conclusion that an outperformance wedge is necessary is uncertain, noting that "*we agree with licensees' views that there is uncertainty, as highlighted for example in the uncertainty around the MAR for NG's UK regulated assets. 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.*"[259]

(253) Given that the outperformance wedge is without regulatory precedent, was not advocated by the UKRN Study and has been overwhelmingly rejected by a survey of ex-regulators, the Appellant submits that GEMA has failed to demonstrate a sufficient basis: (i) to satisfy the high evidential threshold required for an unprecedented change to the framework (in line with the CMA's decision in *NPG Determination*, as noted above*)*; or (ii) to justify the specific adjustment of 25bps (in line with *Firmus,* as discussed in Section 3.3 below).

3.1.1 GEMA's evidentiary basis is flawed and does not provide sufficient justification for the introduction of the wedge

(254) In reaching its conclusion that an outperformance wedge is necessary as a matter of principle, GEMA has focused on:

(i) its analysis of totex performance from regulated sectors over close to 30 years prior to RIIO-GD2, in an attempt to assess the extent to which there has been historical outperformance;

(ii) an attempt to show what the performance in RIIO-1 would have been, correcting for three variables under the RIIO-2 framework; and

(iii) an analysis of inferences from prevailing MARS and past transaction premia.

(255) As an initial observation, it is submitted that GEMA's analysis is not only empirically flawed, but that all of GEMA's historical analysis is subject to a critical weakness. RIIO-GD2 is by design a significantly different price control to RIIO-GD1 and other historical controls.

(256) ***First, no meaningful inferences can be drawn from GEMA's historic analysis of totex performance***. As set out in the Outperformance Wedge Report,[260] GEMA's database of historical returns found a wide range of outcomes. This included multiple instances of companies outperforming and multiple instances of companies underperforming.[261] The significant range in outcomes strongly suggests that the specific circumstances have a significant bearing on the performance that is achieved. In this context, applying the sample mean from this historic information as a guide for future performance under RIIO-GD2 is, essentially, an arbitrary exercise.[262]

(257) The historical dataset also omits some years of price controls when underperformance has occurred, as set out in the Outperformance Wedge Report. In particular, a full five-year picture of the most recent

[257] *NPG Determination*, paras. 4.53, 4.90, 4.91 and 4.101 (NGNNOA1_194).

[258] *NPG Determination*, paras. 4.139 and 4.140 (NGNNOA1_194).

[259] FD Finance Annex (revised), para. 11.28 (NGNNOA1_167).

[260] Outperformance Wedge Report, para. 6.1.4, exhibited at (KPMG_OW1_1).

[261] DD Finance Annex, Figure 16 (NGNNOA1_156).

[262] Outperformance Wedge Report, para. 1.4.9, exhibited at (KPMG_OW1_1).

water price control period (AMP6) is missing.[263] It also does not include recent experience of setting price controls for electricity and gas network businesses in Northern Ireland, which is a serious oversight given the similarities between the regulatory frameworks. The Outperformance Wedge Report[264] also highlights that the results from the historical analysis are sensitive to the inclusion of certain time periods, further undermining any inference that can be made from this database.

(258) ***Second, GEMA's analysis of RIIO-1 performance updated for certain facets of RIIO-GD2 is similarly flawed.*** GEMA recognised that its historical analysis, without adjustment, did not provide an inference about performance in RIIO-GD2.[265] It combined its database of historical returns with three variables which it suggested allowed it to make an inference about RIIO-2. These were RIIO-GD2 incentive strengths, RIIO-GD2 ratios of Totex to RAV and RIIO-GD2 notional gearing. However, as set out in the Outperformance Wedge Report,[266] these three variables represent minor tweaks, and do not account for the more significant elements of RIIO-GD2 that impact the extent to which companies are likely to under- or outperform.

(259) GEMA conducts a further analysis which seeks to represent RIIO-GD1 in a RIIO-GD2 context, by adjusting for real price effects.[267] However, as set out in the Outperformance Wedge Report, this analysis still makes no adjustment for other major features of RIIO-GD2, including: the introduction of the BPI; the shift towards ex post regulation through re-openers and uncertainty mechanisms (which cover over 50% of totex) and GEMA's stretching catch-up and ongoing efficiency targets.[268] GEMA recognises that certain of these mechanisms (e.g. PCDs and uncertainty mechanisms) will reduce the asymmetry that might lead to outperformance.[269] However, it does not account for all of the significant changes it has made in RIIO-GD2 to align costs with revenues.[270] It is therefore an error for GEMA to continue to use its historical database of returns unadjusted for these factors in order to infer expected outperformance in RIIO-GD2.

(260) ***Third, limited weight can be placed on MARS data***. GEMA also undertook an analysis of MARS based on the five listed GB utility firms (Severn Trent, United Utilities, Pennon, National Grid plc and SSE) and analysis of recent private infrastructure transactions in the UK.[271] The FD notes that "*MAR premia continue to provide strong evidence that investors expect outperformance by regulated utilities*."[272] However, as explained in the Outperformance Wedge Report[273] and the Frontier Analysis of Adjustment to Baseline Allowed Returns Report,[274] the interpretation of MARS data is subject to significant assumptions (which was also recognised by the CMA in relation to Bristol Water).[275] In the present case, these assumptions include *inter alia*: the impact of market volatility; the read-across from

[263] Outperformance Wedge Report, para. 6.1.7, exhibited at (KPMG_OW1_1). This was a relatively high cost year for the water sector, with the industry overall overspending against its wholesale cost allowance by 12%.

[264] Outperformance Wedge Report, para. 6.1.13, exhibited at (KPMG_OW1_1).

[265] DD Finance Annex, para. 3.125 (NGNNOA1_156).

[266] Outperformance Wedge Report, para. 3.6.5, exhibited at (KPMG_OW1_1).

[267] DD Finance Annex, para. 3.129 (NGNNOA1_156).

[268] Outperformance Wedge Report, para. 6.1.10, exhibited at (KPMG_OW1_1).

[269] DD Finance Annex, Table 27 (NGNNOA1_156).

[270] GEMA has assumed that wider outperformance on a range of ODIs would continue into RIIO-GD2, despite the fact that certain incentives (such as Environmental emissions incentive as a financial ODI, NTS exit capacity incentive,) will not be continued into RIIO-GD2 and despite the fact that those incentives that will persist will now be calibrated on a much tougher basis (shrinkage Incentive; doubled GSOP, etc.).

[271] DD Finance Annex, pp. 76 to 78 (NGNNOA1_156).

[272] FD Finance Annex (revised), para. 3.162 (NGNNOA1_167).

[273] Outperformance Wedge Report, paras. 6.2.1 to 6.2.5, exhibited at (KPMG_OW1_1).

[274] Frontier Analysis of Adjustment to Baseline Allowed Returns Report, pp. 14 and 15 (NGNNOA1_136).

[275] *Bristol Water plc* (2015), para. 10.202, exhibited at (KPMG_COE1_2_008).

the circumstances of three listed water companies to the GDN sector; and other factors that may mean that MARS are not well correlated with expectations of out- and under-performance.

(261) The Appellant also submits that the premia observed on private equity transactions cannot serve as a reliable cross-check. The valuations used by GEMA are likely to contain additional transaction premia which cannot be readily inferred and are also very out of date.

(262) ***Fourth, recent experience in other sectors has shown that the scope for out- and under-performance is balanced.*** A number of recent price controls do not demonstrate meaningful outperformance, suggesting that regulators have the tools to set more tightly calibrated price controls than GEMA in RIIO-GD1 for example. This is exemplified by Ofwat's price controls at PR14 and PR04, as well as the CMA's price control for *Bristol Water* (set through a redetermination of PR14), as set out in the Outperformance Wedge Report.[276]

(263) **Fifth, GEMA has dismissed alternative approaches and stakeholder evidence on the significant shortcomings of its methodologies without adequate consideration**. GEMA received extensive evidence during the consultation process for RIIO-GD2 which demonstrated that the evidence noted above was flawed, subject to calculation errors, and did not substantiate the expected outperformance claimed by GEMA. This included:

(i) Analysis by Frontier Economics,[277] submitted by the ENA, which sought to update GEMA's analysis to reflect the significant changes in the regulatory framework at RIIO-GD2. Frontier Economics concluded that doing so showed that there was very little prospect of any outperformance at RIIO-2.

(ii) Analysis by Frontier Economics,[278] submitted by NGN, provided analysis of the expected level of out- or underperformance for a notional GDN, using Monte Carlo simulation. Frontier Economics found that a notional GDN could expect to underperform the DD by 0.20%, and that this result arose despite it having made several assumptions which would bias the results upwards.

(iii) National Grid submitted evidence from First Economics, which presented an expanded sample of historical performance, from price controls in a wider range of sectors.[279] This evidence showed a very mixed picture in relation to historical levels of outperformance.

(iv) Cadent Gas referred to analysis from Economic Insight,[280] which suggests that the inclusion of expected outperformance represents a material "overcorrection". The report argues that GEMA have made changes at RIIO-GD2 across the price control framework that more than offset the regulator's view of what the expected outperformance would otherwise be.

(264) For the reasons explained in the Outperformance Wedge Report[281] and Frontier Outperformance Wedge Potential Performance Report,[282] GEMA's response to this evidence has been inadequate. GEMA has, without any proper consideration or sufficient reasoning by way of justification, dismissed multiple detailed submissions which analyse the impact of the changes under RIIO-GD2 on expected performance.

3.1.2 No evidence of structural asymmetries that lead to expected outperformance

[276] Outperformance Wedge Report, para. 1.4.12, exhibited at (KPMG_OW1_1).

[277] Frontier Analysis of Adjustment to Baseline Allowed Returns Report (NGNNOA1_136).

[278] Frontier Outperformance Wedge Potential Performance Report, p. 6 (NGNNOA1_137).

[279] First Economics Allowed and Expected Return Report, p. 15, exhibited at (KPMG_OW1_2_008).

[280] Economic Insight Method Impact Report, p. 4 (NGNNOA1_228).

[281] Outperformance Wedge Report, para. 1.5.3, exhibited at (KPMG_OW1_1).

[282] Frontier Outperformance Wedge Potential Performance Report (NGNNOA1_137).

(265) GEMA justifies[283] the need for an outperformance wedge on its belief that there are inherent structural factors in the regulatory model that provide companies opportunities to earn excess returns at the expense of consumers, including (i) information asymmetries; (ii) asymmetries in PCD design;[284] and (iii) asymmetries caused by reopeners.[285]

(266) As the Outperformance Wedge Report shows,[286] the Appellant submits that none of these factors (i) – (iii) generate inherent asymmetry and that GEMA's analysis is factually incorrect and inadequately substantiated.

(267) ***First, GEMA has not substantiated the existence of information asymmetries.*** The BPI directly penalises companies for including costs with poor justification, and this, combined with econometric benchmarking which limits the potential upside from including unjustified costs, directly limits any incentive to include excess costs in business plans. GEMA merely states that it *"does not think it [BPI] has removed [consumer harm from asymmetries] altogether*," but does not substantiate this suggestion.[287]

(268) The scope for asymmetries relates in any case only to forward-looking costs, as set out in the Outperformance Wedge Report.[288] The existence of cost benchmarking significantly limits the impact that any one company's cost submissions has on the cost allowances, and therefore limits the extent to which information asymmetries are likely to generate scope for outperformance. Even if there were information asymmetries, it does not follow that these favour companies being able to outperform. Regulators design price controls in the face of potential information asymmetries, and the mechanisms chosen to deal with them can create asymmetries which are negative for companies, as set out in the Outperformance Wedge Report.[289]

(269) In addition, the Appellant notes that GDNs provide comprehensive information to GEMA, notably an extensive annual report consisting of a strategic commentary and excel template that was designed by GEMA (and agreed with GDNs). This template contains 66 individual tabs with several thousand rows of data and many thousand individual data items. The data set was designed to provide GEMA with the information they need to monitor network performance during the price control and to carry out the cost modelling required to set future allowances.

(270) ***Second, in relation to PCD design, GEMA incorrectly claims that asymmetry arises as companies can choose not to undertake work.*** As set out in the Outperformance Wedge Report,[290] companies cannot simply choose not to deliver the work associated with PCDs. There is, therefore, no evidence that PCD design gives rise to inherent asymmetries. GEMA itself notes that it views this issue as particularly relevant to transmission companies,[291] and it is not at all clear how or why GEMA views this as relevant to GDNs.

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[283] FD Core (revised), para. 11.29 (NGNNOA1_166).

[284] PCDs specify the deliverable(s) for the funding allocated, and the mechanism(s) to refund consumers if an output is not delivered (or not delivered to a specified standard). GEMA notes that, while the PCD framework allows it to clawback allowances in the case of non-delivery of funded work, it offers companies discretion in deciding whether or not to undertake the work at all. GEMA contends that this creates the scope for systemic outperformance and asymmetric bias in favour of network companies, particularly within the transmission sector

[285] Re-openers give GEMA the opportunity to take account of more up-to-date information within period when setting cost allowances and output targets. GEMA contends that companies have the discretion to trigger a re-opener or volunteer information, enabling GEMA to trigger a reopener, that might lead to a reduction in costs compared to baseline assumptions. This creates an inherent and significant bias in favour of companies.

[286] Outperformance Wedge Report, section 5.2 to 5.4, exhibited at (KPMG_OW1_1).

[287] FD Core (revised), para. 11.29 (NGNNOA1_166).

[288] Outperformance Wedge Report, para. 5.2.7, exhibited at (KPMG_OW1_1).

[289] Outperformance Wedge Report, para. 5.5.2, exhibited at (KPMG_OW1_1).

[290] Outperformance Wedge Report, para. 5.3.3, exhibited at (KPMG_OW1_1).

[291] FD Core (revised), para. 11.29 (NGNNOA1_166).

(271) The Outperformance Wedge Report sets out NGN's PCDs.[292] For all three of these, there is asymmetry which is *negative* for NGN, due to the existence of a cap on upwards adjustments to baseline cost allowances but no limit on reductions, as well as, in the case of the capital projects PCD, no control on the part of NGN over the timing and cost of the TransPennine Rail Electrification project which could lead to costs increasing materially. For all three of these PCDs, NGN simply cannot, as GEMA claims, choose not to undertake the work.

(272) ***Third, in relation to re-openers, it is incorrect that these generate an asymmetry in companies' favour.*** Rather, there is asymmetry in the opposite direction. As set out in the Outperformance Wedge Report,[293] re-openers are subject to regulatory assessment and, in many cases, companies will have incurred some costs before seeking a re-opener (including documenting evidence to support the re-opener submission). GEMA can choose to challenge ex post costs incurred, which would only ever be to companies' detriment.[294]

(273) ***Fourth, GEMA acknowledges that a number of aspects of the RIIO-2 framework reduce the potential for asymmetry compared to RIIO-1***.[295] The Outperformance Wedge Report[296] further demonstrates in Table 3 that the majority of components of the RIIO-2 price control are negative for companies in terms of asymmetry, while there are no areas where companies could expect material outperformance.

3.2 The perverse incentive properties of the outperformance wedge will have significant negative consequences for companies and consumers

(274) As explained above, GEMA has not to the requisite legal standard evidenced and justified the need for an outperformance wedge and has therefore made an error by introducing it. Without prejudice to this primary submission, however, the Appellant further contends that the outperformance wedge will have a deeply damaging impact on the incentives of GDNs to invest and to deliver efficiency and performance improvements and that its inclusion by GEMA is wrong on this further basis too.

3.2.1 Providing companies with incentives to outperform is central to incentive-based regulation

(275) The Appellant submits that incentives to encourage outperformance are a central part of incentives-based regulation. As explained in the Outperformance Wedge Report,[297] incentive-based regulation has delivered significant benefits to consumers, as also recognised by GEMA in its RIIO-GD2 Framework Consultation.[298]

(276) As demonstrated in the Outperformance Wedge Report,[299] these benefits are intrinsically linked to incentive-based regulation that promotes improved performance by companies. The framework that has promoted these outcomes is based on a series of carefully calibrated efficiency and service quality targets. When companies outperform these targets (their totex or ODI targets) during a price control review, they will likely achieve a better notional RORE than the allowed rate of return. The targets are carefully calibrated so that the benefit consumers achieve when companies beat these targets is greater

[292] Outperformance Wedge Report, Table 2, exhibited at (KPMG_OW1_1).

[293] Outperformance Wedge Report, Section 5.4, exhibited at (KPMG_OW1_1).

[294] By way of example, the Outperformance Wedge Report, para. 5.4.3, exhibited at (KPMG_OW1_1), refers to NGN having incurred costs of £3.5 million in relation to physical security, where no additional revenue was allowed by GEMA.

[295] DD Finance Annex, Table 27 (NGNNOA1_156).

[296] Outperformance Wedge Report, para. 5.5.2, exhibited at (KPMG_OW1_1).

[297] Outperformance Wedge Report, para. 4.2.1, exhibited at (KPMG_OW1_1).

[298] RIIO-GD2 Framework Consultation, p. 4 (NGNNOA1_145).

[299] Outperformance Wedge Report, para. 4.2.9, exhibited at (KPMG_OW1_1).

than the impact on bills of the costs required to incentivise companies to do it (through the higher RoRE). This principle ensures that the incentives of companies and consumers are aligned.

(277) The Appellant believes that it is of central importance that a regulatory regime provides incentives for companies to outperform against allowances. As explained in the Witness Statement of Mark Horsley (MH1), the Appellant has delivered significant benefits for customers over RIIO-1, and its ability to do so has been supported by a framework that provides sufficient incentives for outperformance (see Section 5.1).

(278) The fact that outperformance is a desirable feature of the incentives-based regime was clearly reflected in the survey of 32 former regulators conducted by John Earwaker and Nick Fincham, which noted: "*a clear message that it is not automatically the case that the position needs to be revisited if a company or a sector goes on to out-perform against the regulator's price controls. There can undoubtedly be situations in which regulated companies profit (or lose) from regulatory error. However, there will also be reviews in which companies respond to the incentives that their regulators set and go on to exceed prior expectations around efficiency and service. In both these sets of circumstances, there was a consensus that it would be wrong for a regulator to go back to price controls retrospectively and confiscate profits. But, just as importantly, there was also a strong feeling that "earned rewards" are part and parcel of a healthy regulatory regime and must not be subsequently rebadged – by regulators or by others – as a symptom of regulatory failure".*[300]

(279) The fact that outperformance is a desirable outcome was also recently recognised by the CMA in its PR19 working paper on the cost of capital: "*Incentives are part of normal regulation and operational outperformance is a desirable outcome. If companies are able to outperform, this delivers benefits to customers both from the actual improvements and from Ofwat being able to use the evidence in its comparisons in future periods"*[301]

3.2.2 The outperformance wedge dampens incentives to invest and improve efficiency and service, which ultimately harms consumers

(i) The outperformance wedge dampens incentives to invest

(280) The outperformance wedge is a flawed device for addressing the potential for outperformance, which dampens incentives for companies within a price control and will be detrimental to consumers in future price controls. This is damaging in steady-state circumstances, but is particularly problematic at RIIO-GD2 given the potential investment required to support achieving net zero legislation and that ensuring the right incentives exist for companies has to be a regulatory priority.[302]

(281) The outperformance wedge upsets the normal relationship between the cost of equity and the marginal return on equity.[303] This creates a disincentive for a company that expects to outperform above a certain level as it will face a disincentive to undertake marginal investment. Specifically, for a company that outperforms by more than the 25bps wedge considering an additional investment, if that investment does not itself generate outperformance, the marginal return on that investment will be below its cost of equity. This will undermine incentives to invest at the margin and will push companies to minimise or delay investments where they can to avoid undertaking an uneconomic investment. Such investments might include investments under reopener mechanisms and could include investments required to support achieving net zero legislation.

[300] Earwaker and Fincham Report, p. 15 (NGNNOA1_134).

[301] CMA 2020 Water Redeterminations Working Paper, para. 81 (NGNNOA1_185).

[302] Outperformance Wedge Report, para. 4.4.28, exhibited at (KPMG_OW1_1).

[303] Outperformance Wedge Report, para. 4.4.10, exhibited at (KPMG_OW1_1).

(282) As set out in the Outperformance Wedge Report,[304] the impact of the outperformance wedge on investment runs contrary to the principle of "*aiming up*", discussed in relation to Part V (Appeal Ground 1: Cost of Equity). Aiming up is the principle whereby a regulator sets an allowed cost of equity above the mid-point of its estimated range for the cost of equity, in order to ensure that the allowed cost of equity is likely to be above the true cost of equity for investors, given that cost of equity is estimated with uncertainty. The rationale for this principle is to ensure that the allowed cost of equity creates sufficient incentives to invest. The approach was firmly endorsed by the CMA in its *PR19 Provisional Findings*.[305] By adjusting the cost of equity downwards (i.e. in effect "*aiming down*"), the outperformance wedge is clearly inconsistent with this principle (exacerbating the failure to aim up in GEMA's cost of equity assessment, discussed in Part V (Appeal Ground 1: Cost of Equity)).

(283) There is a particularly acute impact of this distortion to investment incentives in relation to reopeners, as set out in the Outperformance Wedge Report,[306] as the cost allowances for expenditure in these areas are likely to be set after expenditure has been incurred and hence very unlikely to leave any scope for outperformance. The application of the outperformance wedge implies that, with no scope for any outperformance, companies that outperform by more than 25bps will by definition be unlikely to earn the required return on equity on these marginal investment decisions.

(284) The negative impact of reduced investment on consumers is well-established. While the outperformance wedge may generate some short term savings on consumer bills, these will be significantly outweighed by the adverse impact on consumers in the longer term from reduced investment, as explained in the Outperformance Wedge Report[307] and also discussed in more detail in Part V (Appeal Ground 1: Cost of Equity). GEMA's dismissal of these arguments is based on a fundamental misunderstanding, as set out in the Outperformance Wedge Report, and discussed in more detail in Part V (Appeal Ground 1: Cost of Equity).

(ii) The outperformance wedge dampens incentives to improve efficiency and service

(285) The outperformance wedge dampens incentives to improve efficiency or service performance through the following two routes.

(286) First, while the ex post top up adjustment is necessary given that outperformance at RIIO-GD2 is inherently uncertain, it creates its own negative incentive properties. Specifically, as set out in the Outperformance Wedge Report,[308] it creates a deadband of performance for companies performing from 0-25bps, within which companies have no incentive to seek to outperform. Where a company is forecasting outturn performance in this range (which may be more acute towards the end of the price control where this is more certain):

(i) It receives no benefits of any savings made from efficiency improvements and management will not be incentivised to deliver them.

(ii) It will likely have an incentive to seek to spend all its allowances within this deadband even if it is inefficient to do so. This has a clear negative consequence in terms of reducing efficiency.

(iii) It will not be incentivised to improve service performance and may be indifferent (at least financially) to worsened performance levels.

(287) This deadband effectively increases in size during the life of the price control, such that for a company that has not outperformed in earlier years, the scale of outperformance needed to realise any financial

[304] Outperformance Wedge Report, para. 4.4.25, exhibited at (KPMG_OW1_1).

[305] *CMA's PR19 Provisional Findings*, para. 9.180 (NGNNOA1_186).

[306] Outperformance Wedge Report, para. 4.4.21, exhibited at (KPMG_OW1_1).

[307] Outperformance Wedge Report, para. 1.3.18, exhibited at (KPMG_OW1_1).

[308] Outperformance Wedge Report, para. 4.4.12, exhibited at (KPMG_OW1_1).

benefits from doing so increases year on year. This creates a very weak incentive to pursue efficiency for any company in that position.

(288) These properties will directly harm consumers, both within RIIO-GD2 and in subsequent price controls. Within RIIO-GD2, consumers will be harmed if companies are not incentivised to improve performance or operate more efficiently, as explained in paragraph (286). Moreover, outperformance by a company during a price control delivers further benefits to consumers at the next price control, due to the existence of outperformance generating better information based on which regulators can set future incentive mechanisms. Disincentivising such performance therefore means that these benefits in future price controls do not materialise, as set out in the Outperformance Wedge Report.[309] This obvious point is made by one of the authors of the UKRN Study, who states that *"Outperformance of the companies of their cost and output allowances is a built-in feature of incentive-based regulation (the primary purpose of which is to promote cost discovery)."*[310]

(289) Second, the outperformance wedge may also create an expectation that the regulator will adjust future returns based on whether companies out/under-perform in the current control period. This reduces the incentive for companies to seek to outperform. This phenomenon is known as the 'Ratchet Effect', as set out in the Outperformance Wedge Report.[311] The more often and comprehensively that a regulator adjusts allowed revenues to reflect improved performance, the more a price control framework starts to resemble rate-of-return regulation rather than an incentive-based regulatory system. It is widely accepted, as explained in the Outperformance Wedge Report,[312] that rate of return regulation results in lower dynamic efficiency. In creating this effect, the outperformance wedge is therefore moving the regulatory system towards one which reduces efficiency, putting at risk the substantial benefits to consumers that the incentive-based system has delivered.

(iii) The outperformance wedge will increase regulatory risk which harms consumers in the longer term

(290) The outperformance wedge creates increased regulatory risk, for the reasons set out in the Outperformance Wedge Report.[313] The outperformance wedge does not have any regulatory precedent, lacks a robust justification for its introduction and a clear basis for its calibration and is also inconsistent with the design of the individual building blocks of the price control. It is likely adversely to impact investors' perceptions of the stability, effectiveness and fairness of the regulatory system, which the CMA has previously recognised to be an important determinant of investment decisions (see *Phoenix Gas*).*[314]* The outperformance wedge also significantly increases regulator discretion, which adds to regulatory risk, as recognised by one of the authors (Burns) of the UKRN Study, as set out in the Outperformance Wedge Report.[315]

(291) As such, as set out in the Outperformance Wedge Report, the outperformance wedge could ultimately increase the required return of investors to invest in a regime with such a mechanism, and as a result, could have detrimental impacts on consumers.[316] Indeed, the Appellant notes that Moody's was of the view that: *"The change represents a departure from established regulatory practice, adherence to which*

[309] Outperformance Wedge Report, para. 4.4.37, exhibited at (KPMG_OW1_1).

[310] UKRN Study, p. 87 (NGNNOA1_183).

[311] Outperformance Wedge Report, para. 4.4.29, exhibited at (KPMG_OW1_1).

[312] Outperformance Wedge Report, para. 4.4.41, exhibited at (KPMG_OW1_1).

[313] Outperformance Wedge Report, para. 4.4.48, exhibited at (KPMG_OW1_1).

[314] *Phoenix Gas*, para. 8.85 (NGNNOA1_192).

[315] Outperformance Wedge Report, para. 4.4.49, exhibited at (KPMG_OW1_1).

[316] Outperformance Wedge Report, para. 4.4.51, exhibited at (KPMG_OW1_1).

has supported widespread confidence in the stability and predictability of the regime. As such, it is credit negative."[317]

3.2.3 Regulators have alternative mechanisms available to ensure that they can set a "fair bet"

(292) Regulators have sufficient existing mechanisms in their regulatory toolkit to ensure that a price control is appropriately calibrated, thereby removing the need for an outperformance wedge. The Appellant submits that the use of such mechanisms represents much better regulatory practice than GEMA's proposed outperformance wedge – GEMA should have confidence that it can make balanced and well-justified choices in calibrating individual elements of the price controls, rather than proceed from a standpoint that it will inevitably fail to do so.

(293) As set out in the Outperformance Wedge Report, there are alternative mechanisms which GEMA can use to address outperformance on totex and ODIs at source, avoiding the negative adverse consequences for consumer welfare and efficiency that are generated by an outperformance wedge.[318] GEMA has already used such tools extensively as part of RIIO-GD2 and explicitly acknowledges this in the FD:

"*Our RIIO-2 package includes a range of policies and mechanisms which actively seek to address concerns that we had identified with the design of the RIIO-1 package that allowed excess returns at the expense of consumers. These include, for example:*

[(i)] PCDs: PCDs ensure that allowances are linked to the delivery of outputs, thereby safeguarding consumers from harm caused by inefficient cancellation or deferral of funded work

[(ii)] RPEs: Allowances for RPEs are indexed to observable indices so that allowances better reflect company costs as they vary over the price control

[(iii)] confidence-dependent Totex sharing factors: in RIIO-2 we have set lower Totex cost sharing factors compared to RIIO-1 to more closely align with the level of confidence we have in our cost benchmarks

[(iv)] balance of baseline funding vs Uncertainty Mechanisms: we have recommended funding a higher proportion of costs through UMs, including re- openers, UIOLI etc, compared to RIIO-1.

Through these mechanisms, we have attempted to reduce the scope for outperformance arising from uncertainties in the need and cost of work."[319]

(294) The fact that regulators have sufficient mechanisms in their regulatory toolkit to ensure a "fair bet" was recognised by a large sample of ex-regulators, surveyed by John Earwaker and Nick Fincham (see paragraph (278) above). The survey asked the sample of ex-regulators whether using the available approaches to cost assessment and output setting left regulators "*usually unable to set expenditure allowances and output targets that are sufficiently stringent to set up a fair bet."*[320] A majority of the ex-regulators disagreed (or strongly disagreed) with this proposition – indicating that they thought cost assessment and output setting tools available to regulators allowed them to set price controls that ensured investment is a 'fair bet'.[321]

[317] Moody's Regulated Energy Networks, p. 2 (NGNNOA1_227).

[318] Outperformance Wedge Report, paras. 4.5.1 to 4.5.7, exhibited at (KPMG_OW1_1).

[319] FD Core (revised), para 11.28 (NGNNOA1_166).

[320] Earwaker and Fincham Report, p. 15 (NGNNOA1_134).

[321] Outperformance Wedge Report, para. 3.5.9, exhibited at (KPMG_OW1_1).

3.3 GEMA has not provided any meaningful evidence to support the level of the outperformance wedge

(295) GEMA's approach to the calibration of the wedge has been characterised by a lack of rigour. The Appellant submits that GEMA has clearly failed to substantiate to a sufficient legal standard why it has set the wedge at 25bps.[322]

(296) GEMA claims that the 25bps is '*cautious*' using '*a reasonable degree of discretion'*.[323] It seeks to justify this on the basis of its sample mean from its historical analysis, arguing that the 25bps outperformance wedge implies a level of outperformance below this sample mean. Section 3.1.1 above, however, showed that this historical analysis is not relevant as a guide for the existence of outperformance in RIIO-GD2 and does not provide good evidence to support GEMA's conclusion that the outperformance wedge it has chosen is set at a cautious level. Moreover, it is established from the CMA's precedent that GEMA's margin of discretion does not extend to making significant adjustments absent good evidence. For example, as the CMA noted in *NPG Determination*, there is a "*limit to the discretion of regulators to make adjustments to the costs assumed in setting the price control where the consultation process has failed to demonstrate evidence in support of those adjustments*."[324]

(297) Moreover, GEMA has not adduced any empirical evidence to justify calibrating the outperformance wedge ***specifically*** at 25bps. There are clear parallels between this failure on the part of GEMA to substantiate the calibration of the outperformance wedge and the CMA's decision in *Firmus*, where the CMA found that the evidence submitted by the UR did not support its decision to set the non–additionality rate at 25%, or indeed any other specific figure.[325] The factors that the CMA cited to show a "*significant lack of rigour*" on the part of the UR equally apply to GEMA's calibration of the wedge in the present case:[326]

(i) Alternative methodologies were available, and the UR should have done more evidence–gathering or analysis in formulating the 25% non–additionality assumption.

(ii) The evidence submitted by the UR was largely anecdotal and that the limited quantitative evidence submitted was unreliable.

(iii) There was nothing in the UR's evidence that would support the UR's *specific* non–additionality rate of 25%. The evidence used to support the UR's 25% non–additionality rate was potentially consistent with a wide range of different values for the non–additionality rate.

(298) GEMA's application of an ex post top-up mechanism is evidence of the lack of confidence it has in the effectiveness of the outperformance wedge. It applies this so that "*if outperformance does not materialise […] then a top-up will increase returns to the cost of equity level*".[327] That such a mechanism is needed shows that GEMA does not have confidence that companies will still be able to achieve the estimated cost of equity in the face of the outperformance wedge. Moreover, as explained previously, given that the ex post top-up mechanism creates a "deadband" within which there is no incentive for incremental effort by a company to improve outcomes within that outturn performance range, the failure of GEMA to justify its decision to impose the wedge at 25bps is all the more problematic.

(299) GEMA claims that the fact that the CMA supported aiming up by 50bps, provides some support for its 25bps outperformance wedge being set at a cautious level.[328] This is a perverse suggestion – the CMA's

[322] Consistent with the CMA's decisions in *Firmus* (NGNNOA1_206) and *NPG Determination* (NGNNOA1_194).

[323] FD Finance Annex (revised), para. 3.127 (NGNNOA1_167).

[324] *NPG Determination*, para 4.142 (NGNNOA1_194).

[325] *Firmus,* para. 5.144 (NGNNOA1_206).

[326] *Firmus*, para 5.146 et seq (NGNNOA1_206).

[327] DD Finance Annex, para. 3.155 (NGNNOA1_156).

[328] FD Finance Annex (revised), para. 3.166 (NGNNOA1_167).

aiming up adjustment is an increase in the cost of equity, to reflect uncertainty and preserve investment and consumer welfare. This can provide no comfort that GEMA's reduction in the cost of equity by 25bps through the outperformance wedge is cautious. Instead, the CMA's application of aiming up supports arguments that GEMA's approach with the outperformance wedge will undermine investment and sacrifice consumer welfare, as discussed in Section 3.2.2 above.

3.4 GEMA's application of the outperformance wedge is incompatible with regulatory best practice

3.4.1 The outperformance wedge has no basis in regulatory precedent

(300) GEMA's approach is entirely without precedent. No regulator in the UK, nor in the rest of the world to the best of NGN's knowledge, has applied an outperformance wedge. This includes other regulators who have set price controls in the period after the UKRN Study was published (i.e. Ofwat in England & Wales and UR in Northern Ireland).

(301) As set out in the Outperformance Wedge Report,[329] the introduction of the outperformance wedge also represents a departure from the building block approach adopted by UK regulation since the early 1990s and an approach on which RIIO-GD2 is based. This approach builds up a price control on the basis of the assessment of individual cost elements, or 'building blocks', where each covers a different area of the price control, has a particular purpose and where the approach used to calibrate each building block must be consistent with that purpose. This ensures that the price control is deliverable overall and so that perverse incentives are not introduced by using a building block for a purpose that it was not intended to achieve.

(302) The introduction of the outperformance wedge deviates from this approach, as it is applied to the cost of equity, in order to instead adjust (for what GEMA claims to be) expected outperformance on totex and ODIs. As such, the allowed return on equity is being used for a different purpose than its intended role, which is to reflect the required return on equity for investors). Furthermore, the calibration of the outperformance wedge is also delinked from the individual building blocks that it is supposed to address (totex and ODI targets).

(303) The outperformance wedge implies that in GEMA's view the expenditure allowance building block no longer represents the expected efficient expenditure, effectively representing an arbitrary overlay on the calibration that will already have been made in setting the efficient expenditure building block.

(304) The building block approach has been established for a very important reason. It seeks to ensure that – through each building block being targeted and calibrated to a particular purpose – there is not scope for unintended consequences through untargeted interventions. The outperformance wedge creates exactly such unintended consequences through its unclear and untargeted approach.

3.4.2 GEMA has not conducted any cost benefit analysis to support the application of an outperformance wedge

(305) Given the outperformance wedge represents a significant departure from regulatory precedent and from the building block approach to UK regulation, the Appellant submits that GEMA should have conducted an analysis to test whether the benefits it suggests will accrue from the outperformance wedge outweigh the costs and/or adverse consequences. This is particularly relevant given the significant concerns raised by stakeholders over the incentive effects of the wedge. Absent such an impact assessment, GEMA has no basis for concluding that the application of the outperformance wedge will have its stated effect and is unable to discharge its statutory duty to promote the interests of existing and future consumers.

[329] Outperformance Wedge Report, para. 4.3.1, exhibited at (KPMG_OW1_1).

(306) The CMA's discussion of Ofwat's gearing outperformance mechanism in the *PR19 Provisional Findings* is important to note here. The CMA rejected the novel gearing outperformance sharing mechanism (GOSM) that Ofwat had adopted.[330] The CMA was *"concerned that a GOSM as proposed by Ofwat would represent a significant break from a well-established regulatory approach and may be seen by investors as punishing companies for previously sanctioned capital structures without offering sufficient evidence, clarity of justification or time to make cost-effective adjustments."*[331] It is submitted that the outperformance wedge represents a similar break from well-established regulatory approach and will likely be seen by investors as punishing companies for previously sanctioned behaviours under previous regulatory frameworks.

(307) It is notable that the CMA's view was not predicated on whether higher levels of gearing were desirable per se. In other words, it was concerned by the principle of Ofwat's approach. It urged Ofwat to develop tools to address the perceived issues more directly, and to do a *"full assessment of the costs and benefits of the different options for intervention".*[332] These same considerations apply to GEMA's approach to the outperformance wedge.

3.4.3 In introducing the wedge GEMA has not had sufficient regard to the principles of best regulatory practice

(308) GEMA has failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. The Better Regulation Taskforce introduced five key principles of better regulation as a test for whether a regulation is fit for purpose.[333] Examination of the outperformance wedge against these principles demonstrates clearly that they are not met, as explained more fully in the Outperformance Wedge Report[334]:

(i) **Proportionality**: The intervention through an adjustment to the allowed return on equity does not appear necessary as GEMA has more direct options to address ODI and totex concerns through the setting of their respective targets. These options are more targeted and do not suffer from the same undesirable side effects, which indicates that the costs have not been minimised and the outperformance wedge is not proportionate.

(ii) **Accountability**: It is not clear how the mechanism is joined up with the rest of the price control. First, the mechanism does not appear consistent with the RIIO-GD2 framework. Second, the approach to assess the need for the adjustment and to calibrate it appear to have been developed largely in isolation from the design and calibration of the remainder of the RIIO-GD2 building blocks

(iii) **Consistency**: The outperformance wedge does not appear to be consistent with other aspects of the price control, in particular, the incentive-based framework and the building block approach. Furthermore, the outperformance wedge appears to overlap somewhat with the Return Adjustment Mechanism which does not appear to have been considered by GEMA, as set out in the Outperformance Wedge Report.[335]

(iv) **Transparency**: The approach to introducing and calibrating the wedge relies on significant regulatory discretion rather than a well evidenced methodology to show there is likely to be an issue that needs addressing and that a 25bps downward adjustment is appropriate to addressing that. One of the key policy design components, the ex post top-up, was not consulted upon as it

[330] *CMA's PR19 Provisional Findings*, para. 9.629 (NGNNOA1_186).

[331] *CMA's PR19 Provisional Findings*, para. 9.628 (NGNNOA1_186).

[332] *CMA's PR19 Provisional Findings*, para. 9.630 (NGNNOA1_186).

[333] BRTF Less is More Report, pp. 51 and 52 (NGNNOA1_188).

[334] Outperformance Wedge Report, paras. 4.6.1 to 4.6.11, exhibited at (KPMG_OW1_1).

[335] Outperformance Wedge Report, para. 4.6.8, exhibited at (KPMG_OW1_1).

was only introduced at the FD (as a significant change from the version of the mechanism that was proposed at DD), which did not allow scrutiny of this element ahead of the decision.

(v) **Targeted**: The mechanism is not targeted as it seeks to address a perceived issue with ODI and totex performance through an adjustment to the cost of equity instead of a more targeted adjustment to the totex and ODI targets themselves. This lack of targeting introduces the kind "side effects" that the better regulation principles were concerned about. Moreover, GEMA has not demonstrated that its targeted interventions on totex and ODIs are insufficient.

(309) Given that the outperformance wedge risks undermining confidence in the sector for the reasons set out above, the Appellant submits that the application of the outperformance wedge is incompatible with the BEIS Principles for Economic Regulation, which highlight that the framework for economic regulation: "*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"*; and *"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*."[336]

4 Conclusion

(310) The Decision (as regards the application of the outperformance wedge) was wrong on the following grounds:

(i) In concluding that the application of an outperformance wedge is necessary to address information asymmetry and/or historic outperformance as a matter of principle, GEMA relies on a flawed analysis of historical and other data and has erred in fact and in law (by failing to take into account relevant considerations, acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors). By disregarding the submissions of stakeholders (and the substantive evidence put forward which supported an alternative view) and failing to provide adequate reasons for dismissing such evidence, GEMA has failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(ii) By introducing a mechanism that has manifestly flawed incentive properties:

(a) GEMA has failed properly to have regard to and/or give appropriate weight to its principal objective under GA86 to protect the interests of existing and future consumers. In particular, by decreasing incentives to outperform, it fails to ensure that (i) licensees are granted appropriate incentives to invest and to increase efficiencies and (ii) gas networks are secure, reliable and efficient. This undermines the interests of existing and future customers.

(b) By introducing a novel mechanism, which represents a significant departure from regulatory precedent, and is entirely disproportionate and inapt, GEMA has failed to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(iii) In failing to adequately consider and evidence its calibration of the outperformance wedge, GEMA has erred in fact and in law (by failing to take into account relevant considerations, acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula

[336] BIS Principles for Economic Regulation Report, p. 5 (NGNNOA1_208).

specification errors). It has also failed to have regard to the principles of best regulatory practice under which regulatory activities should be accountable and consistent.

5 Relief sought

(311) The consequence of these errors is that the inclusion of the outperformance wedge was wrong and it should be removed from the RIIO-GD2 regulatory framework.

(312) The Appellant therefore requests that the CMA quash the Decision and substitute its own, by removing the outperformance wedge from the RIIO-GD2 regulatory framework.

(313) The required amendments to the Licence to implement this relief are set out in further detail in Annex III.

PART VII
APPEAL GROUND 3: ONGOING EFFICIENCY

1 Overview

(314) This Part of the Notice relates to errors made by GEMA in setting its ongoing efficiency challenge within its cost assessment framework in the FD, as set out in Section 4.

(315) This Part will draw on the following expert reports and witness statements:

(i) Frontier Economics Report on 'Assessment of GEMA's approach to setting ongoing efficiency at RIIO-GD2' (the "**Ongoing Efficiency Report**");[337]

(ii) The Witness Statement of Mark Horsley (MH1), which explains in (a) Section 5.4.1: why GEMA's stretching OE target disproportionately impacts the Appellant as the frontier company; (b) Section 5.4.2: that COVID-19 makes realising GEMA's stretching efficiency target significantly harder; and (c) Section 5.4.3: that productivity improvements from RIIO-GD1 innovation are already 'baked into' the Appellant's baseline costs in the Business Plan; and

(iii) The Witness Statement of Gareth Mills (GM1) at paragraphs 31-32 and 38.

(316) At RIIO-GD2, GEMA has set allowances for totex for GDNs which can be recovered by the GDNs via customer bills. Totex allowances are intended to be set at a level, which is cost efficient, but which also preserves a GDN's ability to operate services, make necessary investments and maintain assets for the long-term. GEMA has taken the approach of using a single top-down model for calculating non-technically assessed costs. Technically assessed are added to the modelled, non-technically assessed costs, to give Totex.[338] Note, non-controllable pass-through costs are added to Totex to give the costs that can be recovered from consumers.

(317) After modelling and/or benchmarking costs, GEMA has applied two types of efficiency challenge: (i) an OE challenge, where even the most efficient network companies must improve by becoming more productive each year; and (ii) a catch-up challenge, where the less efficient network companies are encouraged to catch up with the more efficient – or frontier – ones. This Part focuses on the former type of efficiency challenge. GEMA's efficient cost benchmark (i.e. "catch-up" efficiency) will be considered in Part VIII (Appeal Ground 4: BPI Stage 4).

(318) In its assessment of the OE challenge, GEMA has chosen targets that consistently equal the highest figures for annual productivity improvements mentioned by its own economic consultants, CEPA. These go beyond anything that can properly be justified by the available economic evidence. GEMA has adopted an approach, which fails to meet its objectives of incentivising network companies to reduce costs, promote innovation, and reward efficiency. Specifically:

(i) GEMA's base OE challenge is set at the highest end of the range identified by its own economic consultants, CEPA (and higher than any of the EU KLEMS estimates on historical productivity growth presented by CEPA). This does not reflect the expected productivity of the GD sector in the RIIO-GD2 period specifically.

(ii) On top of this overly stretching base target, GEMA applies an additional innovation uplift to account for the innovation funding that the GDNs received in RIIO-GD1. This marks a departure from regulatory precedent and is based on a materially flawed calculation methodology, which

[337] Ongoing Efficiency Report, exhibited at (MR1_1). The Appellant notes that the Ongoing Efficiency Report has been jointly prepared for the Appellant and SGN. The Appellant has not reviewed the SGN Innovation Statement referenced in the Ongoing Efficiency Report and therefore does not seek to rely on this Witness Statement or any statement within it.

[338] This is the case for controllable costs; non-controllable costs (around £500 million in the FD) are subject to separate cost pass-through as per NGN's licence. FD NGN Annex (revised), p. 39 (NGNNOA1_169).

results in a fundamental double-counting error (as flagged by GEMA's own economic consultants, CEPA).

(iii) The impact of these two errors, both individually and in aggregate, is that GEMA has set a level of overall OE challenge, which is unreasonably high and is unachievable for the Appellant, in particular, as the frontier company in the sector.

(319) These errors are the result of the use of materially flawed methodologies, assumptions and factual errors, which are inconsistent with best regulatory practice and which fail to give due weight to well-established financial principles and evidence. Specifically:

(i) GEMA has been **selective in its use of evidence**. GEMA has not taken an even-handed position when assessing the EU KLEMS data, which leads it to set an OE challenge at the very top of the range recommended by CEPA. This selectivity is also exemplified by its failure to account for extensive evidence of a prolonged productivity slowdown in the UK since the financial crisis and the impact of COVID-19.

(ii) GEMA has **relied on evidence with fundamental weaknesses** which it has not accounted for or explained. For the innovation uplift, the methodology used by CEPA is flawed and several of its key underpinning assumptions are unevidenced or demonstrably false.

(iii) GEMA has provided **insufficient justification** for key parts of its conclusion. This can be seen in the base OE calculation, where GEMA has not explained why it thinks that regulated sectors ought to be able to outperform productivity growth rates seen in comparator sectors of the economy. It can also be seen in the innovation uplift, where GEMA failed to cross-check the robustness of CEPA's calculation methodology and ignored its own economic consultant's advice on areas to be further explored by GEMA when considering the level and impact of the innovation uplift.

(iv) GEMA has applied **approaches which are internally inconsistent**. For example, in assessing the base OE challenge, GEMA gives disproportionate weight to an economy-wide comparator set, while simultaneously rejecting evidence of an economy-wide productivity slump on the basis that this does not apply to energy networks. This amounts to unwarranted 'cherry-picking' of economy-wide evidence where it supports a higher OE challenge.

(v) GEMA has not addressed flaws **identified by their own economic consultants, CEPA**. For the OE challenge, GEMA has not adequately considered several methodological issues flagged by CEPA as relevant to GEMA's overall assessment of OE challenge. Significantly, CEPA specifically flagged that the innovation uplift could lead to a double-count of innovation-related productivity improvements and advised GEMA to consider this in its assessment.

(vi) GEMA has **failed to consider regulatory precedent**. An OE challenge in excess of 1% has not been set by any regulator considered by CEPA. GEMA's 1.2% OE challenge also materially exceeds the CMA's provisional decision of 1% in PR19 (which does not suffer from the double-counting implied by GEMA's innovation uplift). Moreover, water companies have significantly more complex supply chains and therefore greater scope for incremental efficiency improvements than the GD sector.

(320) GEMA's OE challenge for the GD sector in the FD is therefore wrong on the grounds set out in Section 4. The combined effect of GEMA's errors is in the range of £19-33 million.

(321) The Appellant requests the relief outlined in Section 5.

(322) The rest of this Part proceeds as follows:

(i) Section 2 discusses the errors in GEMA's assessment of base OE challenge.

(ii) Section 3 discusses the errors in GEMA's assessment of the innovation uplift.

(iii) Section 4 concludes why GEMA's OE challenge was wrong.

(iv) Section 5 sets out the relief sought.

2 Appeal Ground 3A: Base OE challenge

2.1 GEMA's approach

(323) As part of its baseline totex allowance, GEMA has set an OE challenge to reflect the productivity improvements that it believes a frontier GDN can achieve over the next five years.

(324) GDNs included OE assumptions as part of their business plans for RIIO-GD2. The Appellant's Business Plan included an OE assumption of 0.5% p.a. across Totex. [339]

(325) GEMA's calibration of the OE challenge was informed by reports provided by its economic consultants, CEPA. CEPA considered several sources of evidence on OE, notably an analysis of growth accounting data using the 2019 EU KLEMS dataset. [340] The methodology which underpinned CEPA's analysis is set out in the Ongoing Efficiency Report.[341]

(326) Ahead of the DD, GEMA commissioned CEPA to carry out an assessment of evidence and provide recommendations with respect to OE assumptions and RPE indices ("**CEPA's DD Report**"). CEPA's DD Report recommended a reference range for an OE challenge of 0.5% to 1.2% for Capex/Repex, and 0.5% to 1.4% for Opex.[342] Notably, the upper ends of the stated ranges included "*an upwards adjustment of up to 0.2% depending on the extent to which Ofgem believes that innovation benefits are already being delivered in the companies' RIIO-2 business plan proposals*".[343]

(327) At DD, GEMA selected an OE challenge at the top end of CEPA's recommended range, specifically at 1.2% p.a. for Capex and Repex and 1.4% for Opex, (inclusive of the 0.2% innovation uplift).[344]

(328) Following DD, GEMA commissioned a second report from CEPA which responded to some of the methodology points raised in stakeholder responses to the DD and produced an updated set of historical productivity estimates ("**CEPA's FD Report**"). CEPA at this point chose to focus only on a base OE challenge, excluding any innovation uplift. Its revised ranges for the base OE challenge were 0.5% to 0.95% for Capex/Repex and 0.5% to 1.05% for Opex.[345]

(329) CEPA also advised that, when considering where to set the base OE challenge, GEMA would need to take a view on a number of factors, including:[346]

(i) The strength of the recent past as a guide to the future, especially given the large falls in productivity seen around the time of the global financial crisis in 2008/9.

(ii) The relative weighting given to gross output ("**GO**") and value added ("**VA**") productivity measures.

(iii) The balance between total factor productivity and partial factor productivity measures.

[339] RIIO-GD2 Business Plan, section 6.2.1 (NGNNOA1_001).

[340] CEPA's DD Report, p. 5 (NGNNOA1_229).

[341] Ongoing Efficiency Report, Section 6, exhibited at (MR1_1).

[342] CEPA's DD Report, p. 6 (NGNNOA1_229).

[343] CEPA's DD Report, p. 6 (NGNNOA1_229).

[344] DD Core, para. 5.6 (NGNNOA1_155).

[345] CEPA's FD Report, p. 7 (NGNNOA1_230).

[346] CEPA's FD Report, pp. 6 to 7 (NGNNOA1_230).

(iv) The difference between insights from the productivity estimates produced by targeted comparator sets compared to economy-wide productivity.

(330) GEMA proceeded to set a base OE challenge at the top end of CEPA's recommended range at 0.95% p.a. for Capex and Repex and 1.05% for Opex. It also added a 0.2% innovation uplift, producing an overall OE challenge of 1.15% for Capex/Repex and 1.25% for Opex.[347] GEMA noted that it decided to "aim up" within the range selected by CEPA on the basis that setting a suitably stretching OE challenge ensures value for money for consumers.[348] As further explained in Section 3 below, GEMA said that its inclusion of an innovation uplift reflected its view that the innovation funding that network companies had received in RIIO-GD1 should deliver benefits over and above those achieved in the wider economy.

2.2 GEMA's errors in relation to the base OE challenge

2.2.1 GEMA's decision to "aim up" within CEPA's recommended range was based on flawed methodologies, inconsistent assumptions and factual errors

(331) The Appellant submits that GEMA has made a number of errors of assessment which has led it to set the base OE challenge at too high a level, and which is indeed higher than any of the EU KLEMS estimates on historical productivity growth presented by CEPA.[349] The Appellant submits that this approach does not reflect a proper and balanced consideration of the evidence from CEPA's analysis of EU KLEMS data. For the reasons set out below and explained in further detail in the Ongoing Efficiency Report,[350] GEMA's decision is predicated on the use of materially flawed methodologies, assumptions and factual errors which are inconsistent with best regulatory practice.

(332) **First**, GEMA's rationale for its decision to "aim up" within the range recommended by CEPA is not justified. In the FD, GEMA notes that: "*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.*"[351]

(333) This justification is unevidenced and runs contrary to fundamental economic theory. GEMA's position that network companies are less exposed to negative shocks than other sectors of the economy, and that companies that are less exposed to negative shocks can make greater annual efficiency gains, is not substantiated (let alone evidenced). Moreover, not only can regulated companies be equally or more exposed to various shocks (e.g. inflation) when compared to the wider economy, they are also more constrained in their ability to adapt flexibly to such shocks (e.g. inflation and weather) given they are subject to mandatory regulatory requirements. The argument that regulated monopolies can drive higher efficiency gains given that they are not subject to competitive pressure, runs contrary to well-established economic theory. It suggests that economic regulation can deliver better outcomes than free and competitive markets[352] and ignores the fact that exposure to downswings in the economic cycle and competitive pressures, when combined with the knowledge that inefficient firms will fail, drive innovation and productivity growth. It also fails to recognise that reporting and compliance requirements under the regulatory licence framework consume considerable management time at network companies. GEMA's

[347] FD Core (revised), para. 5.20 (NGNNOA1_166).

[348] FD Core (revised), paras. 5.19 and 5.21 (NGNNOA1_166).

[349] Ongoing Efficiency Report, para. 1.1.11, exhibited at (MR1_1).

[350] Ongoing Efficiency Report, Section 6, exhibited at (MR1_1).

[351] FD Core (revised), para. 5.21 (NGNNOA1_166).

[352] Ongoing Efficiency Report, para. 4.2.36, exhibited at (MR1_1).

stated rationale in the FD for "aiming up" within the estimates provided by CEPA is therefore materially flawed.

(334) **Second**, as noted above, CEPA highlighted several factors that GEMA needed to consider when determining where to set the overall OE challenge within CEPA's recommended range. The Appellant submits that it is self-evident from the scant attention that these factors received in the FD that GEMA has failed to meaningfully consider these factors in its analysis. A balanced consideration of the weight of evidence, would not have led GEMA to set the OE challenge at the top end of CEPA's recommended range. In taking a contrary view, GEMA relies on a contrived interpretation of the EU KLEMS data, which rests on flawed methodologies, inconsistent assumptions and factual errors. In particular:

(i) First, in setting the OE challenge at the top of CEPA's recommended range GEMA places greater weight on data from before 2008 than after 2008 within the EU KLEMS dataset and fails adequately to take account of the extensive evidence[353] that there has been a structural slowdown in economy-wide productivity growth since the financial crisis.[354] GEMA's justification appears to be that this productivity slow-down is less relevant to utility sectors than to other sectors. However, this is insufficiently justified, is reliant on supposition, and is contradicted by CEPA's own analysis of EU KLEMS data, which finds a significant reduction in productivity in the sectors selected as being the closest comparators to energy networks (including sectors in which GDNs' contractor companies operate).[355]

(ii) Second, GEMA has failed to have proper regard to GO measures of productivity, seemingly placing considerable weight on value added VA measures. Placing weight on only VA measures results in an estimate of productivity that is biased upwards, for the reasons set out in the Ongoing Efficiency Report.[356] GEMA has disregarded CEPA's recommendation and regulatory precedent, [357] which both support a more balanced approach. GEMA states in the FD that it has in fact "*given some weight to Gross Output (GO) productivity measures, which have reduced the level of efficiency challenge*." [358] However, GEMA's decision to set the base OE challenge at the top end of CEPA's recommendation appears to contradict this and strongly suggests that GEMA has given exclusive or wholly disproportionate weight to VA measures.

(iii) Third, GEMA erroneously places disproportionate weight on an economy-wide comparator set. CEPA's OE estimates are based on EU KLEMS data using two different comparator sets: (i) a targeted comparator set (more comparable to GDNs); and (ii) an economy-wide comparator set (less comparable to GDNs).[359] As productivity figures for the targeted comparator set are lower, by choosing an OE figure at the top of CEPA's recommended range, GEMA places more weight on the less representative data. Not only is this approach flawed on its own terms, it is also

[353] There is extensive and varied evidence of a prolonged period of extremely low productivity growth in the UK (often referred to as the 'productivity puzzle') since the global financial crisis. This has been documented by, inter alia, the Office of National Statistics, the Bank of England, the Office for Budget Responsibility, McKinsey, and LSE. As such, 2008 clearly represents a watershed in terms of productivity growth. There are no signs that productivity growth will recover over RIIO-GD2 (particularly given the recessionary impact of COVID-19), nor has this been argued by GEMA. See Ongoing Efficiency Report, para. 6.2.5, exhibited at (MR1_1).

[354] In CEPA's FD Report, CEPA uses data for the period from 1997 to 2016 when assessing EU KLEMS data on productivity (i.e. 53% of CEPA's data predated the global financial crisis when UK productivity growth was much higher). See CEPA's FD Report, p. 6 (NGNNOA1_230).

[355] CEPA's FD Report, p. 21 (NGNNOA1_230).

[356] Ongoing Efficiency Report, para. 6.2.17 to 6.2.27, exhibited at (MR1_1).

[357] For instance, this approach was used by GEMA at RIIO-GD1/T1 and by the CMA in its Provisional Findings for PR19 (NGNNOA1_186). *See* Ongoing Efficiency Report, para. 6.2.20, 6.2.26, exhibited at (MR1_1). CEPA also advised that *"it is typically seen as good regulatory practice to consider the information provided by both methods." See* CEPA's FD Report, p. 24 (NGNNOA1_230).

[358] FD Core (revised), para. 5.22 (NGNNOA1_166).

[359] CEPA's FD Report, p. 21 (NGNNOA1_230).

inconsistent with GEMA's rejection of the economy-wide evidence of a structural slowdown in productivity growth since the financial crisis.[360]

(335) Third, GEMA has made significant conceptual errors in the application of its OE challenge. These errors relate to the inconsistent application of (i) productivity estimates based on VA measures to the entirety of controllable Totex; and (ii) productivity estimates based on labour productivity measures to the entirety of Opex. Both of these methodological weaknesses have been recognised by CEPA's DD Report.[361] See paras. 6.3.1 to 6.3.9 of the Ongoing Efficiency Report, exhibited at (MR1_1).

(336) Fourth, GEMA notes 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).*"[362] However, SGN (the only GDN in this group) highlighted to GEMA in DD that its 1% figure was not comparable to GEMA's OE figures – it was a simple average of SGN's annual OE assumptions, rather than a compound average.[363]

2.2.2 GEMA disregards the significant impact of COVID-19

(337) The Appellant submits that an even-handed assessment of the available EU KLEMS data would militate in any circumstances against setting the OE challenge at the top end of CEPA's recommended range. However, this is particularly true given the uncertainty created by the ongoing COVID-19 pandemic, which GEMA has disregarded in its assessment.

(338) The COVID-19 pandemic has had an unprecedented impact on the UK economy. The overall impact on GDP between February and November 2020 was a reduction of about 8.6%.[364] It is now clear that the disruption caused by COVID-19 will not end before the start of the RIIO-GD2 price control on 1 April 2021. There is also a general acceptance that 2020 was a lost year for productivity growth across the economy, and that this may also lead to longer-term scarring. For example, the Office for Budget Responsibility ("**OBR**") predicts nominal GDP in the first quarter of 2025 to be 4.5% lower than its November 2020 central forecast.[365] The OBR notes that "*the main contributor to lower real GDP is a 2 percentage point scarring effect on productivity*".[366] Evidence made available to GEMA by the Energy Networks Association (ENA) indicates a slow-down in productivity in gas and throughout the supply chain, but this has not been reflected in GEMA's assessment.[367]

(339) As explained in the Witness Statement of Mark Horsley (MH1) at Section 5.4.2,[368] COVID-19 has had a material impact on the Appellant's business and will render meeting its efficiency targets extremely challenging:

(i) COVID-19 has increased the need for Personal Protective Equipment, which requires additional time for employees to apply and dispose of.

[360] See Ongoing Efficiency Report, paras. 6.2.29 to 6.2.33, exhibited at (MR1_1).

[361] CEPA's DD Report, pp. 12 and 26 (NGNNOA1_229).

[362] FD Core (revised), para. 5.29 (NGNNOA1_166).

[363] SGN stated that "*reflecting this as an average compounded value, in line with Ofgem's position, this would be re-stated as 0.83%".* SGN DD Response (extract), p. 100 (NGNNOA1_233), also available at https://www.ofgem.gov.uk/publications-and-updates/riio-2-draft-determinations-transmission-gas-distribution-and-electricity-system-operator (accessed on 27 February 2021). See also Ongoing Efficiency Report, paras. 4.5.10 to 4.5.12, exhibited at (MR1_1).

[364] Based on ONS UK GDP Data (NGNNOA1_238) and ONS UK GDP Monthly Estimate (NGNNOA1_237), also available at https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/november2020 (accessed on 27 February 2021).

[365] OBR Economic and Fiscal Outlook, para. 1.34 (NGNNOA1_236).

[366] OBR Economic and Fiscal Outlook, para. 1.28 (NGNNOA1_236).

[367] First Economics Frontier Productivity Growth Report, Section 2.4, p. 8 (NGNNOA1_135).

[368] MH1, Section 5.4.2.

(ii) COVID-19 has resulted in additional customer welfare requirements that are likely to continue to apply in the next price control. These involve, amongst others, spending additional time with customers, adhering to COVID-secure arrangements when visiting customers' houses, and delaying, rescheduling or cancelling the planned network works due to restricted access to customers' houses. All these requirements result in increased costs and decreased productivity for the Appellant.

(iii) The Appellant has been contending with ongoing increases in operational staff absences (given social-distancing and isolation rules) across its business. This has led to significantly increased costs.

(iv) COVID-19 has led it to incur significantly increased costs (with the Appellant's early estimate of the impact being at £1-4 million on a net basis per annum).

(340) In the FD, GEMA noted that it had decided not to make an allowance for the impact of COVID-19 on OE on the basis that: (i) it is very hard to make a confident judgement about the impact of COVID-19 on productivity; (ii) GEMA will address any potential impacts of COVID-19 as part of the RIIO-GD2 closeout process; and (iii) its approach is supported by that of the CMA in its PR19 PFs.[369]

(341) However, the impact of the recession and costs linked to COVID-19 are now clearer than they were at the CMA's PR19 PFs[370] and, hence, its severity is far more obvious. GEMA's FD would require network companies to bear the costs associated with its decision for at least the next five years (without any certainty about how GEMA will ultimately assess any adverse impacts of COVID-19 on productivity as part of the RIIO-GD2 closeout process) and is not consistent with GEMA's primary duty under section 4AA(2)(b) GA86 to ensure that the network companies are able to finance their regulated activities by allowing their efficient costs.

2.2.3 GEMA's OE target is disproportionately challenging for the frontier company

(342) As part of its response to the DD, the Appellant noted that it had serious concerns with GEMA's proposed OE challenge given the unique challenges that this involves for the frontier company.[371]

(343) The FD notes that: "*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.*"[372] However, this fails to recognise that the Appellant's very success in delivering improvements in efficiency at RIIO-GD1 makes it materially more difficult for the Appellant to attain an equivalent level of efficiencies at RIIO-GD2.

(344) By referencing the frontier company as evidence to support the stretching OE challenge, GEMA distorts the incentives of the Appellant to further reduce its costs. This is because under GEMA's approach the Appellant will be penalised in the next price control period(s) as its success in the previous price control period sets the target for the next. GEMA has failed to undertake a robust analysis to understand the investments undertaken by the Appellant to achieve the OE target in RIIO-GD1 and reach an informed decision on whether these are replicable in RIIO-GD2.

(345) The Appellant's submitted costs in its Business Plan included an OE challenge of 0.5% p.a. across Totex.[373] This reflected the significant business changes made in RIIO-GD1 and the fact that, as the frontier GDN in terms of efficiency, the Appellant faces a number of significant challenges to deliver

[369] FD Core (revised), para. 5.25 (NGNNOA1_166).

[370] *CMA's PR19 Provisional Findings* (NGNNOA1_186).

[371] DD Core Response, pp. 6 to 8 (NGNNOA1_113).

[372] FD Core (revised), para. 5.27 (NGNNOA1_166).

[373] RIIO-GD2 Business Plan, section 6.2.1 (NGNNOA1_001).

incremental efficiencies at RIIO-GD2 (as explained in the Witness Statement of Mark Horsley (MH1) at Section 5.4.1):[374]

(i) The Appellant starts the RIIO-GD2 period with its efficiency improvements at RIIO-GD1 already embedded in its baseline costs. Compared to other GDNs, it is therefore starting at a comparatively higher level of efficiency from which to seek to achieve incremental efficiencies.

(ii) Efficiency benefits realised at RIIO-GD1 stemmed in part from substantial structural changes which delivered one-off benefits that cannot be replicated. These include the transition to a 100% Direct Service Provider model for repex, the implementation of new direct labour terms and conditions and the implementation of a new offtake optimisation project.

(iii) Efficiency benefits at RIIO-GD1 were predicated on significant investment from shareholders (outside of the totex framework) through re-investment of the Appellant's funds into the business. For the reasons explained elsewhere in this Notice, GEMA's decisions regarding the RIIO-GD2 framework put at risk similar investments in the RIIO-GD2 and future price control periods.

(346) In addition to difficulties related to the Appellant's status as the frontier company, GEMA's analysis also assumes that the productivity potential is equal across all network companies in the sector and takes no account of the fact that smaller GDNs such as the Appellant face greater challenges in delivering productivity improvements than companies of much greater size.

2.2.4 The impact of GEMA's errors on its base OE challenge

(347) Overall, the errors in GEMA's approach led it erroneously to set the base OE challenge at a level that is disproportionate and wrong. These errors are the result of GEMA's selective use of EU KLEMS evidence, failure to engage with the methodological choices that CEPA's analysis required GEMA to make (which were flagged both by stakeholders and CEPA itself), and failure to have due regard to other factors, which demonstrate that it should not have "aimed up" within CEPA's recommended range.

3 Appeal Ground 3B: Innovation uplift

3.1 GEMA's approach

(348) As part of its assessment of the OE challenge in RIIO-GD2, GEMA considered the additional scope for OE improvements that can be attributed to innovation funding provided to network companies as part of RIIO-GD1.

(349) In CEPA's DD Report, CEPA set out the potential rationale for the introduction of an "innovation uplift". In CEPA's DD Report, CEPA recommended the inclusion of an innovation uplift but set out a series of caveats that GEMA was advised to reflect on before setting the level of the overall OE challenge.[375]

(350) CEPA concluded that an annual efficiency improvement of up to 0.2% could be a reasonable estimate, albeit based on numerous simplifying assumptions, most notably: (i) the level of benefits accruing to consumers as a result of past innovation funding are in the form of cost savings only, and (ii) no OE driven by innovation funding is already embedded in the baseline costs of network companies' business plans for RIIO-GD2.[376]

[374] MH1, Section 5.4.1.

[375] CEPA's DD Report, pp. 23 to 26 (NGNNOA1_229).

[376] CEPA's DD Report, p. 26 (NGNNOA1_229).

(351) At DD, GEMA selected an uplift on the OE challenge for innovation funding at the top end of CEPA's recommended range, specifically at 0.2% p.a. GEMA's justification was largely based on CEPA's assumptions and calculation methodology.[377] In particular:

(i) GEMA justified its decision to adopt CEPA's estimate of a 0.2% uplift p.a. on OE challenge on the basis that this is "*reasonable given the associated level of risk*".[378]

(ii) GEMA contended that, even if the innovation funding during RIIO-GD1 may have resulted in quality of service improvements, the cost savings are of a sufficiently high level to result in at least 0.2% additional OE.[379]

(iii) Network companies could achieve efficiency improvements in excess of the range proposed by CEPA as they do not face negative shocks and competitive pressures and can instead place their full attention on driving efficiency gains.[380]

(352) At FD, GEMA opted for a 0.2% uplift p.a. on the OE challenge without adducing any additional supporting evidence (despite the various concerns raised by stakeholders in the DD consultation).[381] In a single paragraph of the FD, GEMA noted that "*innovation funding provided by consumers since 2007 should deliver efficiency benefits over and above those achieved in the wider economy, in comparator sectors, and beyond the range indicated by EU KLEMS*".[382]

(353) GEMA briefly addressed the concern raised by stakeholders that the 0.2% uplift p.a. involves double-counting because CEPA's data (EU KLEMS) already captures productivity growth from innovation, by contending that "*while companies will have baselined some savings from past innovation projects, […] 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*."[383] This simplistic analysis led GEMA to conclude that the innovation uplift in RIIO-GD2 is "*reasonable and necessary for the energy sector*".[384]

3.2 GEMA's errors in setting the innovation uplift

(354) The Appellant submits that GEMA has erred in introducing the innovation uplift in RIIO-GD2. This is because the innovation uplift is not only unjustifiable in principle but also based on a materially flawed calculation methodology. In summary, the Appellant identifies three sets of errors, as set out below and explained more fully in the Ongoing Efficiency Report:

3.2.1 The innovation uplift relies on a double-counting error and other flawed assumptions

(355) The Appellant submits that GEMA failed to provide any objective explanation and compelling empirical evidence to adequately justify its decision to introduce the innovation uplift in RIIO-GD2. It is well-established[385] that the threshold for introducing novel deductions from allowed revenue within the price control framework is very high and therefore, when GEMA is considering a departure from its past

[377] DD Core, paras. 5.40 to 5.44 (NGNNOA1_155).

[378] DD Core, para. 5.41 (NGNNOA1_155).

[379] DD Core, para. 5.42 (NGNNOA1_155)

[380] DD Core, para. 5.42 (NGNNOA1_155).

[381] See for example WWU's response to the DD Consultation: "*Inappropriate application of further uplift for innovation funding […] CEPA's calculation is simplistic (based on assuming a return from innovation funding) and has a number of unsubstantiated assumptions (e.g. a lot of projects that have been funded through the innovation scheme are related to service quality rather than cost reduction)*". WWU DD Response (extract), p. 30 (NGNNOA1_234), also available at https://wwutilities.co.uk/media/3846/wales-west-utilities-draft-determination-response.pdf (accessed on 27 February 2021).

[382] FD Core (revised), para. 5.26 (NGNNOA1_166).

[383] FD Core (revised), para. 5.26 (NGNNOA1_166).

[384] FD Core (revised), para. 5.26 (NGNNOA1_166).

[385] *NPG Determination*, para. 4.145 (NGNNOA1_194).

regulatory approach, it ought to have a solid basis for doing so, especially where its decision will have a material impact not only on GDNs but also on customers. This was confirmed in the *NPG Determination*, where the CMA held that GEMA's discretion on the basis of its regulatory expertise did not provide a sufficient justification for introducing a specific Smart Grid Benefit adjustment.[386] On the contrary, any novel cost deduction requires a "*careful consideration*" and "*cogent justification*" especially when this is heavily dependent on GEMA's judgments.[387]

(356) In particular, the CMA held that this type of adjustment requires the regulator to consider two key questions: (i) if companies' business plans were likely to have underestimated materially the relevant benefit; and (ii) if any underestimation has been addressed by the general cost benchmarking exercise.[388] As such, "*there can have been no justification for an adjustment*"[389] if GDNs' business plans do not underestimate the efficiency improvements, or the regulatory framework sufficiently addresses any underestimation through general costs benchmarking. Equally, the CMA found that a justification on the basis that the adjustment leads to lower customer bills is insufficient.[390] Instead, the CMA held that a "*robust, evidence-based decision-making, taking into account the potential limits of evidence on issues where there is significant uncertainty*"[391] is required.

(357) ***First, in setting the innovation uplift, GEMA has double-counted innovation.***

(358) As explained in the Ongoing Efficiency Report,[392] the rationale for GEMA's introduction of the innovation uplift relies on a fundamental double-counting error: a significant portion of productivity improvements delivered by RIIO-GD1 innovation funding will be captured either in the core OE challenge or in the network companies' costs allowances for RIIO-GD2 business plans.

(359) *Productivity improvements from innovation at RIIO-GD1 are captured in the base OE challenge derived from EU KLEMS data*, which captures productivity growth resulting from R&D spend by comparator sectors. CEPA alerted GEMA to the risk noting that "*there may be some scope for double-counting if the full relationship between innovation and productivity was used to estimate an innovation-related top-up to the ongoing efficiency estimates produced by EU KLEMS analysis*".[393] GEMA has failed to assess or quantify this risk.

(360) GEMA has also disregarded the recommendation of its own economic consultants. In CEPA's FD Report, CEPA stated 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*".[394] In adding the innovation uplift to its base OE challenge (which was already set at the top of CEPA's recommended range), GEMA has disregarded CEPA's advice and perpetuated this double-counting error.

(361) Productivity improvements from innovation at RIIO-GD1 are captured in company business plans. Network companies have built efficiency gains from RIIO-GD1 innovation funding into their baseline costs for RIIO-GD2. These costs are then used by GEMA in setting the network companies' costs allowances, and thus these allowances already reflect the productivity improvements delivered by innovation projects carried out in RIIO-GD1. In CEPA's DD Report, CEPA recognises that one of the

[386] *NPG Determination*, paras. 4.139 to 4.140 (NGNNOA1_194).

[387] *NPG Determination*, paras. 4.53, 4.90 to 4.91 and 4.101 (NGNNOA1_194).

[388] *NPG Determination*, para. 4.54 (NGNNOA1_194).

[389] *NPG Determination*, para. 4.54 (NGNNOA1_194).

[390] *NPG Determination*, paras. 4.59 and 4.141 (NGNNOA1_194).

[391] *NPG Determination*, para. 4.59 (NGNNOA1_194).

[392] Ongoing Efficiency Report, paras. 4.2.21 to 4.2.46, exhibited at (MR1_1).

[393] CEPA's DD Report, p. 22 (NGNNOA1_229).

[394] CEPA's FD Report, p. 8 (NGNNOA1_230).

lessons learned from the NPG Determination was: "[*t]he importance of establishing the extent to which innovation benefits have already been embedded in the business plans submitted by the companies*".[395]

(362) Cost savings delivered from efficiency improvements by RIIO-GD1 innovation funding have already been built into the Appellant's historic and future cost base, which drove the regression modelling at RIIO-GD2 (amounting to £1.6 million for each year of RIIO-GD2). As the Appellant's CEO, Mark Horsley, states in his Witness Statement (MH1), the Appellant's "*main innovation projects at RIIO-GD1 delivered an average annual benefit of £1.6 million which is already baked into [its] baseline costs for RIIO-GD2*".[396] The Appellant submits that no further material cost savings are anticipated to be delivered in RIIO-GD2 from its main innovation projects that took place in RIIO-GD1.

(363) Various other GDNs (e.g. Cadent[397] and SGN[398]) have also noted double-counts with respect to the treatment of cost savings from innovation funding in their RIIO-GD2 business plans.

(364) At FD, GEMA acknowledged that some innovation-driven efficiency improvements had already been built into the network companies' cost allowances; however, GEMA dismissed this risk by noting that "*the full benefits of past innovation continue to be realised [in the course of RIIO-GD2]*" and hence until all benefits become known the innovation uplift is warranted.[399] GEMA has not provided any evidence to substantiate this proposition, which is a novel and surprising approach to the setting of OE challenge. In any event, as a matter of principle, the Appellant submits that this does not correct the error given that the innovation uplift will inevitably lead to double-counting irrespective of whether further savings could also materialise throughout RIIO-GD2 (as CEPA's calculation methodology for the innovation uplift was based on an estimated reasonable return on all RIIO-GD1 innovation funding). As stated in the Witness Statement of Mark Horsley (MH1), the Appellant does not anticipate any further material cost savings in RIIO-GD2 from the main innovation projects that took place in RIIO-GD1.[400]

(365) ***Second, the innovation uplift is based on the flawed and unsubstantiated assumption that innovation funding at RIIO-GD1 was incremental to comparator sectors.***

(366) GEMA concludes that it needs to apply an innovation uplift because network companies received innovation funding in RIIO-GD1, which was incremental to R&D spend in other sectors on which the base OE challenge was based: "*the energy sector has enjoyed explicit and additional innovation funding over and above general allowances and beyond any comparator sectors, including water*".[401] However, this assumption is unsubstantiated.

(367) For the reasons explained in the Ongoing Efficiency Report,[402] it is impossible in practice to identify a single factor (e.g. R&D spend) in a sector and conclude that that factor alone allows that sector to deliver additional productivity relative to the other sectors used within the EU KLEMS benchmark.

[395] CEPA's DD Report, p. 29 (NGNNOA1_229).

[396] MH1, paras. 72 to 73.

[397] Cadent noted that GEMA "*ha[s] added an innovation stretch to the top of the CEPA proposed base range. Hence there is a double count of this effect, overstating the target efficiency by over 0.2%*". Cadent DD Response (extract), p. 24 (NGNNOA1_231), also available at https://cadentgas.com/nggdwsdev/media/bp/Draft-Determination-Response.pdf (accessed on 27 February 2021).

[398] SGN proposed *"to remove the part of the efficiency challenge that pertains to innovation funding as it is not justified - the comparator sectors considered by [GEMA] also engage in innovation and there is no evidence that gas distribution networks will be expected to outperform them on this front over RIIO-GD2".* SGN DD Summary Response, p.12 (NGNNOA1_232), also available at https://www.sgnfuture.co.uk/wp-content/uploads/2020/09/SGN-RIIO-GD2-Draft-Determination-Consultation-SectionA-Exec-Summary-Redacted.pdf (accessed on 27 February 2021).

[399] FD Core (revised), para. 5.26 (NGNNOA1_166).

[400] MH1, para. 73.

[401] FD Core (revised), para. 5.26 (NGNNOA1_166).

[402] Ongoing Efficiency Report, paras. 4.2.3 to 4.2.20, exhibited at (MR1_1).

(368) As explained in GEMA's 2016 review of network innovation, part of the rationale for GEMA's innovation funding was to incentivise more innovation by monopoly networks companies, which undertake sub-optimal levels of innovation compared to other sectors.[403]

(369) While innovation is a driver of productivity, this relationship is a complex one. Two firms or two sectors can achieve the same level of productivity while spending different amounts on R&D. Equally, two firms or two sectors can spend the same amount on R&D but achieve very different productivity levels. It is therefore not possible to conclude that innovation funding received by GDNs should lead to higher productivity compared to other sectors within the EU KLEMS dataset (particularly as much innovation funding in the energy sector has been oriented at environmental and service level objectives, rather than productivity increases).

(370) Given these differences between sectors, it is incorrect for GEMA to conclude that an innovation uplift to reflect funding received in RIIO-GD1 is warranted because such funding leads to higher productivity (i.e. cost savings) over and above levels of R&D in other sectors within the EU KLEMS dataset.

(371) ***Third, the methodology adopted by GEMA to calibrate the 0.2% uplift was based on materially flawed, arbitrary or unsupported assumptions.***

(372) Without prejudice to its primary submission that there is no basis for the innovation uplift, the Appellant also contends that GEMA's basis for quantifying the innovation uplift was based on a number of materially flawed, arbitrary or unsupported assumptions.

(373) In this regard, it is important to note that CEPA's DD Report, on which GEMA relies, did not seek to estimate the productivity gains that will or should result from historical innovation funding, noting that it does not have "*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*".[404] Instead, CEPA uses a number of input assumptions (including a 0.2% productivity uplift from innovation) to explore how consumers could earn a reasonable return on the funding that they have provided.

(374) In total, CEPA identifies ten assumptions needed to come up with a scenario in which customers obtain such a return.[405] These are listed at section 4.3 of the Ongoing Efficiency Report.[406] The Appellant submits that it was wrong of GEMA to conclude that these assumptions provide an adequate justification for its 0.2% innovation uplift. In summary:

(i) The 0.2% uplift p.a. is an input assumption. The 0.2% figure was a simple input assumption that CEPA used to construct a scenario in which customers get a reasonable return from innovation funding, backed by a sensitivity analysis of various other estimates. CEPA's DD Report noted that its calculation methodology *"involves judgments being made in multiple areas – therefore, to avoid spurious accuracy, [CEPA] have tried to keep the analysis simple" by using a number of "simplifying assumptions*" which "*seemed*" to CEPA appropriate.[407]

(ii) The 0.2% uplift p.a. is based on flawed and arbitrary assumptions:

(a) First, CEPA assumes that the only benefits accrued to customers from the RIIO-GD1 innovation funding are cost savings.[408] Conversely, the primary purpose of R&D spend in the energy sector is often to deliver quality or service improvements (with no material

[403] "*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".* GEMA 2016 Network Innovation Review, paras. 1.4 and 1.7 (NGNNOA1_239).

[404] CEPA's DD Report, p. 23 (NGNNOA1_229).

[405] CEPA's DD Report, p. 25 (NGNNOA1_229).

[406] Ongoing Efficiency Report, Section 4.3, exhibited at (MR1_1).

[407] CEPA's DD Report, p. 24 (NGNNOA1_229).

[408] CEPA's DD Report, p. 26 (NGNNOA1_229).

impact on measured productivity). For instance, the main purpose of the innovation funding mechanisms during RIIO-GD1 was to "*enable the transition to a low carbon economy as well as minimise networks' environmental impact*"[409] and Frontier Economics' analysis shows that 71% of NIC funding had a primary focus of delivering environmental benefits, rather than cost-savings. As explained in the Witness Statement of Mark Horsley (MH1),[410] the primary purpose of much of the Appellant's innovation at RIIO-GD1 has been driving significant quality or service improvements.[411] In particular, the Appellant submits that c. 60% of its RIIO-GD1 innovation portfolio focused on informing and influencing the energy future landscape, increasing its technology readiness level (TRL) R&D and contributing learning to the GD sector. Further, CEPA ignores the fact that, by their nature, the innovation projects are risky and may not deliver any efficiencies or improvements at all. By way of example, only approximately one third of the Appellant's planned innovation projects for RIIO-GD1 have been successful in being implemented into business as usual (BAU).[412]

(b) Second, CEPA's assumption that the benefits of the RIIO-GD1 innovation funding are fully realised only during the RIIO-GD2 period is incorrect.[413] As explained in the Ongoing Efficiency Report,[414] there are many industry examples of innovation projects that delivered benefits during RIIO-GD1 only given that this was an eight-year price control period. In his Witness Statement (MH1), Mark Horsley notes that there were a number of projects where the Appellant realised benefits from such innovation during RIIO-GD1 and which are already fully incorporated into the Appellant's Business Plan, with no further benefits expected. For example, the Appellant has implemented an offtake optimisation project to submit its 2016 Offtake Capacity Statement (OCS) with National Transmission System (NTS) which is embedded for future use as BAU with no further benefits anticipated.[415]

(c) Third, no additional OE driven by innovation funding in RIIO-GD1 is embedded in GDNs' baseline costs.[416] This is wrong for the reasons explained at para. (48) et seq. above.

(375) Two assumptions are crucial to the resulting findings but are entirely unevidenced: (i) the innovation spend is entirely additional compared to what network companies would have undertaken in the absence of the innovation mechanisms; and (ii) benefits from innovation last for 20 years.[417] The Ongoing Efficiency Report discusses the remaining assumptions.[418]

(376) The Appellant submits that there are parallels between GEMA's failure to provide a well-evidenced basis for the 0.2% innovation uplift and the CMA's decision in *Firmus* (specifically with respect to Ground 2B), where the CMA found that the evidence submitted by the Utility Regulator did not support its decision to

[409] Ongoing Efficiency Report, para. 3.1.5, exhibited at (MR1_1).

[410] MH1, para. 72.

[411] Some notable RIIO-GD1 innovation projects include (i) the Appellant's water extraction system for mains and service pipes, which allowed the Appellant to produce a new combined method of visualisation and removal of water within the gas network. This enhanced the Appellant's ability to swiftly deal with water ingress problems and reduce supply interruption durations as well as number of excavations to locate and remove water; and (ii) the Appellant's Black Blade Protector project which was implemented to reduce or eradicate the impact of surface scarring when using mini-excavators. This significantly improved the Appellant's customer services and reduced environmental impact or re-works.

[412] In CEPA's DD Report, CEPA itself acknowledged that it is not taking into account "*other benefits such as environmental benefits and quality of service*" and alerted GEMA to this issue. CEPA's DD Report, p. 26 (NGNNOA1_229).

[413] CEPA's DD Report, p. 24 (NGNNOA1_229).

[414] Ongoing Efficiency Report, paras. 4.3.21 to 4.3.25, exhibited at (MR1_1).

[415] MH1, para. 72.

[416] CEPA's DD Report, p. 26 (NGNNOA1_239).

[417] CEPA's DD Report, p. 24 (NGNNOA1_229).

[418] Ongoing Efficiency Report, paras. 4.3.6 to 4.3.36, exhibited at (MR1_1).

set the non-additionality rate at 25% (or indeed any other specific figure). In the case of the innovation uplift, the Appellant contends that GEMA's analysis is also characterised by a "*significant lack of rigour*" and the evidence cited by GEMA does not substantiate a 0.2% uplift and is "*potentially consistent with a wide range of different values*."[419]

(377) ***Fourth, GEMA has provided insufficient justification for key parts of its conclusions.***

(378) At DD and FD, GEMA contended that the innovation uplift is reasonable given network companies are able to achieve greater efficiency gains than operators in competitive markets. This is because "*the lack of competitive pressure means they should be able to place greater management focus on driving high efficiency gains".*[420] For the reasons noted in para. (333) above, this statement is both counter-intuitive and cuts across well-established economic theory.

3.2.2 GEMA's decision distorts the network companies' incentives to innovate

(379) Promoting innovation was one of the key overarching objectives for GEMA at RIIO-GD2[421] and was a priority for the Appellant's customers. The introduction of the innovation uplift could risk stifling the incentives of GDNs to innovate. This was recognised by the CMA in the NPG Determination, where it held that the use in the cost assessment process of specific categories for different sources of efficiency savings such as smart or conventional grid benefits "*may lead to undesirable incentive effects representing a backward step in terms of incentive regulation", by distorting incentives between different sources of cost savings*.[422]

(380) The innovation uplift creates an analogous 'mechanistic' interlinkage between innovation spending during one price control period and costs allowances in the next price control period. As explained in detail in the Ongoing Efficiency Report,[423] this interlinkage will likely have a knock-on effect on the network companies' incentives to innovate, given that the use of innovation funding at RIIO-GD2 may lead to lower allowances in RIIO-GD3 (if GEMA retains a similar mechanism in the next price control).

(381) As such, GEMA's inclusion of the innovation uplift in RIIO-GD2 distorts the network operators' incentives to invest in innovation projects that deliver cost savings in the future. At worst, it risks weakening the incentives to innovate overall, which cuts across GEMA's policy objective to encourage innovation as part of the RIIO framework by "*giving companies commitment around the potential rewards that they could earn from successful innovations*".[424]

3.2.3 The innovation uplift breached principles of best regulatory practice

(382) The introduction of the innovation uplift – which represents a departure from GEMA's past regulatory practice – constitutes a breach of GEMA's duty to properly have regard to the principles of best regulatory practice and was also wrong in law by virtue of GEMA's failure to give reasons for its decision. In particular,

(i) As explained above, the rationale for the introduction of the "innovation uplift" is not well-evidenced and is predicated on a fundamental double-counting error. This approach cuts across the CMA's position in the *NPG Determination* that a cost adjustment of such magnitude constitutes *"a material change in approach*", which requires "*careful consideration*".[425]

[419] *Firmus*, paras. 5.146 to 5.149 (NGNNOA1_206).

[420] FD Core (revised), para. 5.21 (NGNNOA1_166).

[421] FD Core (revised), Section 8 (NGNNOA1_166).

[422] *NPG Determination*, para. 4.129 (NGNNOA1_194).

[423] Ongoing Efficiency Report, Section 4.6, exhibited at (MR1_1).

[424] RIIO Handbook, para. 14.3 (NGNNOA1_235).

[425] *NPG Determination*, para. 4.53 (NGNNOA1_194).

(ii) The innovation uplift is irrational. GEMA relied on materially flawed and arbitrary assumptions and calculation methodology, which resulted in a "*demonstrable flaw in the reasoning which led to it*".[426]

(iii) The innovation uplift is not proportionate. The innovation uplift applies on top of an overly stretching base OE challenge and will tend to undermine GDNs' incentives to innovate, contrary to one of the overarching objectives for RIIO-GD2.[427]

(iv) The innovation uplift is not well-reasoned. The Appellant submits that GEMA failed to cross-check the robustness of CEPA's calculation methodology (which for the reasons set out above is flawed) and provided just two paragraphs on the innovation uplift at DD and one at FD, neither of which provide any evidence of detailed consideration of the 0.2% figure. It is noted that Frontier Economics have not been able to replicate CEPA's analysis. Furthermore, GEMA ignored its own economic consultants' views on areas that should be further explored by GEMA when considering the impact and introduction of the uplift.

3.3 The impact of GEMA's errors on its OE level

(383) The Appellant submits that GEMA has erred in introducing the innovation uplift on top of its already (overly stretching) base OE challenge. This is because the innovation uplift is not only unjustifiable in principle (as it relies on an inherent double-counting error) but also based on a materially flawed calculation methodology.

4 Conclusion

(384) The Decision (as regards the core OE challenge and innovation "uplift" for the GD sector (both individually and in aggregate)) was wrong on the following grounds:

(i) By imposing an excessively stretching OE target (which penalises the frontier company), GEMA has failed properly to have regard to and/or give appropriate weight to its principal objective and its statutory duties to:

(a) Secure that licence holders are able to recover their efficient costs and promote efficiency and economy on the part of licence holders given the level of cost allowances set by GEMA undermines the Appellant's ability to recover its efficient costs.

(b) Ensure that licence holders are granted appropriate incentives to increase efficiencies and that gas networks are secure, reliable and efficient. The level of cost allowances set by GEMA distorts the ongoing incentives for innovation of GDNs (and frontier companies in particular).

(ii) Further, with respect to the base OE challenge, by "aiming up" within the range recommended by CEPA, and by failing to provide adequate reasons for dismissing evidence that militates in favour of a less stretching target, GEMA has failed properly to have regard to the principles of best regulatory practice. In its interpretation of CEPA's analysis of EU KLEMS data, GEMA has also erred in fact and in law (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

(iii) By imposing an additional innovation uplift, GEMA has departed from regulatory precedent in a way, which fails to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent. GEMA's assessment is

[426] *Law Society v Lord Chancellor*, para. 98 (NGNNOA1_203).

[427] Open Letter, p. 5 (NGNNOA1_144).

also vitiated by a fundamental double-counting error. As explained in the Ongoing Efficiency Report, in introducing a 0.2% innovation uplift GEMA commits a number of material errors of assessment and disregards or misrepresents relevant evidence, which leads GEMA to err in fact and in law (by failing to take into account relevant considerations, acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence and/or making mathematical or formula specification errors).

5 Remedies

(385) For the reasons outlined above, the Appellant requests that the CMA quash the Decision and substitute its own which:

(i) Selects an appropriate point within the lower half of the range recommended by CEPA for the base OE challenge (specifically, the Appellant contends that a balanced interpretation of the evidence discussed above would support a range from 0.5 to 0.8% for each of capex/repex and opex).

(ii) Removes the 0.2% p.a. innovation uplift in its entirety from the OE challenge (which has the effect of reducing the OE challenge by 20bps).

(386) The required amendments to the Licence are set out in Annex III.

PART VIII
APPEAL GROUND 4: BPI STAGE 4

1 Overview

(387) This Part of the Notice relates to errors made by GEMA with respect to the Business Plan Incentive ("**BPI**") Stage 4 calculation and choice of efficient cost benchmark in the FD, as set out in Sections 10 and 5 of the FD, respectively.[428] These errors must be understood against the backdrop of the Appellant's position as the frontier company in the GDN sector since 2005, and the significant benefits that this performance has brought both to the Appellant's customers and those of all GDNs in Great Britain.

(388) At RIIO-GD2, GEMA has introduced a BPI mechanism. The BPI contains four stages and was developed to encourage GDNs to submit ambitious and high-quality business plans for RIIO-GD2. The BPI Stage 4 calculation is specifically designed to differentiate companies that submit the most efficient costs. The incentives available to an efficient company under the BPI Stage 4 calculation are directly linked to GEMA's modelling of efficient costs. As part of its cost modelling, GEMA identifies a "benchmark" level of costs. The level of this efficient cost benchmark is a key determinant of the BPI Stage 4 reward calculation.

(389) It is submitted that the absolute level of reward for the Appellant under the BPI Stage 4 incentive fails to achieve GEMA's statutory objective of promoting efficiency in the sector. The Appellant receives only £3.9 million under the BPI Stage 4 calculation,[429] which is low in the context of the c. £200 million of benefit to UK customers that KPMG (conservatively) estimates is delivered by the Appellant's performance as the frontier company.[430] While the BPI Stage 4 assessment is backward looking as it rewards efficient RIIO-GD2 costs, such a limited incentive is inconsistent with a regulatory framework which not only seeks to reward past frontier activity, but also to encourage companies to bring forward possible new savings to be incorporated into their future business plans. By failing to provide an adequate incentive for the frontier company commensurate with the level of value creation for the sector at RIIO-GD2, the FD will reduce the incentives for all GDNs to aspire to the frontier position at RIIO-GD3 and therefore extend the efficiency frontier to the benefit of all customers.

(390) Without prejudice to this submission, it is also contended that GEMA has made a material error in the way in which the BPI Stage 4 has been calculated, namely by treating technically and non-technically assessed costs as part of a single calculation. This approach to calculating the BPI Stage 4 reward is flawed, runs counter to the rationale stated in the FD and arbitrarily reduces the Appellant's BPI Stage 4 reward.

(391) The Appellant submits that GEMA has erred in setting an unprecedented efficient cost benchmark at a glidepath to the 85th percentile, which compounds the failure of GEMA to adequately incentivise the frontier company through the BPI Stage 4. This level of efficient cost benchmark cannot be justified in light of the confidence that can be placed in GEMA's cost modelling. Given that the benefit under the BPI stage 4 calculation is determined by GEMA's choice of efficient cost benchmark, by setting an overly stretching benchmark, GEMA further reduces the Appellant's benefit under the BPI Stage 4 mechanism.

(392) The overall result of these errors in relation to the BPI Stage 4 and setting the efficient cost benchmark is that the Appellant, along with other GDNs, is provided with inadequate incentives to continue to extend the efficiency frontier.

[428] FD Core (revised), Sections 10 and 5 (NGNNOA1_166).

[429] As explained further below, the Appellant believes that the FD incorrectly states NGN's BPI Stage 4 reward at £ 5.9 million, given that this figure is inconsistent with the calculations in the base files provided by GEMA.

[430] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

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(393) This Part will draw on the following expert reports and witness statements:

(i) KPMG, 'Incentivising the frontier company – Report prepared for NGN' (the "**Incentives Report**");[431]

(ii) The Witness Statement of Mark Horsley (MH1), which explains at Section 5 that the FD fails to ensure adequate incentives for companies to invest in innovative solutions that bring efficiency, improve resilience and lower costs for consumers;

(iii) Witness Statement of David Pearson (DP1), which explains at Section 4 that GEMA's cost-modelling was not sufficiently robust to substantiate setting the efficient cost benchmark at the 85th percentile; and

(iv) The Witness Statement of Gareth Mills (GM1), which explains at Section 4 that GEMA has focused disproportionately on short-term bill reductions and has failed to secure appropriate incentives for the frontier company.

(394) The Appellant submits that GEMA has made the following errors:

(i) GEMA provides an inadequate level of reward for the frontier company overall, which results in a failure to incentivise all GDNs to extend the efficiency frontier at RIIO-GD2. This failure undermines the fundamental mechanism through which incentive-based regulation drives dynamic efficiency, and as a result, GEMA's approach will give rise to significant adverse consequences for the efficiency in the sector.

(ii) GEMA's methodology for the BPI Stage 4 calculation is flawed. Treating technically and non-technically assessed costs as part of the same calculation is arbitrary, inconsistent with the stated rationale in the FD for the calculation and reduces the Appellant's allowance without reasonable basis.

(iii) In relation to the efficient cost benchmark, GEMA's decision to set the efficient cost benchmark at the 85th percentile is inconsistent with regulatory precedent and is not justified by the confidence levels in GEMA's totex modelling. Given that GEMA's efficient cost benchmark drives the level of benefit for the frontier company under the BPI Stage 4 assessment, GEMA's excessively challenging benchmark target reduces the Appellant's BPI Stage 4 assessment.

(395) GEMA's (i) absolute level of reward for the frontier company under the BPI Stage 4; (ii) BPI Stage 4 calculation methodology and; (iii) choice of efficient cost benchmark, are therefore wrong on the grounds set out in Section 5.

(396) The effect of GEMA's errors in relation to the BPI Stage 4 reward and calibration of the efficient cost benchmark is about £6.07 million (after application of the sharing rates under the Totex Incentive Mechanism ("**TIM**")). This consists of:

(i) £4.6 million with respect to GEMA's flawed calculation methodology for the assessment of technically and non-technically assessed costs.

(ii) £1.47 million with respect to GEMA's overly stretching efficient cost benchmark.

(397) In addition, correcting for the reduced incentives for the frontier company would result in additional rewards for NGN of c. £12.4 million, based on the application of an additional income reward of 1% of allowed totex in GD2.

(398) The rest of this Part proceeds as follows:

[431] Incentives Report, exhibited at (IA1_1).

(i) Section 2 describes the importance of incentivising the frontier company and explains the benefits delivered by NGN's frontier status for customers in the Great Britain.

(ii) Section 3 discusses the two errors in GEMA's assessment of BPI Stage 4.

(iii) Section 4 discusses the errors in GEMA's assessment of the efficient cost benchmark.

(iv) Section 5 concludes why GEMA's FD on BPI Stage 4 was wrong.

(v) Section 6 sets out the relief sought.

2 Background: the importance of incentivising efficient companies

2.1 Rewarding efficiency is central to incentives-based regulation

(399) Providing incentives for regulated firms to improve service quality and reduce controllable costs is a cornerstone of incentive-based regulation, and at the heart of the RIIO approach adopted by GEMA. As set out in the Incentives Report,[432] incentive-based regulation sets price caps that firms can charge to customers, with no explicit regulation of a firm's margins. Companies are then incentivised to improve efficiency by establishing ex ante financial and service-quality targets, allowing companies a reward if they outperform these targets.[433]

(400) As explained in the Incentives Report,[434] incentives work by reference to what the regulator determines to be an efficient level of costs (or the "**cost allowance**"). This cost allowance is determined through econometric benchmarking, using historical data, future expectations and certain assumptions.

(401) Companies whose costs are above this level – i.e. who are inefficient – will earn a lower return, as overspend is shouldered in part by their investors (as well as by that company's customers). Companies whose costs are below the regulatory-determined efficient level (i.e., are more efficient) are known as the "frontier" company (or companies). The frontier company receives reward for having costs below the allowed level, as some of the underspend is retained in the form of higher returns to investors (as well as that company's customers also benefitting from lower prices).

(402) Through this mechanism, incentive-based regulation creates incentives for companies to decrease their costs. Increasing efficiency is not costless or riskless for companies, and these incentives are therefore important if companies are going to seek to drive their costs down, as explained in the Incentives Report.[435] Over time, these incentives drive dynamic efficiency, where companies' costs are expected to converge to efficient levels over time.

(403) This process of incentivising dynamic efficiency is at the heart of why incentive-based regulation is widely acknowledged as providing significant benefits to consumers, compared to alternative regulatory approaches which seek to regulate a company's profit margin.[436] Customers benefit within a price control in the form of lower bills for those customers of companies which are more efficient than the allowance; and customers more generally benefit in future price controls as costs become more efficient over time allowing the regulator to set a lower cost allowance in future price controls, as set out in the Incentives Report.[437]

(404) It is critical that these incentives work not only to incentivise laggard companies to drive their costs towards an efficient level, but also provide rewards to the frontier company. In the Appellant's Open

[432] Incentives Report, para. 3.1.1, exhibited at (IA1_1).

[433] Incentives Report, para. 3.2.2, exhibited at (IA1_1).

[434] Incentives Report, paras. 3.2.2 to 3.2.3, exhibited at (IA1_1).

[435] Incentives Report, paras. 3.2.9 to 3.2.10, exhibited at (IA1_1).

[436] See also Outperformance Wedge Report, paras. 4.2.8 *et seq.*, exhibited at (KPMG_OW1_1).

[437] Incentives Report, Section 3.6, exhibited at (IA1_1).

Meeting, GEMA recognised the need to differentiate between companies and ensure that there is reward for efficient performance.[438]

(405) This is because the regulator does not know ex ante how efficient each regulated company can become. Appropriate incentives for efficiency-generating investment is therefore crucial in order to reveal the potential scale of efficiencies, as explained in the Incentives Report.[439] Even a current frontier company can become more efficient, and over time, further opportunities for improving efficiency may become available to the frontier company.

(406) Simply setting a target is insufficient, since, as set out in the Incentives Report,[440] a frontier company will not undergo the cost and risk associated with seeking to exceed this target if it sees no reward in doing so. The Incentives Report sets out examples of the risky investments that the Appellant has made in order to seek to pursue greater efficiency and retain its position as the frontier company.[441]

(407) Incentivising the frontier company appropriately is therefore critical for it to increase efficiency. This benefits not only the customers of the frontier company, but customers of all GDNs. Through the cost-benchmarking process, improvements in efficiency by the frontier company translate – in the next price control – into a more challenging cost benchmark, thereby pushing laggard companies to reduce their costs down to this more efficient level. As costs become more efficient, customers of all GDNs benefit in the form of lower bills, as set out in the Incentives Report.[442]

(408) As further explained in the Incentives Report,[443] adequately incentivising the frontier company in particular is important, given that frontier companies serve a crucial role in:

(i) Demonstrating what savings are possible and so helping the regulator overcome any information asymmetry that may exist;

(ii) Passing savings to the frontier company's consumers in the short-term and to consumers throughout Great Britain in the medium-term and so reducing customer bills;

(iii) Taking first mover risk with innovative projects, which then allow the rest of the sector to adopt the successful approaches at much lower risk; and

(iv) Demonstrating what quality improvements are possible and so meeting their own consumers' requirements as well as those throughout Great Britain.

2.2 The Appellant's frontier performance has delivered significant benefits for all GDN customers in Great Britain

(409) The Appellant has been consistently recognised by GEMA as the most efficient GDN in the sector since 2005.[444] Based on the final models published by GEMA in February 2021 for RIIO-GD2, the Appellant was the most efficient GDN at RIIO-GD1, positioned c. 5% ahead of the next most efficient GDN, 7% ahead of the sector average and c. 15% ahead of the least efficient.[445]

(410) As explained in the Witness Statement of Mark Horsley (MH1):[446]

[438] NGN Open Meeting, p. 2 (NGNNOA1_141).

[439] Incentives Report, para. 3.4.2, exhibited at (IA1_1).

[440] Incentives Report, para. 3.4.3, exhibited at (IA1_1).

[441] Incentives Report, Section 5.2, exhibited at (IA1_1).

[442] Incentives Report, para. 3.2.11, exhibited at (IA1_1).

[443] Incentives Report, para. 6.1.1, exhibited at (IA1_1).

[444] RIIO-GD2 Business Plan, p. 3 (NGNNOA1_001).

[445] Final Model Cost Assessment, 'Cal_Efficiency' tab, rows 92 to 99 (NGNNOA1_176).

[446] MH1, Section 2.

(i) The Appellant is proud of its position as the frontier company. Extending the efficiency frontier to the benefit of its customers is a core component of the Appellant's corporate DNA.

(ii) Achieving the Appellant's status as the frontier company has not come by accident – it has required significant investment during RIIO-GD1. These improvements could not have been delivered without the strong support of the Appellant's shareholders, with investments of circa £80 million outside of the Appellant's cost allowance for RIIO-GD1.

(iii) Certain of these investments, including the Appellant's Direct Service Provider (DSP) model for repex procurement; transformation of the terms and conditions of its operational workforce; and new SAP S4 HANA platform, involved significant commercial risk. These investment cases were predicated on a stable regulatory framework that rewards improvements in efficiency.

(411) As explained in the Witness Statement of David Pearson (DP1)[447] and the Incentives Report,[448] the impact of the Appellant's efforts to become more efficient have not just benefited the Appellant's customers, they are shared by all GDN customers in Great Britain through the use of comparative benchmarking that GEMA uses to set cost allowances for all GDNs.

(412) The Incentives Report states the benefit that the frontier company brings to consumers:[449]

(i) Assuming that all GDNs were as efficient as the Appellant, there would be estimated savings of £575 million across the GDNs for RIIO-GD2. This is the equivalent of almost 6% of Totex allowed across all GDNs in the FD and indicates the scale of potential benefits to customers from pushing the efficiency frontier.[450]

(ii) The Incentives Report models the impact on cost allowances (and thereby consumer bills) were the Appellant to be less efficient – specifically, as efficient as the average GDN. In this case, the cost allowance for RIIO-GD2 would be in the range of £38-183 million higher than with the Appellant as the frontier company.

(413) While there are various ways of quantifying the impact of the frontier company, the Incentives Report demonstrates that these savings are material and that a long-term benefit of over £200 million can be found based on relatively conservative assumptions.[451]

(414) In addition, frontier companies have an important role in identifying and delivering new initiatives that improve service quality and cost efficiency. This often involves significant investment and commercial risks:

(i) For example, some of the initiatives that the Appellant introduced at RIIO-GD1 to transform its business and extend the efficiency frontier are now being replicated by other GDNs. Cadent, for instance, has now employed the Appellant's former Chief Operating Officer, who led the Appellant's delivery of its DSP model and transformation of workforce terms and conditions and is in the process of implementing these changes to improve its efficiency.

(ii) Conversely, not all such initiatives are successful. The Witness Statement of David Pearson (DP1), for example, refers to the Appellant's abandoned initiative to outsource its core maintenance activities at RIIO-GD1.[452]

[447] DP1, paras. 5 to 11.

[448] Incentives Report, para. 3.4.6, exhibited at (IA1_1).

[449] Incentives Report, para. 3.6.4 *et seq.,* exhibited at (IA1_1).

[450] RIIO-GD2 Business Plan, p. 3 (NGNNOA1_001).

[451] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

[452] DP1, para. 22.

(415) In both success and failure therefore, by assuming first mover risk with respect to innovative projects, the Appellant has de-risked choices for other GDNs to follow.

3 Appeal Ground 4A: BPI Stage 4

3.1 GEMA's approach

(416) In the RIIO-GD2 Sector Specific Methodology Decision ("**SSMD**"), one of the five ways that GEMA identifies to achieve its objectives for RIIO-GD2 is by "*using the regulatory framework, or competition where appropriate, to drive innovation and efficiency*."[453] In this context, the BPI was introduced to encourage high-quality and ambitious business plans.[454]

(417) With respect to the BPI, the Appellant is only challenging Stage 4 of the BPI mechanism (both in terms of the absolute level of reward (subpart 4A(I)) that it provides and its flawed calculation methodology (subpart 4A(II)). However, an overview of the four stages of the BPI is set out below:[455]

(i) Stage 1: This stage aims at ensuring that business plans contain all the minimum information required to allow GEMA to undertake a robust qualitative assessment.[456] Within this stage, GEMA first assesses whether a business plan does not meet one or more of the minimum requirements and then carries out a materiality analysis based on the number, nature and impact on consumers of those missing requirements. If a business plan fails to meet any 'material' minimum requirement, then an upfront penalty of 0.5% of allowed baseline totex is levied whilst no reward under the BPI is awardable.

(ii) Stage 2: This stage aims at qualitatively assessing what additional value (beyond the minimum requirements) a business plan generates to consumers (the so-called "**Consumer Value Proposition**"). GEMA requires that every proposal in the Consumer Value Proposition has a monetised value to consumers.[457] If such additional value is generated, GEMA will award a reward by multiplying the net consumer value by the network company's totex efficiency incentive rate.

(iii) Stage 3: This stage aims at assessing the forecasts for the 'lower-confidence' baseline costs in the business plans. GEMA assesses if these costs are inadequately justified, based on the difference between the companies' costs forecasts and GEMA's efficient baseline allowances. If these costs are poorly justified, GEMA will remove them from the business plan through the cost assessment process and impose a penalty of 10% of their value.

(iv) Stage 4: This stage aims at reviewing the forecasts for costs assessed to be high-confidence baseline costs included in business plans. GEMA will award an upfront reward to any network company that submits aggregate forecasts of high confidence costs that are lower than the aggregate efficient cost benchmark developed through GEMA's cost assessment. The reward level equals the difference between the costs forecasts and cost benchmark multiplied by the TIM for the network company. This stage, in practice, only rewards companies that are more efficient than GEMA's cost benchmark.

[453] RIIO GD2 Sector Specific Methodology Decision, para. 2.6 (NGNNOA1_149).

[454] FD Core (revised), para. 10.15 (NGNNOA1_166).

[455] FD Core (revised), Section 10, para. 10.15 *et seq.* (NGNNOA1_166).

[456] Please refer to Section 5 of the Final Business Plan Guidance for a detailed list of the minimum requirements for a plan to be complete and of a satisfactory quality under Stage 1 of the BPI assessment. Final Business Plan Guidance (NGNNOA1_153).

[457] Para. 5.18 of the Final Business Plan Guidance includes a list of examples of CVP proposals. Final Business Plan Guidance (NGNNOA1_153). See also Incentives Report, Section 4.3, exhibited at (IA1_1).

(418) The main purpose of the BPI is to encourage network companies to submit high quality and ambitious business plans.[458] The BPI mechanism allows GEMA to assess the business plans for RIIO-GD2 by rewarding business plans that offer consumers additional benefits (beyond business-as-usual) and value for money and, equally, by penalising those that fail to meet the minimum requirements.[459]

(419) The stated purpose of the BPI Stage 4 mechanism is to reward GDNs (such as the Appellant), which submit forecasts lower than a benchmark that GEMA would otherwise have used in setting the allowance.[460] GEMA has also recognised that it is a method of differentiating the frontier company. At the Appellant's Open Meeting, Akshay Kaul (Regulatory Director – Networks at GEMA) noted that "*the RIIO framework is designed to ensure that there is recognition of efficient performance and that the most efficient companies are rewarded relative to those that are less efficient*".[461]

(420) Importantly, the cost allowance set in BPI is calculated separately for technically assessed and non-technically assessed costs.[462] Specifically:

(i) For non-technically assessed costs[463], the allowance is the difference between a company's submitted non-technically assessed costs and GEMA's estimate of efficient non-technically assessed costs (informed by the level of GEMA's efficient cost benchmark); and

(ii) For technically assessed costs[464], a company's proposals are considered and GEMA identifies specific components of technically assessed costs to be included, or not, in the allowance.

(421) At DD, GEMA proposed that the BPI Stage 4 reward would be calculated on the same basis for both technically assessed and non-technically assessed costs. In particular, GEMA proposed that Stage 4 rewards would be calculated on an aggregate basis over all high-confidence cost categories in each business plan.[465] This led to no company earning a reward in BPI Stage 4.[466]

(422) At FD, GEMA significantly changed the basis of the Stage 4 rewards calculation from its approach at DD in response to stakeholder feedback. The Appellant understands that the intention with respect to this approach was for BPI Stage 4 rewards to be calculated on a more aggregated basis for non-technically assessed costs, and at the level of individual cost categories for technically assessed costs. GEMA explained that this change allowed network companies to receive rewards "*for beating [its] benchmark at a more granular level […] which [GEMA] believe[s] is more consistent with the aims of Stage 4 of the BPI [and] consistent with [its] Stage 3 cost assessment, which is undertaken at a similar level of granularity".*[467] This is not what GEMA implemented with respect to the Appellant, as described below.

[458] FD Core (revised), para. 10.15 (NGNNOA1_166).

[459] DD Core, paras. 10.25 to 10.26 (NGNNOA1_155).

[460] RIIO-GD2 Sector Specific Methodology Decision, para 11.46 (NGNNOA1_149).

[461] NGN Open Meeting, p. 2 (NGNNOA1_141).

[462] Incentives Report, Section 4.3.10, exhibited at (IA1_1).

[463] GEMA's main tool for assessment for modelled costs is the regression analysis. Apart from this tool, GEMA assesses modelled costs in separate non-regression models, where cost drivers vary across GDNs or are unique to a subset of GDNs. The results from the regression and non-regression models are then subjected to (i) a benchmarking efficiency adjustment based on GDNs' relative performance over the RIIO-GD2 period and (ii) ongoing efficiency adjustments.

[464] GEMA assesses technically assessed costs, such as large capex and repex projects, bespoke outputs and specialist areas, based on a combination of qualitative and quantitative technical / engineering assessment techniques including workload volumes and headline costs. No benchmarking efficiency adjustment applies to these costs given the discrete nature of the investments involved (eg an investment is uncommon across networks, lacks historical comparators or has other highly unique characteristics). Instead, technically assessed costs are subject to ongoing efficiency adjustments.

[465] DD Core, para. 10.98 (NGNNOA1_155).

[466] DD GD Annex, para 3.161 (NGNNOA1_157).

[467] FD Core (revised), para. 10.103 (NGNNOA1_166).

(423) The FD states that NGN's BPI Stage 4 reward is £5.9 million.[468] The Appellant believes this is incorrect as it does not reflect the calculations set out in the base files provided by GEMA, which shows that the Appellant would receive £3.9 million under the BPI Stage 4 assessment.

3.2 GEMA's errors in the introduction and application of BPI Stage 4

(424) In relation to the introduction and application of the BPI Stage 4, the Appellant submits that:

(i) As a matter of principle, the total reward for the frontier company under the BPI Stage 4 assessment is inadequate to incentivise all GDNs to aspire to this position by extending the efficiency frontier during RIIO-GD2 and bringing forward efficient business plan proposals at RIIO-GD3. This fails to discharge GEMA's duty under GA86 to promote efficiency, to meet GEMA's stated intention that RIIO-GD2 will "*use the regulatory framework, or competition where appropriate, to drive innovation and efficiency*"[469] and to incentivise companies to submit efficient business plan proposals at RIIO-GD3.

(ii) Without prejudice to this error of principle, GEMA's methodology for calculating the BPI Stage 4 is arbitrary, flawed, and contrary to its stated policy objective to differentiate and reward companies that submit efficient costs.

(425) The result of GEMA's errors in introducing and applying the BPI Stage 4 is that there are insufficient incentives for efficiency under the BPI Stage 4, which will reduce investment incentives and have a material adverse impact on customers in Great Britain.

3.2.1 Ground 4A(I): GEMA's BPI Stage 4 is flawed in principle given it results in a reward that is too small to adequately incentivise the frontier company

(i) Incentives for the frontier company are significantly reduced at RIIO-GD2 compared to RIIO-GD1

(426) As further explained in the Incentives Report,[470] the amount of rewards available for a frontier company is determined by: (i) the level at which the cost allowance is set, which will be based on assuming that GDNs in the sector reach a specific level of catch-up efficiency (normally the upper quartile or lower), as this generates the amount of underspend that a frontier company achieves, a portion of which is retained; and (ii) the sharing rule, which determines how much underspend is retained by the frontier company's investors and how much is passed on to customers.

(427) At RIIO-GD1, the regulatory framework included a mix of incentives to reward cost efficiency as part of the IQI mechanism, which strongly incentivised efficient companies:[471]

(i) For the most efficient companies in the sector, a higher allowed cost than the cost they requested in their business plans.

(ii) An 'additional income' (on top of the cost allowance), which was higher the more efficient the company (and negative, i.e. a penalty, for inefficient companies). This allowance was based on a percentage of totex. For an 'upper quartile efficient' company the additional income was 2.5% of allowed totex (noting that this was taken as revenue and not subject to cost sharing); and

(iii) A higher cost sharing rate for efficient companies. This meant that efficient companies could keep a higher share of any outperformance.

[468] FD Core (revised) (NGNNOA1_166), paragraph 10.97

[469] RIIO-GD2 Framework Decision, p. 92 (NGNNOA1_146).

[470] Incentives Report, Section 3.2, exhibited at (IA1_1).

[471] Incentives Report, Section 4.2, table 3, exhibited at (IA1_1).

(428) At RIIO-GD2, GEMA introduced significant changes, which reduce the incentives for efficient companies:[472]

(i) In relation to cost allowances, GEMA set the allowance based on the lower of GEMA's view of efficient costs (arrived at through its econometric benchmarking) and the company's business plan costs. Unlike RIIO-GD1, the frontier company does not retain the difference between the allowed cost (based on GEMA's view of efficient costs) and the cost submitted in its business plan.

(ii) GEMA's cost allowance is predicated on a more stretching efficient cost benchmark. At RIIO-GD1, GEMA assumed that the efficient level of costs should be determined at the upper quartile (75th percentile). At RIIO-GD2, GEMA's view of efficient costs is based on a glide-path to the 85th percentile. The Appellant submits that this is an error for the reasons set out in Section 5 below.

(iii) GEMA removed the IQI framework. As such, the additional income made available to the frontier company at RIIO-GD1 was removed in RIIO-GD2. The IQI has been replaced by the BPI Stage 4 assessment.

(iv) A much lower sharing rule has been applied at RIIO-GD2. Whereas at RIIO-GD1 the company could retain 64% of any underspend, at RIIO-GD2 this is 49%.

(429) As set out in detail in the Incentives Report,[473] the cumulative impact of these changes is a significant reduction in the strength of the incentives for the frontier company at RIIO-GD2 compared to the RIIO-GD1 framework. The Appellant would receive only £3.9 million under the BPI Stage 4 assessment; whereas it would have received around £46.4 million more in cost allowances under the RIIO-GD1 framework (and would have retained significantly more of any saving under the cost-sharing rate).

(430) Equally, the Appellant submits that a total of £3.9 million is a low figure in the context of the £200 million of benefit that KPMG estimates is brought by the frontier company at the RIIO-GD2 determination on the basis of conservative assumptions.[474] While the BPI Stage 4 assessment is backward looking in the sense that it rewards efficient costs in the RIIO-GD2 business plans, the Appellant does not believe that such a limited incentive is consistent with a regulatory framework which not only seeks to reward past frontier activity, but also to encourage companies to bring forward possible new savings to be incorporated into their future business plans. As such, by providing an inadequate incentive package for the frontier company at RIIO-GD2, the FD will reduce the incentives for all GDNs to aspire to the frontier position at RIIO-GD3 and extend the efficiency frontier to the benefit of all customers.

(ii) GEMA has not adequately considered the impact of this significant reduction in the incentives for the frontier company

(431) Given the magnitude of this change, the Appellant submits that principles of best regulatory practice require that GEMA should have adequately considered the impact on the incentive of the frontier company and, by extension, the incentives of all GDNs to aspire to this position by extending the efficiency frontier at RIIO-GD2 and submitting efficient business plans at RIIO-GD3. It is well-established that the regulatory framework should not *"unreasonably unravel past decisions"*[475] while any departure from established regulatory practice – particularly if it has a material impact on GDNs and customers – should be "*well-reasoned, properly signalled, [..] clear and understood*".[476] This is also consistent with the CMA's decisional practice. In the *NPG Determination*, the CMA held that the threshold for departures

[472] Incentives Report, Section 4.3, exhibited at (IA1_1).

[473] Incentives Report, Section 4.4, exhibited at (IA1_1).

[474] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

[475] BIS Principles for Economic Regulation Report, p. 5 (NGNNOA1_208).

[476] *Phoenix Gas*, para. 9.112 (NGNNOA1_192).

from prior regulatory practice is high and requires a "*careful consideration*" and "*cogent justification*" especially when this is heavily dependent on GEMA's judgments.[477]

(432) Furthermore, continuity in terms of the incentives provided by GEMA for the most efficient companies is particularly important given that the investments needed to extend the efficiency frontier rely on a predictable, transparent and stable regulatory environment which incentivises long-term investment. This was recognised by the BEIS Principles for Economic Regulation, which highlight the need for "*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"*; and that 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*."[478]

(433) GEMA has not adequately justified its decision to significantly reduce incentives for the frontier company. While the SSMD emphasises the importance of "*using the regulatory framework, or competition where appropriate, to drive innovation and efficiency*",[479] the important role of frontier companies in driving improvement in efficiency receives minimal coverage in the FD. There is only one very short reference to relative efficiency in FD, in the NGN annex.[480] GEMA appears to have taken little or no account of the impact of the reduced incentives on the frontier company in their RIIO-GD2 impact assessment.

(434) Further, as explained in the Witness Statement of Gareth Mills (GM1), the Appellant has consistently raised concerns about the failure of the FD to provide adequate incentives for the frontier company to extend the efficiency frontier, but these concerns have not been adequately addressed by GEMA.[481] For instance, this was the central theme of the Appellant's submissions at its Open Meeting, where Mark Horsley emphasised that: "*what we really wanted to express today from our own position at NGN is the differentiation. Akshay has made it very clear that there are parameters within the review and the framework for rewarding that differentiation. I think the challenge that we have, and I welcome some of the points that Akshay has made in terms of whether that is strong enough in terms of a frontier performing company."*[482]

(435) GEMA's RIIO-GD2 Challenge Group has also emphasised that it supports differentiation for the frontier company and considered that GEMA's approach (at DD) under-rewarded NGN relative to other GDNs. At the Appellant's Open Meeting, Roger Witcomb, Chair of the RIIO-GD2 Challenge Group said "*we also accept that NGN has been the most efficient frontier company in terms of efficiency and would entirely support the notion of differentiation. Interested to see that Ofgem will be taking that forward. Of course, there is still to us an open question as to whether NGN are being under-rewarded or the other companies are being over-rewarded, but no doubt that will be part of the analysis going forward."*[483]

3.2.2 Ground 4A(II): The BPI Stage 4 reward is flawed in erroneously treating technically assessed and non-technically assessed costs together

(436) Without prejudice to the Appellant's submission that the BPI Stage 4 assessment fails to provide adequate incentives for the frontier company, the Appellant contends that GEMA has also made a material error in the way in which the Appellant's BPI Stage 4 reward has been calculated.

(437) As an initial point, as explained in the Witness Statement of Gareth Mills (GM1), the Appellant submits that there has been a lack of clarity over how important aspects of the BPI mechanism will operate

[477] *NPG Determination*, paras. 4.53, 4.90-91 and 4.101 (NGNNOA1_194).

[478] BIS Principles for Economic Regulation Report, p. 5 (NGNNOA1_208).

[479] RIIO-GD2 Sector Specific Methodology Decision, para. 2.6 (NGNNOA1_149).

[480] FD NGN Annex (revised), para. 3.10 (NGNNOA1_169).

[481] GM1, Section II.

[482] NGN Open Meeting, p. 4 (NGNNOA1_141).

[483] NGN Open Meeting, p. 11 (NGNNOA1_141).

over the RIIO-GD2 process. This extends to the methodology for calculating the BPI Stage 4 reward, which was only confirmed by GEMA at FD.[484] This is exacerbated by the fact that the FD states that NGN's BPI Stage 4 reward is £5.9 million,[485] which the Appellant believes to be incorrect and inconsistent with the calculations set out in the base files provided by GEMA.

(438) At DD, GEMA had proposed that the BPI Stage 4 reward would be calculated on the same basis for both technically assessed and non-technically assessed costs.[486] At FD, GEMA changed its approach compared to DD in relation to the level of aggregation at which BPI Stage 4 rewards are assessed.[487] The Appellant supports this rationale, but believes that GEMA has not correctly implemented its stated position at FD.

(439) When calculating the BPI stage 4 reward at FD, GEMA undertakes an annual calculation which is the equivalent of the following;

Worked Example 1 (FD Calculation)

- Step 1: Take the sum of the Appellant's non-technically assessed (£1,176.97 million) and technically assessed (£58.67 million) costs, giving a total over RIIO-GD2 of (£1,235.64 million);
- Step 2: Compare this to the sum of GEMA's cost allowances for non-technically assessed (£1,194.40 million) and technically assessed (£49.29 million) costs, giving a total over RIIO-GD2 of (£1,243.69);
- Step 3: Multiply the resulting difference of -£8.05 million by the TIM of 49%
- This gives a total (offset) BPI stage 4 reward of **£3.94** million.

(440) Pursuant to GEMA's approach noted above, the more efficient non-technically assessed costs are partly offset by the less efficient technically assessed costs.

(441) For the reasons explained below, the Appellant submits that this is inconsistent with GEMA's FD statement and the stated purpose of the BPI Stage 4. To be consistent with the FD, the Appellant submits that the calculation should have been undertaken the following way:

Worked Example 2 (Correct calculation - Appellant's submission)

- Step 1: Compare the Appellant's non-technically assessed costs (£1,176.97 million) with GEMA's cost allowance of (£1,194.40 million) which gives a difference of £17.43 million;
- Step 2: Multiply this by the TIM of 49% to give a reward of £8.54 million;
- Step 3: Compare the appellant's technically assessed costs (£58.67 million) with GEMA's cost allowance of (£49.29 million) which gives a difference of +£9.38 million. As this is positive and would offset the reward for non-technically assessed costs the calculation is stopped.
- This gives a non-offset reward for the Appellant of **£8.54** million.

(442) ***First, in calculating technically and non-technically assessed costs together, GEMA's approach conflicts with the rationale for its calculation methodology stated in the FD***.

(443) GEMA's FD: "*Following consideration of Draft Determinations responses, we have modified our approach to determining rewards under Stage 4 to take account of feedback received. Specifically, we have decided to determine Stage 4 rewards at a more granular level than we did at Draft Determination.*

[484] GM1, para. 8(ii).

[485] FD Core (revised), para. 10.97 (NGNNOA1_166).

[486] DD Core, para. 10.98 (NGNNOA1_166).

[487] FD Core (revised), paras. 10.101 to 10.103 (NGNNOA1_166).

This means that the comparisons between company forecasts of high-confidence costs and our efficient benchmarks were carried out at the level of individual cost categories for technically assessed costs. As a result of this change, companies receive rewards for beating our benchmark at a more granular level, and these rewards are not offset by higher forecasts elsewhere in the plan [emphasis added]".[488]

(444) The FD emphasises that the rationale for changing its approach to the BPI Stage 4 calculation methodology is to "*determine rewards at a more granular level"* and ensure that *"rewards are not offset by higher forecasts elsewhere in the plan."*[489]

(445) As such, the Appellant submits that GEMA should have assessed technically and non-technically assessed costs separately i.e. non-technically assessed costs should have been treated as one category, with technically assessed separately "*at the level of individual cost categories"* (as stated in the FD). This approach (as set out at Worked Example 2 above) is clearly aligned with the rationale in the FD given it ensures that:

(i) Companies receive rewards for beating GEMA's benchmark "*at a more granular level*".

(ii) A company's rewards associated with the non-technically assessed costs are not offset by higher technically assessed forecasts (or vice versa) i.e. "*Rewards are not offset by higher forecasts elsewhere in the plan*."[490]

(446) However, as explained above, GEMA has calculated the Appellant's Stage 4 reward at FD via a single calculation for both technically and non-technically assessed costs (see Worked Example 1 above). The cost allowance is then the difference between the efficient cost benchmark determined by GEMA and the network company's cost forecasts. This approach is not only more aggregated, but also clearly results in the Appellant's higher technically-assessed costs offsetting some of its lower non-technically assessed costs (contrary to the stated rationale in the FD)

(447) ***Second, calculating technically and non-technically assessed costs separately is correct as a matter of principle.*** It is submitted that calculating technically and non-technically assessed costs separately is consistent with ensuring that rewards are adequate given the way that GEMA has determined its cost allowance (this is where GEMA has chosen the lower of the company's proposed cost and its estimated cost allowance). Applying the approach that GEMA has actually used understates the reward relative to the cost allowance – as explained in the Incentives Report.[491]

(448) In addition, the Appellant's submission is consistent with the approach adopted by GEMA at RIIO-GD1. This is because a consistent approach to the cost allowance, as well as the definition of the reward, is needed. Undertaking a like-for-like calculation consistent with the way that cost allowances have been set meets regulatory good practice and ensures incentives and allowances are based on the same approach. Further, this approach is consistent with the approach adopted by GEMA at RIIO-GD1 and so also provides stability in the regulatory approach. This is explained in the Incentives Report.[492]

(449) ***Third, the result of GEMA's flawed calculation methodology is arbitrary and contrary to the stated intention of the BPI Stage 4***. The consequence of GEMA's flawed calculation methodology is a reduction in the Appellant's BPI Stage 4 reward for non-technically assessed costs of c.£4.6 million. Given that the stated intention of the BPI Stage 4 is to reward and differentiate companies that submit efficient cost proposals, it is submitted that it is arbitrary and contrary to the stated intention of the BPI

[488] FD Core (revised), para. 10.101 (NGNNOA1_166).

[489] FD Core (revised), para. 10.101 (NGNNOA1_166).

[490] FD Core (revised), para. 10.101 (NGNNOA1_166).

[491] Incentives Report, Section 5.3, exhibited at (IA1_1).

[492] Incentives Report, Section 5.3, exhibited at (IA1_1).

Stage 4 for GEMA to adopt a calculation methodology which offsets the frontier company's efficient non-technically assessed costs in this manner.

(450) ***Fourth, while GEMA undertook this calculation on a year-by-year basis, this is an unnecessary level of sophistication***. The actual quantum of the reward is the equivalent of a consideration of the totals as set out above. Since the total Appellant forecast and the total GEMA cost allowance is being compared on an annual basis, it is the same as comparing the totals. So, reporting this on an annual basis is only of use if GEMA:

- Intends to set the reward on an annual basis – which it does not as it smooths the value across RIIO-GD2; or
- Allows a reward for those years in which the two individual elements are below GEMA's cost allowance.

(451) With respect to the last point, if GEMA believes that an annual calculation is appropriate, then the Appellant submits that this should be undertaken for those years where the company's individual cost category forecasts (technically assessed and non-technically assessed) are below GEMA's calculated numbers. This would lead to a greater reward for the Appellant (of an additional £0.87 million), as there are years in which the technically-assessed company forecasts are lower than GEMA's values.

(452) ***Finally***, GEMA states in its FD that the methodology chosen for calculation of the BPI Stage 4 reward is a matter of "*regulatory judgment*".[493] However, it is well-established that this discretion does not extend to the adoption of flawed decisions with a material impact on companies, as is the case with the BPI Stage 4 calculation methodology. This was emphasised by the CMA in the *NPG Determination* where it held that "*there has to be, in our view, a limit to the discretion of regulators to make adjustments to the costs assumed in setting the price control where the consultation process has failed to demonstrate evidence in support of those adjustments. The exercise of regulatory discretion remains bounded and subject to legal principles".*[494]

3.2.3 The significant reduction in incentives for the frontier company under the BPI Stage 4 will have a significant impact on customers

(453) As explained above, the Appellant would receive only £3.9 million of incentives under the BPI Stage 4, which is low compared to the £200 million of benefit that KPMG estimates is brought by the frontier company on the basis of conservative assumptions. This is also less than 10% of the incentives for the frontier company that were provided by GEMA in RIIO-GD1.[495]

(454) The Appellant submits that an amount of this magnitude will significantly reduce the incentive of the Appellant – and other GDNs – to make investments that continue to push forward the efficiency frontier. As explained in the Incentives Report,[496] achieving efficiency improvements involves both cost and/or risk. An investment will occur where this cost benefit analysis indicates expected net benefits – i.e. benefits in excess of expected costs, adjusted for the company's risk appetite and time preference.

(455) In his Witness Statement (DP1),[497] David Pearson describes how this decision-making process resulted in significant investments in RIIO-GD1, which delivered material benefits to existing and future customers. These investments were predicated on the existence of a strong 'incentives' package at RIIO-GD1, and the expectation that a stable regulatory regime would continue to support investments by the frontier company at RIIO-GD2. A necessary component of such a stable regime is setting a similar

[493] FD Core (revised), para. 10.103 (NGNNOA1_166).

[494] *NPG Determination*, para. 4.142 (NGNNOA1_194).

[495] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

[496] Incentives Report, para. 3.2.9, exhibited at (IA1_1).

[497] DP1, Section II.

efficient cost benchmark for RIIO-GD2, but GEMA has failed to do so. The Appellant contends that the investments that David Pearson refers to – which are now being replicated by other GDNs – may not have been made either at all or in the same way under the RIIO-GD2 framework. This is evidenced by the following examples mentioned in the Witness Statement of David Pearson (DP1):[498]

(i) The implementation of the DSP model within the Appellant's replacement programme, which represents the Appellant's largest area of expenditure. This has resulted in unit cost savings of c.£15 million p.a. to date and is expected to deliver additional efficiencies of c.£100 million in total over RIIO-GD1.

(ii) The implementation of modern labour terms and conditions, which allowed the Appellant to reduce the average total remuneration of legacy operational staff by almost 7%, resulting in a cost saving of over £9 million p.a. by the end of RIIO-GD1.

(iii) The implementation of a new IT system, SAP4 Hana, which enabled the Appellant to transition to a data-focused business and significantly improve its customer service and decision-making process.

(456) These initiatives required significant investment from the Appellant's investors, who to date have invested c.£80 million in the various restructuring schemes required.

(457) A reduction of rewards for investment of the magnitude set out above will significantly change the benefits that the Appellant can expect to receive. This will, as a result, alter the balance of cost, risk and reward for certain investments, and reduce the number of investments that the Appellant finds it economic to undertake. As a matter of principle, the frontier company may face a more marginal trade-off between undertaking and not undertaking an investment, due to for example the high net-benefit investments being already undertaken or the uncertainties around pay-offs for remaining investment options. For a frontier company to undertake these investments and take on the additional risk, sufficient reward is required.

(458) Similar arguments were raised by BT with Ofcom in 2017 when a proposed change in the regulatory treatment of broadband investment would have materially changed the returns on successful investments with no corresponding change in the treatment of failed (or poorly performing) investments. BT noted that if it had known about the proposed change in regulatory treatment some investments might have been delayed or not undertaken at all.[499] This example is discussed further in the Incentives Report.[500]

(459) In his Witness Statement, Mark Horsley (MH1)[501] explains that as a result of the changes introduced by GEMA under RIIO-GD2, a number of planned proposals for improving efficiency during RIIO-GD2 have been cancelled by the Appellant, as the risk associated with them and their payback periods are not consistent with the new incentive scheme. The Appellant is willing to accept some risk; for example, if it ceased to be a frontier company then it would not receive the additional benefits arising from those investments, but that is something that it can seek to control through its own endeavours. A regulatory regime change is outside of management's control and has changed the risk profile such that some projects are no longer considered viable.

(460) As set out in the Incentives Report,[502] consumers will suffer as a result. In the first instance, the Appellant's own consumers will not benefit from the lower costs that the cost saving investments would have led to and/or will not benefit from an improved quality of service. Over the medium to longer-term

[498] DP1, paras. 15 to 19.

[499] BT Letter to Ofcom (NGNNOA1_240).

[500] Incentives Report, para. 5.2.7, exhibited at (IA1_1).

[501] MH1, para. 55.

[502] Incentives Report, para. 5.2.10, exhibited at (IA1_1).

all gas consumers in Great Britain will face higher costs and consequently prices than they would have done if the additional investments had been made.

4 Appeal Ground 4B: Efficient cost benchmark

(461) In setting an excessively challenging efficient cost benchmark at the 85th percentile, the Appellant submits that GEMA has failed adequately to take account of the adverse impact of that decision on the frontier company under the BPI Stage 4 calculation. While the impact on poorer performing companies has been mitigated by the introduction of a glidepath at FD, setting an overly challenging efficient cost benchmark significantly reduces the incentives for a frontier company.

(462) The level of the efficient cost benchmark directly impacts the strength of the incentives for the frontier company. The BPI Stage 4 calculation provides an upfront reward to companies that submit forecasts of high confidence costs that are lower than GEMA's aggregate efficient cost benchmark. The level at which GEMA sets the efficient cost benchmark therefore determines the level of GEMA's efficient cost benchmark. As such, a more challenging efficient cost benchmark reduces the level of reward for the Appellant under the BPI Stage 4 calculation.

4.1 GEMA's approach

(463) GEMA subjects the results of its regression and non-regression models to a benchmarking efficiency adjustment based on GDNs' relative performance. As part of GEMA's overall efficiency challenge, it sets an efficient cost benchmark based on a specific threshold (e.g. upper quartile, 85th percentile etc.). Less efficient GDNs thus require an additional catch-up adjustment to their modelled costs.

(464) As explained in the Incentives Report,[503] the threshold level is set short of the frontier company for two reasons:

(i) There is uncertainty surrounding estimates of the frontier, which are generated via modelling. Setting a benchmark that is not wholly dependent on the leading company mitigates the risk that efficient cost targets are set at a universally unachievable level.

(ii) Setting the cost allowance below the most efficient company's level provides a reward to that company for being the frontier company.

(465) At DD, GEMA set the efficient cost benchmark at the 85th percentile between the least efficient firm and the frontier. This is approximately equivalent to setting it at the level of the 2nd most efficient company and provides an extra 2% cost challenge to the GDNs as compared to the upper quartile. GEMA considered that this represented "*high but achievable expectations for the less efficient GDN*."[504]

(466) At FD, GEMA retained the efficient cost benchmark at the 85th percentile but introduced a glidepath as a concession to less efficient firms. The efficient cost benchmark was therefore based on the 75th percentile (upper quartile) for the first year of RIIO-GD2, but with a three-year glidepath to the 85th percentile, which will be the benchmark in the last two years of RIIO-GD2. GEMA noted that "*this is to enable time for less efficient companies to catch up from a starting point in Year 1 of 75th percentile, which is the target benchmark performance for the last year of RIIO-GD1 and is itself the culmination of a glidepath over the course of RIIO-GD1*."[505]

(467) GEMA sought to justify setting the efficient cost benchmark at the 85th percentile on the basis that "*Based on the level of GDNs' past outperformance under RIIO-GD1, as set out in our Draft Determinations, and*

[503] Incentives Report, Section 5.4, exhibited at (IA1_1).

[504] DD GD Annex, para. 3.29 (NGNNOA1_157).

[505] FD GD Annex (revised), para. 1.11 (NGNNOA1_168).

the ambitions all GDNs set out in their Business Plans to operate at the efficiency level of the frontier company, we consider this to be both reasonable and achievable."[506]

4.2 GEMA's errors in setting the efficient cost benchmark

(468) In setting the efficient cost benchmark at a glidepath to the 85th percentile, the Appellant submits that GEMA has set an unreasonably challenging benchmark, which departs from good regulatory practice and is not justified by the confidence levels in GEMA's totex model. GEMA also disregards the adverse impact of an excessively challenging efficient cost benchmark on the frontier company through the BPI Stage 4 calculation,

4.2.1 In setting the efficient cost benchmark at a glidepath to the 85th percentile, GEMA departs from well-established regulatory practice

(469) In setting the efficient cost benchmark at the upper 85th percentile, GEMA has departed from its approach at RIIO-GD1 and from well-established regulatory practice. As the CMA's analysis in the *PR19 Provisional Findings* shows, there is limited (if any) precedent for UK regulators setting targets above the upper quartile.[507]

(470) The approach adopted by the CMA in PR19 supports the Appellant's view that setting the efficient cost benchmark at the upper quartile is most appropriate. While Ofwat had adopted a 'tougher' efficient cost benchmark, the CMA provisionally reduced this to the upper quartile: "*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)*".[508]

(471) At FD, GEMA implicitly recognised that its approach represents a break from past practice, but stated that "*we do not accept that past regulatory decisions on the level of efficiency benchmark, provide a restrictive precedent, nor a hard ceiling on the potential future levels of efficiency benchmark that a regulator could reasonably choose to apply. Indeed, in its provisional findings on PR19, the Competition and Markets Authority (CMA) noted that Ofgem was proposing setting the 85th percentile at Draft Determinations but did not express a view that this was inappropriate in itself."*[509]

(472) GEMA seeks to argue that the CMA's approach at PR19 supports its decision-making: "*the 75th percentile proposed by the CMA for PR19 still represents a very large increase from the 50th percentile adopted in PR14, reinforcing the regulatory principle of continuing to raise the catch-up efficiency challenge regulated companies should seek to achieve over time to operate ever closer to the frontier efficient company*."[510] The Appellant submits that GEMA is wrong to proceed on the basis that there is precedent supporting an approach of 'continuing to raise the catch-up efficiency challenge.' Rather, regulatory precedent supports setting an efficient cost benchmark consistent with the confidence levels in the underlying economic modelling (which has invariably been no higher than the upper quartile). The Appellant also respectfully submits that no weight can be placed on the fact that the CMA did not comment on GEMA's choice of efficiency challenge as part of the PR19 PFs, given this was not part of the CMA's remit at PR19.

(473) The Appellant submits that GEMA has not, in accordance with the principles of good regulatory practice, sufficiently justified or evidenced its departure from regulatory precedent. The CMA has previously held that the "*stability, predictability and transparency of the regulatory regime"*[511] are important for

[506] FD GD Annex (revised), para. 3.25 (NGNNOA1_168).

[507] *CMA's PR19 Provisional Findings*, para. 4.292 (NGNNOA1_189).

[508] *CMA's PR19 Provisional Findings*, para. 4.296 (NGNNOA1_189). See also Incentives Report, Section 5.4, exhibited at (IA1_1).

[509] FD GD Annex (revised), para. 3.27 (NGNNOA1_168).

[510] FD GD Annex (revised), para. 3.33 (NGNNOA1_168).

[511] *Phoenix Gas*, para. 8.85 (NGNNOA1_192).

investment decisions and that significant changes to the regulatory framework require greater justification "*as there are benefits to a stable and well understood regulatory framework"*.[512] For the reasons noted below, the quality of GEMA's evidence (and notably the confidence in its totex modelling) does not justify a departure from regulatory precedent.

4.2.2 The confidence levels in GEMA's totex models do not support setting efficient cost benchmark at the 85th percentile

(474) The Appellant submits that the choice of the efficient cost benchmark should be informed by the degree of confidence in the totex model i.e. the degree to which the cost modelling allows GEMA to separate inefficiency from error in the model. This is consistent with the approach adopted by the CMA in *Bristol Water* and was also a factor that appeared to be given most weight in the CMA's Provisional Findings for PR19.[513]

(475) While the Appellant is generally supportive of GEMA's overall approach to cost modelling, it submits that there is a limit to the degree of confidence that can be placed in any single top-down totex model. Moreover, as explained in the Witness Statement of David Pearson (DP1):[514] (i) a significant number of errors have been identified in GEMA's totex model, including subsequent to the publication of the initial version of the FD, which calls into question the rigour of GEMA's analysis; and (ii) even leaving these errors aside, the Appellant believes that GEMA has made certain methodological changes to the cost modelling process at RIIO-GD2 which are not robust. This is exemplified by GEMA's use of risers data in Multi Occupancy Buildings in the modern equivalent asset value (MEAV) model which is unreliable and does not meet GEMA's own data accuracy standards. As such, the Appellant submits that the degree of confidence that can be placed in GEMA's cost model does not justify setting the efficiency challenge beyond the upper quartile.

(476) GEMA states that the high confidence in its model, indicated through the R^2, gave it "e*nough confidence from an academic perspective to set the productivity frontier at the 85th percentile*".[515] Apart from the numerous errors, which would not affect the R^2 noted above, it is informative to consider the R^2 values of the water models used at FD and considered as part of the PR19 referrals for four water companies. As stated in the Incentives Report,[516] the models used and their level of confidence were:

(i) Wholesale water: five models used all with R^2 values greater than 0.92 and an average R^2 of 0.96; and

(ii) Wholesale wastewater: six models used with an R^2 range of 0.79 to 0.93 and an average R^2 of 0.88.

(477) R^2 values by themselves are not determinative. It is necessary to have a good understanding of whether the model is performing well with respect to, amongst other factors, possible missing variables and the interaction of the time trends. Notably, GEMA's own academic advisor at the DD stage suggested that alternative models and estimation approaches needed to be investigated.[517] These and other relevant issues are considered in the Incentives report.

(478) Ofwat's multiple models – averaged (or triangulated) – generate a cost allowance which was assessed by the CMA to justify an upper quartile target. Given the greater stability achieved by a mix of models with high R^2 values and a mix of different explanatory variables (including a set of additional models

[512] *Bristol Water plc,* para. 9.21 (NGNNOA1_193).

[513] CMA's Provisional Findings, para. 4.294 (NGNNOA1_189).

[514] DP1, Section IV.

[515] FD GD Annex (revised), para. 3.31 (NGNNOA1_168).

[516] Incentives Report, Section 5.4, exhibited at (IA1_1).

[517] See Professor A. Smith, Note for Ofgem on Alternative Methodologies: some preliminary analysis, exhibited at (IA1_2_022).

used as a cross-check), GEMA's argument in favour of the 85th percentile target is clearly wrong. Based on the confidence levels in its model, it should have set a target at no greater than the upper quartile.

(479) For completeness, GEMA stated that the 85th percentile is appropriate given that GDNs have experienced significant efficiency gains over the previous price controls and continued outperformance in RIIO-GD1.[518] However, as the CMA recognised in the PFs for PR19, past outperformance by itself cannot "*justify a 'tougher' efficiency challenge, since multiple factors could have led to this result*."[519]

4.2.3 GEMA's overly stretching efficient cost benchmark limits the benefit for the frontier company through its interaction with the BPI Stage 4 incentive

(480) At the Appellant's Open Meeting, Akshay Kaul opined that the "*benchmarking process we adopted explicitly rewards higher performing companies relative to less efficient ones, emphasised by our proposals to use an 85th percentile as the benchmark performance level across the sector*".[520] However, far from rewarding the frontier company, the Appellant submits that GEMA's efficient cost benchmark limits the benefit to the Appellant. Moreover, while GEMA has introduced a glidepath to the 85th percentile at FD to reduce the impact on underperforming companies;[521] it has not mitigated the impact on the frontier company.

(481) Part of the incentive for being the frontier company derives from being allowed the difference between the regulator's efficient cost benchmark and the company's own business plan forecast. Setting an overly challenging efficient cost benchmark therefore reduces the benefit for the frontier company – in the Appellant's case the difference in the BPI Stage 4 calculation is £1.47 million (as the cost allowance would change by £3 million).

(482) The interaction of an overly challenging efficient cost benchmark and the BPI Stage 4 calculation means that there is limited benefit from the frontier position in the sector, which limits the incentive for the frontier company to deliver further savings. This is compounded by the excessively high OE challenge that GEMA has assumed which is comparatively harder for a frontier company to achieve (see Part VII: Appeal Ground 3: Ongoing Efficiency).

5 Conclusion

(483) The Decision was wrong on the following grounds:

(i) In introducing the BPI Stage 4 assessment which provides an insufficient absolute level of reward to incentivise the frontier company (and hence to incentivise all GDNs to aspire to this position through efficiency improvements during RIIO-GD2), GEMA's BPI Stage 4 fails properly to have regard to and/or give appropriate weight to its principal objective and its statutory duties to ensure that licensees are granted appropriate incentives to increase efficiencies and that gas networks are secure, reliable and efficient.

(ii) In failing to adequately assess the impact of the significant reduction in incentives offered to the frontier company at RIIO-GD2 compared to RIIO-GD1, GEMA has not properly had regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(iii) In its flawed calculation methodology under the BPI Stage 4 mechanism, which assesses technically and non-technically assessed costs together, GEMA has erred in fact and in law (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching

[518] FD GD Annex (revised), para. 3.25 (NGNNOA1_168).

[519] CMA's Provisional Findings, para. 4.295 (NGNNOA1_186).

[520] NGN Open Meeting, p. 2 (NGNNOA1_141).

[521] FD GD Annex (revised), para. 3.25 (NGNNOA1_168).

conclusions without adequate supporting evidence, and/or making mathematical or formula specification errors). In failing to provide adequate explanation for its methodology, GEMA fails to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(iv) In its application of the efficient cost benchmark at a glidepath to the 85th percentile:

(i) GEMA has departed from regulatory precedent in a way which fails to have regard to the principles of best regulatory practice under which regulatory activities should be transparent, accountable and consistent.

(ii) By imposing an 85th percentile efficient cost benchmark which is not substantiated by the reliability of GEMA's cost-modelling approach, it has also erred in fact and in law (by acting disproportionately, unfairly and/or in defiance of logic, failing properly to inquire, reaching conclusions without adequate supporting evidence, and/or making mathematical or formula specification errors).

(iii) In disregarding the fact that an excessively challenging benchmark reduces the incentives of the frontier company, GEMA has failed to properly have regard to and/or give appropriate weight to its principal objective and its statutory duties to ensure that licensees are granted appropriate incentives to increase efficiencies and that gas networks are secure, reliable and efficient.

6 Relief sought

(484) In order to remedy the errors described above, the Appellant requests that the CMA quash the Decision and substitute its own which:

(i) Regardless of the CMA's conclusions with regard to Ground 4A(I):

(a) applies a calculation methodology for the BPI Stage 4 which assesses technically and non-technically assessed costs separately. In other words, non-technically assessed costs should have been treated as one category, with technically assessed costs dealt with separately at the level of individual cost categories. A separate reward should be calculated for each category where the Appellant's proposed costs are below GEMA's calculated cost allowance (Ground 4A(II)).

(b) sets the efficient cost benchmark in the BPI stage 4 calculation on the basis of the 75th percentile (upper quartile) of efficiency rather than a glide-path to the 85th percentile (Ground 4B).

(ii) Introduces a new additional income reward calculated as 1% of allowed totex in line with the RIIO-GD1 framework for the frontier company (Ground 4A(I)). The Appellant submits that this is an appropriate reward for RIIO-GD2 (not subject to the TIM) for the following reasons:

(c) An additional reward of 1% of totex (£12.4 million in this case) represents a small portion of the total possible savings for all gas consumers of having a frontier company deliver efficiencies like those delivered by the Appellant during RIIO-GD1, which KPMG conservatively values at £200 million.[522]

(d) Such an incentive is consistent with creating an environment conducive to an ambitious business plan which not only seeks to reward past frontier activity, but also to encourage companies to bring forward possible new savings to be incorporated into their business

[522] Incentives Report, para. 6.1.3, exhibited at (IA1_1).

plan and therefore delivered to customers much earlier rather than undertaken during the next price control period.

(e) It is roughly approximate to the backward-looking reward currently provided by the BPI Stage 4. If correctly calculated, the current BPI Stage 4 approach would yield a reward of about £10 million for the Appellant. To ensure that any frontier company is at least as well off by bringing forward proposals rather than waiting to implement them during the next price control period, the company needs to get an equivalent reward.

(f) A reward of 1% of totex is significantly lower than the equivalent reward at RIIO-GD1, which had a basic level of additional income of 2.5% of allowed totex for a company at the upper quartile.[523]

(g) In summary, while the RIIO-GD1 additional income level was significantly higher; the Appellant submits that rewarding a frontier company through a properly applied BPI stage 4 mechanism together with an additional 1% of allowed totex provides an adequate continued incentive for all GDNs to continue to strive to be the frontier company, while also ensuring that customers gain the majority share of any savings.

(485) In the alternative, with respect to the relief sought at paragraph (484)(ii) above in relation to the errors identified in Ground 4A(I), the Appellant requests that the CMA remit the matter to GEMA under section 23E(2)(b) GA86 for reconsideration and determination in accordance with such directions as are necessary adequately to address those errors.

(486) The required amendments to the Licence are set out in Annex III.

ALAN MACLEAN QC

LINKLATERS LLP

[523] The 100 column in the menu matrix. If a company believed it could be more efficient than this, it could earn an even higher level of additional income – a company able to deliver at 90% of the upper quartile allowance gained a further 1.6% of allowed totex as additional income.

STATEMENT OF TRUTH

The Appellant believes that the facts stated in this Notice of Appeal are true.

……..

Signature of Authorised Representative

Mark Horsley, Chief Executive Officer

……..

Name of Authorised Representative

……..

Date: 3 March 2021

for and on behalf of Northern Gas Networks Limited

ANNEX I
GLOSSARY

A	
"**Allowed return on capital**"	GEMA allowance based on the assessed weighted average cost of capital (WACC) including the expected performance of the price control.
"**Allowed return on debt**"	GEMA allowance in respect of the cost of debt, calculated on a pre-tax basis with reference to a trailing average index of debt costs.
"**Allowed return on equity**"	GEMA allowance based on the assessed cost of equity and expected performance of the price control. GEMA calculates the allowed return on equity and cost of equity on a post-tax basis.
"**Allowed revenue**"	The amount of money that a network company can earn on its regulated business.
"**Asset stranding**"	Assets which have subsequently become either not used or underused as compared with initial expectations.
B	
"**Baseline Allowed Return**"	Our estimation, taking into account expectations, of the efficient return for debt and equity capital. Based on a weighted average of the pre-tax cost of debt and the post-tax cost of equity, adjusted for ex ante expectations if any. The weighting uses notional gearing.
"**Basis Points ('bps')**"	Used in finance to express small changes in rates. One basis point is 0.01% or one hundredth of 1%. 50bps is 0.5%.
"**Benchmarking**"	The process used to compare a company's performance (e.g. its costs) to that of best practice or to average levels within the sector.
"**Beta**"	The return investors can expect on the market portfolio, given the systematic risks taken.
"**Biogas**"	A gas produced by the biological breakdown of organic matter in the absence of oxygen. This gas can be used in a similar manner to natural gas to produce heat or electricity but unlike natural gas, biogas can be renewable fuel.
"**Bond**"	A type of debt instrument used by companies and governments to finance their activities. Issuers of bonds usually pay regular cash flow payments (coupons) to bond holders at a pre-specified interest rate and for a fixed period of time.
"**Business carbon footprint (BCF)**"	A measure of the total greenhouse gas emissions (in tonnes of CO2 equivalent) caused directly and indirectly by the reporting company. Direct and indirect emissions sources are categorised into scope 1, 2 and 3 emissions. The greenhouse gases that may be reported include carbon dioxide (CO2), methane (CH4), sulphur hexafluoride (SF6) and specified kinds of hydro fluorocarbons and perfluorocarbons.

	Greenhouse gas emissions are measured as tonnes of carbon dioxide equivalence (tCO2-e). This means that the amount of a greenhouse gas that a business emits is measured as an equivalent amount of carbon dioxide which has a global warming potential of one. For example, in 2019–20, one tonne of SF6 released into the atmosphere will cause the same amount of global warming as 23,500 tonnes of carbon dioxide over the next 100 years. So, one tonne of SF6 is expressed as 23,500 tonnes of carbon dioxide equivalence, or 23,500 tCO2-e.
"**Business Plan Data Template (BPDT)**"	A set of data templates that gas and electricity transmission and gas distribution network companies used when submitting both draft Business Plans to the RIIO-GD2 Challenge Group, and final Business Plans to GEMA.
"**Business Plan Incentive (BPI)**"	A RIIO-GD2 incentive to encourage companies to submit ambitious Business Plans. Business Plans have been assessed under 4 stages in terms of their cost and quality, with rewards available for Business Plans representing genuine value for money and which provide information that helps GEMA to set better price controls. Inefficient, low quality plans may be subject to a financial penalty.
C	
"**Capital Asset Pricing Model (CAPM)**"	A theoretical model that describes the relationship between risk and required return of financial securities. The basic idea behind the CAPM is that investors require a return for the level of risk in their investment.
"**Capital expenditure (capex)**"	Expenditure on investment in long-term distribution and transmission assets, such as gas pipelines or electricity overhead lines.
"**Capitalisation policy**"	The approach that the regulator follows in deciding the percentage of total expenditure added to the RAV (and thus remunerated over time) and the percentage of expenditure remunerated in the year that it is incurred.
"**Challenge Group (CCG)**"	GEMA has set up a central RIIO-GD2 Challenge Group that is independently chaired. It provided GEMA with a public report on companies' Business Plans from the perspective of end consumers.
"**Competition Proxy Model (CPM)**"	The CPM is one of the late competition models that may be applied to projects that meet the Criteria for competition during RIIO-GD2. Under the CPM, GEMA would utilise relevant benchmarks from other regimes, alongside other market information, to set a project-specific revenue for the incumbent network licensee that we consider would have eventuated from an efficient competitive process for construction and long-term operation (25 years) of a project.
"**Consumer**"	Within the regulatory framework we consider consumers to be the end users of gas and electricity, whether for domestic or business use.

"**Consumer Expenditure Deflator (CED)**"	This is the implied deflator for consumers' expenditure derived from estimates of consumers' expenditure valued at current and constant prices taken from the unofficial national accounts of the United Kingdom, prepared by the Department of Applied Economics at Cambridge University.
"**Consumer Prices Index (CPI/CPIH)**"	The CPI is an aggregate measure of changes in the cost of living in the UK. It differs from the RPI in that it does not measure changes in housing costs and mortgage interest repayments – whereas the RPI does. CPI and RPI are calculated using different formulae, and have a number of other subtler differences. CPIH includes a measure of owner-occupiers' housing costs.
"**Consumer Value Proposition (CVP)**"	Consumer Value Proposition is stage 2 of the Business Plan Incentive, where a company could bid for reward by demonstrating the additional value its Business Plan will generate for existing and future consumers and consumers in vulnerable situations.
"**Coordinated Adjustment Mechanism**"	A whole system focused re-opener to protect consumer interests by supporting the reallocation of project revenues and responsibilities to the network best placed to deliver the relevant projects.
"**Cost of capital**"	The cost of capital is the combined cost of debt and cost of equity.
"**Cost of debt**"	The effective interest rate that a company pays on its current debt. GEMA calculates the cost of debt on a pre-tax basis with reference to a trailing average index of debt costs.
"**Cost of equity**"	The rate of return on investment that is required by a company's shareholders. The return consists both of dividend and capital gains (i.e. increases in the share price). GEMA calculates the cost of equity on a post-tax basis.
"**Credit rating**"	An evaluation of a potential borrower's ability to repay debt. Credit ratings are calculated using a number of factors including financial history and current assets and liabilities. There are three major credit rating agencies (Standard and Poor's, Fitch, and Moody's) who use broadly similar credit rating scales, with D being the lowest rating (highest risk) and AAA being the highest rating (negligible risk).
"**Customer Engagement Group (CEG)**"	For RIIO-GD2, distribution companies were each required to set up a Customer Engagement Group. These Groups provided GEMA with a public report on their views and the companies' Business Plans from the perspective of local stakeholders.
D	
"**deadband**"	Level of performance within which companies have no incentive to seek to outperform.
"**Decarbonisation**"	In a network price control context, the role of network operators in facilitating the reduction or removal of carbon dioxide emissions from energy and other sectors of the economy, e.g. transport.

"**Depreciation**"	Depreciation is a measure of the consumption, use or wearing out of an asset over the period of its economic life.
"**Distributed generation (DG)**"	Any generation connected directly to the local distribution network, as opposed to the transmission network, as well as combined heat and power schemes of any scale.
"**Distribution Network Operators (DNOs)**"	A DNO is a company that operates the electricity distribution network, which includes all parts of the network from 132kV down to 230V in England and Wales. In Scotland 132kV is considered to be a part of transmission rather than distribution so their operation is not included in the DNOs' activities. There are 14 licenced DNOs that are subject to RIIO price controls. These are owned by six different groups.
"**Distribution System**"	The system of low voltage electric lines and low pressure pipelines providing for the transfer of electricity and gas within specific regions of GB.
"**Distribution System Operation (DSO) roles**"	The development of distribution system operation roles is a live and evolving policy area with various workstreams currently in progress. In general, DSO roles refer to innovative techniques and use of market-based solutions as alternatives to network reinforcement, as well as greater coordination with other network and system operators to achieve efficient outcomes in a whole system context.
"**Distribution Use of System (DuoS)**"	DuoS is a cost paid by suppliers to Distribution Network Operators (DNOs) for the building and maintenance of the local distribution network. Suppliers then pass this DuoS charge on to energy consumers.
"**Dividend growth model (DGM)**"	A valuation model, that calculates the fair value of stock, assuming that the dividends grow either at a stable rate in perpetuity or at a different rate during the period at hand.
E	
"**Economic life**"	The period over which an asset performs a useful function.
"**Environmental Action Plan (EAP)**"	These were plans that the licensees were required to submit with their Business Plans in December 2019 to address the impacts of their business and network activities on the environment and set out their commitments to addressing these impacts.
"**Equity beta**"	The equity beta measures the covariance of the returns on a stock with the market return. The weaker this covariance, the lower the return that investors would require on that stock.
"**Equity market**"	A market in which shares of companies are issued and traded, either through exchanges or over-the-counter markets, also known as the stock market.
"**Equity risk premium**"	A measure of the expected return, on top of the risk-free rate, that an investor would expect for a portfolio of risk-bearing assets. This

	captures the non-diversifiable risk that is inherent to the market. Sometimes also referred to as the Market Risk Premium.
"**EU KLEMS**"	EU KLEMS is a series of historical growth and productivity accounting datasets covering EU member states, published by the Vienna Institute for International Economic Studies. The research was originally financed by the European Commission, and is a widely recognised and well-established source of growth accounting data. The productivity measures in EU KLEMS compare quantity of inputs (capital, labour, energy, materials and services – hence "KLEMS"), to quantity of outputs, at a country and industry level.
"**Ex ante**"	Refers to a value or parameter established upfront (e.g. at the price control review to be used in the price control period ahead).
"**Ex ante base revenue**"	Ex ante base revenue (also referred to as baseline revenue) is the amount of revenue network companies are allowed to recover as set up front at the beginning of the price control. Additional revenue may be allowed during the price control under certain, specified circumstances, for example, if it is triggered under an Uncertainty Mechanism.
"**Ex post**"	Refers to a value or parameter established after the event (e.g. following commencement of the price control period).
F	
"**Financeability**"	Financeability relates to licence holders' ability to finance the activities which are the subject of obligations imposed by or under the relevant licence or legislation. Financeability is assessed using a range of different qualitative and quantitative measures, including financial ratios.
"**Flexibility**"	The ability to modify generation and/or consumption patterns in reaction to an external signal (such as a change in price, or a message).
"**Fuel poverty**"	In England, a household is considered to be fuel poor if it has above-average required fuel costs, in circumstances where, if it were to spend the amount needed to meet its energy needs fully, it would be left with a residual income below the official poverty line. As part of its new Fuel Poverty Strategy for England, the Department for Business, Energy and Industrial Strategy has consulted on amending this definition to refer to households living in a property with an energy efficiency rating of Band D, E, F or G, where disposable income after housing and energy costs is below the poverty line. In Wales, a household is considered to be fuel poor if it would have to spend more than 10% of income to maintain a satisfactory heating regime. In Scotland a household is considered to be fuel poor if, after having paid its housing costs, it would need more than 10% of its remaining net income to pay for its reasonable fuel needs and, having paid for

	its reasonable fuel needs, its childcare costs and its housing costs, this then leaves the household unable to maintain an acceptable standard of living.
G	
"**Gas Distribution Network (GDN)**"	GDNs transport gas from the National Transmission System to final consumers and to connected system exit points. There are eight network areas managed by four companies that are subject to RIIO price controls.
"**Gas System Operator (GSO)**"	The entity responsible for operating the gas transmission system and for entering into contracts with those who want to connect to and/or use the gas transmission system. National Grid Gas Transmission is the gas transmission system operator in Great Britain.
"**Gas Transporter**"	The holder of a Gas Transporter licence. The gas distribution networks and National Grid Gas Transmission are Gas Transporters.
"**Gearing**"	A ratio measuring the extent to which a company is financed through borrowing. GEMA calculates gearing as the percentage of net debt relative to the RAV.
"**Gilts**"	A bond issued by the UK government.
"**Gross Output (GO) measures of productivity**"	Productivity is often measured by comparing the quantity of inputs used with the quantity of outputs produced. GO measures measure the ratio of aggregate output to all inputs (capital, labour and intermediate inputs: energy, materials and services).
H	
"**Headroom**"	A term in finance related to borrowing which has different meanings in different contexts. Here we use it to mean a safety margin of a borrower.
"**High-confidence baseline costs**"	Costs included in baseline Totex allowances or forecasts for which GEMA has a high level of confidence in its ability to independently set a cost allowance. See also 'Lower-confidence baseline costs'.
I	
"**Indexation**"	The adjustment of an economic variable so that the variable rises or falls in accordance with index movements (e.g. inflation indices, bond indices).
"**Inflation index**"	This is a measure of the changes in given price levels over time. Common examples are the Retail Prices Index (RPI) the Consumer Prices Index (CPI) and the Consumer Prices Index including housing costs (CPIH), which are all measures of the aggregate change in consumer prices over time.
"**Information Quality Incentive (IQI)"**	The IQI is an incentive scheme introduced by GEMA in RIIO-GD1 to encourage companies to provide more accurate forecasts of expenditure in their business plans.

	The scheme was designed to be 'incentive-compatible' – the choice of options that maximised the company's expected profit coincided in principle with the choice that best reflected its beliefs about its future costs. Under the IQI, companies were offered a range of combinations of allowed expenditure (the budget), efficiency incentive rates (i.e. a share of underspends or overspends against budget), and an additional income or penalty (as a proportion of the budget). GEMA set allowed expenditure based on a weighted average of its view and the company's forecast. GEMA set the efficiency incentive rates and additional income/penalties based on how close the company's forecasts came to its view of efficient costs. The closer a company was, the higher the incentive rate and additional income rewards it would receive.
L	
"**Licence conditions**"	These are the conditions under which a licensee holds its licence to operate as a gas transporter or electricity transporter and address various detailed matters including requirements to meet certain standards of performance, how the company's allowed revenue is to be calculated and procedures for modifying various documents.
"**Licence obligations (LO)**"	This is one of the RIIO building blocks, an output that is contained within the licence conditions of a network company. GEMA has the power to take appropriate enforcement action in the case of a failure to meet these obligations.
"**Load Related Capex**"	Capital expenditure on new assets to accommodate changes in the level or pattern of electricity or gas supply and demand.
"**Lower-confidence baseline costs**"	Costs included in baseline Totex allowances or forecasts that are not High-confidence baseline costs. See also 'High-confidence baseline costs'.
M	
"**Market to Asset Ratios (MAR)**"	The MAR represents the ratio between the market enterprise value, i.e. the market valuation of a company, of a regulated network and its regulatory asset value (RAV).
"**Medium Sized Investment Projects (MSIP)**"	An annual RIIO-ET2 re-opener which allows ETOs to bring forward funding requests for sub-£100m projects across a range of different areas, most of which are driven by third parties.
N	
"**Net Present Value (NPV)**"	NPV is the discounted sum of future cash flows, whether positive or negative, minus any initial investment.
"**Network Asset Risk Metric (NARM)**"	The monetised risk associated with a NARM asset or the monetised risk benefit associated with a NARM Asset intervention.
"**Network charges**"	These are charges recovered for the use of network services.
"**Network Company**"	A transmission owner or gas distribution network operator.

"**Network Innovation Allowance (NIA)**"	A use-it-or-lose-it allowance to fund small projects focused on the energy system transition and vulnerable consumers.
"**Network users**"	Companies along the gas and electricity supply chain (i.e. producers and generators, transmission and distribution network companies, and energy suppliers) and consumers.
"Network Innovation Competition (NIC)"	The NIC was introduced by GEMA as part of the RIIO price controls. The Gas NIC is an annual opportunity for Gas network companies to compete for funding for the development and demonstration of new technologies, operating and commercial arrangements. Funding will be provided for the best innovation projects which help all network operators understand what they need to do to provide environmental benefits, reduce costs, and maintain security of supply as Great Britain moves to a low carbon economy. Up to £20 million per annum is available through the Gas NIC.
"**Non-Load Related Capex**"	The replacement or refurbishment of assets which are either at the end of their useful life due to their age or condition, or need to be replaced on safety or environmental grounds.
"**Non-technically assessed costs**"	GEMA labels costs according to the way that they have been assessed as either modelled (or non-technically assessed) costs or technically assessed costs. GEMA's main tool for assessment for modelled costs is the regression analysis. Apart from this tool, GEMA assesses modelled costs in separate non-regression models, where cost drivers vary across GDNs or are unique to a subset of GDNs. The results from the regression and non-regression models are then subjected to (i) a benchmarking efficiency adjustment based on GDNs' relative performance over the RIIO-GD2 period and (ii) ongoing efficiency adjustments.[524]
"**Notional company/business**"	A hypothetical, but typical, network company.
O	
"**Ongoing Efficiency**"	The reduction in the volume of inputs required to produce a given volume of output, i.e. the productivity improvements that we consider even the most efficient company is capable of achieving.
"**Operating Expenditure (opex)**"	The costs of the day-to-day operation of the network such as staff costs, repairs and maintenance expenditures and overheads.
"**Outputs**"	Services, requirements, and deliverables that network companies are funded or incentivised to deliver through the price control. These can be LOs, ODIs or PCDs. Common outputs apply to all or some of the energy sectors, whereas bespoke outputs apply to one network company.

[524] FD GD Annex (revised), paras. 3.13 *et seq* (NGNNOA1_168).

"**Output Delivery Incentives (ODIs)**"	In RIIO-GD2, ODIs will apply where service quality improvements beyond a level that is funded through ex ante base revenues may be in the interests of consumers. ODIs can be financial (ODI-F) or reputational (ODI-R).
"**Outperformance Wedge**"	Adjustment to the allowed return on equity to reflect expected performance / a final, unevidenced deduction from allowed revenues on top of, and separate to, the targets contained within RIIO-GD2
P	
"**Pass-through (of costs)**"	Costs for which companies can vary their annual revenue in line with the actual cost, either because they are outside network companies' control or because they have been subject to separate price control measures.
"**Price control**"	The control developed by the regulator to set targets and allowed revenues for network companies. The characteristics and mechanisms are developed by the regulator in the price control review period depending on network company performance over the last control period and predicted expenditure (companies' Business Plans) in the next.
"**Price Control Deliverables (PCD)**"	In RIIO-GD2, we will use PCDs to capture those outputs that are directly funded through the price control and where the funding provided is not transferrable to a different output or project. The purpose of a PCD will be to ensure the conditions attached to the funding are clear up-front.
"**PR19**"	Ofwat's 2019 price review, setting out a five-year price and service package to enable water companies to deliver and invest in services as well as operate more efficiently in order to reduce bills.
R	
"**Ratchet Effect**"	A phenomenon in which the outperformance wedge may create an expectation that the regulator will adjust future returns based on whether companies out/under-perform in the current control period and therefore reduces the incentive for companies to seek to outperform.
"**Real Price Effects (RPEs)**"	We set price control allowances which can include a general inflation measure (CPIH) and certain price indices that reflect the external pressures on companies' costs. We refer to the difference between CPIH and certain price indices as Real Price Effects (RPEs).
"**Regression**"	A statistical method used in finance, investing, and other disciplines that attempts to determine the strength and character of the relationship between one dependent variable and a series of other independent variables. Regression is used to value assets and understand the relationships between variables.

"**Regulatory Asset Value (RAV)**"	The value ascribed by GEMA to the capital employed in the licensee's regulated business (the 'regulated asset base'). The RAV is calculated by summing an estimate of the initial market value of each licensee's regulated asset base at privatisation and all subsequent allowed additions to it at historical cost, and deducting annual depreciation amounts calculated in accordance with established regulatory methods. These vary between classes of licensee. A deduction is also made in certain cases to reflect the value realised from the disposal of assets comprised in the regulatory asset base. The RAV is indexed to allow for the effects of inflation on the licensee's capital stock.
"**Regulatory burden**"	A term used to describe the cost to regulated companies – both monetary and opportunity – of regulation.
"**Reinforcement**"	The installation of new network assets to accommodate changes in the level or pattern of electricity or gas supply and demand.
"**Re-openers**"	An Uncertainty Mechanism used in certain limited and pre-defined circumstances, which may amend revenue allowances, outputs and/or delivery dates within the price control period.
"**Repex**"	Repex is the Health and Safety Executive enforced gas mains replacement programme.
"**Research and development (R&D)**"	Work undertaken to increase knowledge and used to create new processes or technologies that will advance capabilities.
"**Retail Prices Index (RPI)**"	The RPI is an aggregate measure of changes in the cost of living in the UK. It has a different formula to CPI; for example, it measures changes in housing costs and mortgage interest repayments, whereas the CPI does not.
"**Return Adjustment Mechanisms (RAMs)**"	Failsafe mechanisms to mitigate the future risk of companies earning materially higher or lower than expected returns in a changing system.
"**Return on Regulatory Equity (RoRE)**"	RoRE is the financial return achieved by shareholders in a licensee during a price control period from its actual performance under the price control. RoRE is calculated post-tax and is estimated using certain regulatory assumptions, such as the assumed gearing ratio of the companies, to ensure comparability across the sector. We use a mix of actual and forecast performance to calculate five-year average returns. These returns may not equal the actual returns seen by shareholders.
"**RIIO (Revenue = Incentives + Innovation + Outputs)**"	GEMA's regulatory framework, stemming from the conclusions of the RPI-X@20 project. It builds on the success of the previous RPI-X regime, but better meets the investment and innovation challenge by placing much more emphasis on incentives to drive the innovation needed to deliver a sustainable energy network at value for money to existing and future consumers.

"**RIIO-Gas Distribution Price Control Review 1 (RIIO-GD1)**"	The price control review applied to the gas distribution network operators. It runs from 1 April 2013 to 31 March 2021.
"**RIIO-Transmission Price Control Review 1 (RIIO-T1)**"	The price control review applied to the electricity and gas transmission network operators. It runs from 1 April 2013 to 31 March 2021.
"**RIIO-Gas Distribution Price Control Review 2 (RIIO-GD2)**"	The price control review applied to the gas distribution network operators. It runs from 1 April 2021 and running until 2026.
"**Ring-fence**"	The Ring Fence Conditions in gas and electricity network operator licences provide assurance that network operators always have the financial and operational resources necessary to fulfil their obligations under legislation and their licences.
"**Risk-free rate (RFR)**"	The rate of return that an investor would expect to earn on a riskless asset. Typically, government-issued securities are considered the best available indicator of the risk-free rate due to the extremely low likelihood of the government defaulting on its obligations.
"**RPI-X**"	The form of price control applied to regulated energy network companies before RIIO. Each company was given a revenue allowance in the first year of the control period. The price control then specified that in each subsequent year the allowance would move by 'X' % in real terms.
"**RPI-X@20**"	GEMA's comprehensive review of how it regulates energy network companies, announced in March 2008. Its conclusions, published in October 2010, resulted in the implementation of a new regulatory framework, known as the RIIO model.
S	
"**SAP S4 HANA**"	SAP S4 HANA is SAP's enterprise resource planning software package for large enterprises.
"**Shrinkage**"	Shrinkage is a term used to describe gas either consumed within or lost from a gas transporter's system. It includes leakage from the network, gas used by network operators during transportation (e.g. to power compressors), and gas stolen from the network.
"**Spot yield**"	The spot yield also known as spot rate is the price quoted for immediate settlement on an interest rate, commodity, security, or currency
"**Sterling Overnight Interbank Average Rate (SONIA)**"	The effective overnight interest rate paid by banks for unsecured transactions in the British sterling market, used for overnight funding for trades that occur in off-hours and represents the depth of overnight business in the marketplace.
"**Supplier**"	Any person authorised to supply gas and/or electricity by virtue of a Gas Supply Licence and/or Electricity Supply Licence.

"**Supply chain**"	Refers to all the parties involved in the delivery of electricity and gas to the final consumer - from electricity generators and gas shippers, through to electricity and gas suppliers.
"**Sustainable energy sector**"	A sustainable energy sector is one that promotes security of supply over time; delivers a low carbon economy and associated environmental targets; and delivers related social objectives (e.g. fuel poverty targets).
"**Swap rate**"	The rate of the fixed leg of a swap as determined by its particular market and the parties involved.
T	
"**Technically-assessed costs**"	GEMA labels costs according to the way that they have been assessed as either modelled (or non-technically assessed) costs or technically assessed costs. GEMA assesses technically assessed costs, such as large capex and repex projects, bespoke outputs and specialist areas, based on a combination of qualitative and quantitative technical / engineering assessment techniques including workload volumes and headline costs. No benchmarking efficiency adjustment applies to these costs given the discrete nature of the investments involved (e.g. an investment is uncommon across networks, lacks historical comparators or has other highly unique characteristics). Instead, technically assessed costs are subject to ongoing efficiency adjustments.[525]
"**Third party**"	Within the innovation context, third party refers to any person other than network companies. It may include, for example, private companies, academics, small and medium-sized enterprises, and trade bodies. It is often used interchangeably with non-network company.
"**Total expenditure (Totex)**"	Totex includes both capital expenditure (capex) and operating expenditure (opex). It also includes replacement expenditure (repex) in gas distribution. Totex is made up of fast money and slow money.
"**Total Market Return (TMR)**"	The TMR is a measure of return that equity investors expect for the market-average level of risk.
"**Totex Incentive Mechanism (TIM)**"	The TIM approach incentivises companies to find cost efficiencies and for the benefits of these efficiencies to be shared with consumers. It incentivises companies to be more efficient by providing them with a share of any underspend or overspend of their totex. The remainder is passed onto consumers.
"Total Factor Productivity (TFP)"	The TFP, also referred to as Solow Residual, is the portion of an economy's output growth that cannot be attributed to the accumulation of capital and labour. It represents output growth that happens beyond the simple growth of inputs.

[525] FD GD Annex (revised), paras. 3.13 et seq. (NGNNOA1_168).

U	
“**Uncertainty Mechanisms (UMs)**”	Uncertainty mechanisms allow changes to the ex ante base revenue during the price control period to reflect significant cost changes that are expected to be outside the company’s control. Common UMs apply to all or some of the energy sectors, whereas bespoke UMs apply to one network company.
V	
“**Value Added (VA) measures of productivity**”	Productivity is often measured by comparing the quantity of inputs used with the quantity of outputs produced. Value added (VA) measures, which measure the ratio of (a) gross output minus the value of intermediate inputs, to (b) just labour and capital inputs.
W	
“**Weighted Average Cost of Capital (WACC)**”	The weighted average of the cost of equity and the cost of debt, where the weighting is provided by the gearing ratio.
“**Whole system solutions**”	Solutions arising from energy network companies and system operators coordinating effectively, between each other and with broader areas, which deliver value for consumers.

ANNEX II

CHRONOLOGY

This chronology details the key steps leading up to GEMA's Decision.

Date	Event
12 July 2017	GEMA publishes an open letter setting out the context and objective of RIIO-2 and seeking views from stakeholders.
7 March 2018	GEMA commences consultation on the framework of RIIO-GD2.
2 May 2018	GEMA closes consultation on the framework of RIIO-GD2.
30 July 2018	GEMA publishes its decision on the framework of RIIO-GD2
18 December 2018	GEMA consults on the sector-specific methodology for RIIO-GD2.
14 March 2019	GEMA closes consultation on the sector-specific methodology for RIIO-GD2
24 May 2019	GEMA issues its decision on the sector-specific methodology for RIIO-GD2
28 June 2019	GEMA commences consultation on the cost assessment tools and techniques to be applied in setting the RIIO-GD2 price controls.
23 August 2019	GEMA closes consultation on the cost assessment tools and techniques to be applied in setting the RIIO-GD2 price controls.
20 September 2019	GEMA publishes final guidance on data templates and associated instructions and guidance for GDNs: Business Plan Data Templates (BPDTs), Investment decision packs and Engineering Justification papers.
24 October 2019	GEMA publishes Open Letter providing updates on several elements of the RIIO-GD2 customer satisfaction incentive.
3 June 2019	GEMA publishes a first version of the business plan guidance document indicating the information that should be included in the business plans for RIIO-GD2.
1 July 2019	GDNs submit first draft business plans for RIIO-GD2.
9 September 2019	GEMA publishes a second version of the business plan guidance document indicating the information that should be included in the business plans for RIIO-GD2.
1 October 2019	GDNs submit second draft business plans for RIIO-GD2.
31 October 2019	GEMA publishes the final version of the business plan guidance document indicating the information that should be included in the business plans for RIIO-GD2.
25 November 2019	GEMA asks all network companies to provide assurance ahead of RIIO-GD2 business plans submission.
9 December 2019	GDNs submit the final version of their business plans for RIIO-GD2.

Date	Event
13 December 2019	GEMA publishes a call for evidence on the business plans for potential consideration at the RIIO-GD2 open hearings in March/April 2020.
22 December 2019	Customer Engagement Group releases its report on NGN's business plan.
24 January 2020	RIIO-GD2 Challenge Group publishes its independent report on the business plans for RIIO-GD2.
9 July 2020	GEMA publishes its draft determinations for the RIIO-GD2 price controls and commences statutory consultation.
4 September 2020	GEMA closes consultation on its draft determination for the RIIO-GD2 price controls.
23 September 2020	GEMA commences statutory consultation on a proposal to modify licences held by GDNs in extraordinary circumstances due to COVID-19.
30 September 2020	GEMA launches informal licence drafting consultation on proposed modifications to the licence conditions required to implement the RIIO-GD2 price controls.
16 October 2020	NGN RIIO-GD2 Open Hearing.
20 October 2020	GEMA closes statutory consultation on a proposal to modify licences held by GDNs in extraordinary circumstances due to COVID-19.
28 October 2020	GEMA closes informal licence drafting consultation on proposed modifications to the licence conditions required to implement the RIIO-GD2 price controls.
4 December 2020	GEMA publishes its decision not to modify licences held by GDNs in extraordinary circumstances due to COVID-19.
8 December 2020	GEMA publishes its final determinations for the RIIO-GD2 price controls.
17 December 2020	GEMA commences statutory consultation on a proposal to modify the Special Conditions and Standard Special Conditions of the Gas Transporter licence held by various licensees including NGN.
29 January 2021	GEMA closes statutory consultation on a proposal to modify the Special Conditions and Standard Special Conditions of the Gas Transporter licence held by various licensees, including NGN.
3 February 2021	GEMA publishes its Decision and an errata list for the RIIO-GD2 Final Determinations, and revised versions of the RIIO-GD2 Final Determinations (Core Document, Finance Annex, NGN Annex and GD Annex).
18 February 2021	GEMA publishes consultation on Network Asset Risk Metric Handbook and Network Asset Risk Workbooks. Due to close 18 March 2021.
3 March 2021	Deadline to appeal against the Decision to the CMA.

ANNEX III
RELIEF

1 Appeal Ground 1: Cost of Equity

1.1 Relief sought

(1) The Appellant requests that the CMA quash the Decision and substitute its own by setting a cost of equity within 5.18% – 6.24%, which is the relevant range following correction of GEMA's errors relating to RFR, TMR and beta, and selects a point estimate that includes necessary aiming-up.

1.2 Required amendments for cost of equity

(2) To give effect to the relief sought under the Appeal Ground 1: Cost of Equity, the following amendments to the RIIO-GD2 Price Control Financial Model and RIIO-GD2 Price Control Financial Handbook are required.

TMR

(i) Numerical values in cells AP193 to AT193 in the Northern tab of the RIIO-GD2 Price Control Financial Model to be replaced with the value selected by the CMA.

Beta

(i) Numerical values in cells AP192 to AT192 in the Northern tab of the RIIO-GD2 Price Control Financial Model to be replaced with the value selected by the CMA.

RFR

(i) Numerical values in cells AP139 to AT139 in the Northern tab of the RIIO-GD2 Price Control Financial Model to be replaced with values computed in accordance with the amended RIIO-GD2 Price Control Financial Handbook as described below.

(i) Amendments to be made to Chapter 4 of the RIIO-GD2 Price Control Financial Handbook (from paragraphs 4.16), insofar as it relates to the Appellant, as specified in Appendix 1 to this Annex III.

Aiming-up

(i) Formulae in cells AP169 to AT169 of the Input tab of the GD2 Price Control Financial Model to be appended by an adjustment with the value selected by the CMA.

2 Appeal Ground 2: Outperformance Wedge

2.1 Relief sought

(3) The Appellant requests that the CMA quash the Decision and substitute its own, by removing the Outperformance Wedge from the RIIO-GD2 regulatory framework.

2.2 Required amendments for the Outperformance Wedge

(4) To give effect to the relief sought under the Appeal Ground 2: Outperformance Wedge, the following amendments to the RIIO-GD2 Price Control Financial Model and Licence are required.

(i) Numerical values in cells AP198 to AT198 in the Northern tab of the RIIO-GD2 Price Control Financial Model to be replaced with the value: 0.00%.

(ii) The term "$MAX(\ MIN(EO-OPP,EO),0\ )$" to be removed from the formula set out in paragraph 2.3.7 of Special Condition 2.3;

(iii) The line "EO means expected outperformance, and has the value of 0.25%;" to be removed from paragraph 2.3.7 of Special Condition 2.3; and

(iv) The term "EO +" to be removed from the formula set out in paragraph 2.3.8 of Special Condition 2.3.

3 Appeal Ground 3: Ongoing Efficiency

3.1 Relief sought

(5) The Appellant requests that the CMA quash the Decision and substitute its own which:

(i) Selects an appropriate point within the lower half of the range recommended by CEPA for the base ongoing efficiency challenge (specifically, the Appellant contends that a balanced interpretation of the evidence would support a range from 0.5 to 0.8% for each of Capex/Repex and Opex).

(ii) Removes the 0.2% p.a. innovation uplift in its entirety from the ongoing efficiency challenge (which has the effect of reducing the ongoing efficiency challenge by 20bps).

3.2 Required amendments for ongoing efficiency

(6) To give effect to the relief sought under Appeal Ground 3: Ongoing Efficiency, a list of amendments to the RIIO-GD2 Price Control Financial Model as well as the Network Asset Risk Workbook (NARW) and Network Asset Risk Metric (NARM) Handbook are required. These are summarised in section 4.2 below, which includes the amendments required if any parameter of the totex allowance (including ongoing efficiency challenge) is modified.

4 Appeal Ground 4: BPI Stage 4

4.1 Relief sought

(7) The Appellant requests that the CMA quash the Decision and substitute its own which:

(ii) Includes a new additional income reward calculated as 1% of allowed totex.

(iii) Applies a calculation methodology for the BPI Stage 4 which assesses technically and non-technically assessed costs separately, regardless of the relief sought to address the fundamental shift between RIIO-GD1 and RIIO-GD2 in relation to the treatment of frontier performance. A separate reward would then be calculated for each category where the Appellant's proposed costs are below GEMA's calculated cost allowance.

(iii) Sets the modelled cost allowance in the BPI stage 4 calculation on the basis of the 75th percentile (upper quartile) of efficiency rather than a glide-path to the 85th percentile.

4.2 Required amendments for totex allowances

(8) This section includes the amendments required if any parameter of the totex allowance (including ongoing efficiency challenge, BPI Stage 4 and catch-up efficiency) is modified.

Therefore, these amendments are necessary to give effect to the Appeal Ground 3: Ongoing Efficiency and Appeal Ground 4: BPI Stage 4.

(9) The following amendments to the RIIO-GD2 Price Control Financial Model as well as the Network Asset Risk Workbook (NARW) and Network Asset Risk Metric (NARM) Handbook are required:

(i) Numerical values in the following cells in the Northern tab of the RIIO-GD2 Price Control Financial Model to be replaced with values redetermined following amendments to and re-running of GEMA's cost models in accordance with the guidance set out in Appendix 2 to this Annex III.

(a) AP10:AT14 (non-variant allowances)

(b) AP19:AT58 (variant allowances)

(c) AP96:AT96 (BPI)

(d) AP159:AT164 (tax pool allocations)

(iv) Following these amendments, the amended NARW and, where appropriate, the amended NARM Handbook to be reissued under paragraph 3.1.2(b) of Special Condition 3.1.

5 Amendments to Licence

(10) The following values in the Licence should be re-calculated and replaced with values that are consistent with the reliefs sought under the four grounds of appeal:

(i) The definition of 'Ex-Ante Base Revenue' in Special Condition 1.1B;

(v) The definition of 'Materiality Threshold' in Special Condition 1.1B;

(vi) Values of 'Baseline Allowed NARM Expenditure ($NARM_t$) for delivering Baseline Network Risk Outputs' in Appendix 1 of Special Condition 3.1;

(vii) Values of 'Baseline Activity Volumes of Tier 1 Mains Decommissioned and Allowed Unit Costs of Tier 1 Mains Decommissioned' in Appendix 2 of Special Condition 3.10;

(viii) Values of ' Tier 1 Mains Baseline Values by Regulatory Year' in Appendix 3 of Special Condition 3.10;

(ix) Values of 'Baseline Activity Volumes of Tier 1 Services and Allowed Unit Costs' in Appendix 2 of Special Condition 3.11;

(x) Values of ' Tier 1 Services Baseline Values by Regulatory Year' in Appendix 3 of Special Condition 3.11;

(xi) Values of 'Fuel Poor Individual Connection Cost' in Appendix 3 of Special Condition 3.14;

(xii) Values of 'Distribution Network specific matrix costs'' in Appendix 1 of Special Condition 3.15; and

(xiii) Values of 'Distribution Network specific matrix costs (£ per kilometre mains decommissioned including associated service interventions) for Above Risk Action Threshold Tier 2 Mains' in Appendix 1 of Special Condition 3.16.

Appendix 1

Amendments to the Price Control Financial Handbook

(11) The mark-up below should be applied to the Price Control Financial Handbook to give effect to the relief sought under Ground 3: Cost of Equity.

Cost of equity – risk-free rate

4.16. The RIIO-GD2 PCFM as at 01 April 2021 includes opening real (CPIH) risk-free rates (RFR) for the licensee for every Regulatory Year of the Price Control Period. Changes in RFR result in changes to the cost of equity percentage value used in determining the Allowed Return on Equity (determined in the PCFM).

4.17. Revised RFR values for all ~~future~~ Regulatory Years in the Price Control Period will be calculated or, in respect of the Regulatory Year 2021/22, recalculated by Ofgem in accordance with the approach set out below and published in respect of each AIP and in respect of the revised values for Regulatory Year 2021/22. In brief, revised RFR values will be calculated using:

a) yields on AAA-rated corporate bonds (10+ and 10-15 year zero coupon) and applying adjustments for CPIH inflation expectations; and

b) yields on government securities (20-year real zero coupon) and applying ~~an~~ adjustments for ~~CPIH inflation expectations and for~~ the difference between RPI and CPIH inflation expectations.

4.18. The steps Ofgem will follow to calculate the revised RFR values are:

Step 1 – obtain real government bond yields

4.19. For each Regulatory Year, obtain a real government bond yield for the days shown in Table 4.2 , as follows:

a) for days up to and including 31 October in the year in which the AIP is being conducted or, in relation to Regulatory Year 2021/22, the year preceding the start of the Regulatory Year, obtain the yield (these figures being percentages) for British government securities, 20-year real zero coupon (series reference IUDLRZC)[526]; and

b) for all other days, forecast a yield (percentages) for British government securities, 20-year real zero coupon. The forecast is derived from the Bank of England's estimated real yield curves for British government securities[527] (using data up to and including 31

[526] Sourced from the BoE Statistics (NGNNOA1_242), available at https://www.bankofengland.co.uk/ (accessed on 1 March 2021).

[527] BoE Yield Curves (NGNNOA1_241), available at https://www.bankofengland.co.uk/statistics/yield-curves (accessed on 1 March 2021).

October in the year in which the AIP is being conducted or, in relation to Regulatory Year 2021/22, the year preceding the start of the Regulatory Year) by a no arbitrage condition, where a 20 year rate x years in the future can be derived from the x year rate and 20+x year rate. [528] The forecast is made for dates on half-yearly intervals, and then linearly interpolated between those dates.

~~*October in the year in which the AIP is being conducted) by a no arbitrage condition, where a 20 year rate x years in the future can be derived from the x year rate and 20+x year rate. The forecast is made for dates on half-yearly intervals, and then linearly interpolated between those dates*~~.

Table 4.2 – time periods for calculation of risk-free rate by Regulatory Year

Regulatory Year	Time period for calculation
2021/22	*01 May 2020 to 31 October 2020*
2022/23	*01 ~~October~~ May 2021 to 31 October 2021*
2023/24	*01 ~~October~~ May 2022 to 31 October 2022*
2024/25	*01 ~~October~~ May 2023 to 31 October 2023*
2025/26	*01 ~~October~~ May 2024 to 31 October 2024*

Step 2 – obtain nominal AAA-rated bond yields

4.20. For each Regulatory Year, obtain nominal AAA-rated bond yields for the days shown in Table 4.2, as follows:

a) For days up to and including 31 October in the year in which the AIP is being conducted or, in relation to Regulatory Year 2021/22, the year preceding the start of the Regulatory Year, obtain the yield (these figures being percentages) for the iBoxx £ Non-Gilts AAA 10+ and 10-15 indices (ISIN references DE0007932634 and DE0007932618). The yields on both indices should be equally weighted to derive estimates of the nominal AAA-rated bond yield for each day; and

b) for all other days forecast the nominal AAA-rated bond yield as the sum of:

i. the 3-year trailing average spread between the equally weighted yield on the iBoxx £ Non-Gilts AAA 10+ and 10-15 indices and the yield for British government securities, 20-year real zero coupon (series reference IUDLRZC), using data up to and including 31 October in the year in which the AIP is being conducted or, in relation to Regulatory Year 2021/22, the year preceding the start of the Regulatory Year

[528] For example, if A is the current 20+x year spot rate and B is the current x year rate, the 20-year rate x years into the future is given by [A*(20+x) - B*x]/20

ii. The forecast derived in 4.19 (b) above.

Step ~~2~~ 3 – obtain RPI and CPI inflation forecasts

4.21. For each Regulatory Year, obtain inflation forecasts of CPI and RPI for the days shown in Table 4.2 from the OBR's Historical official forecasts database[529], as follows:

a) for days up to and including 31 October in the year in which the AIP is being conducted, the inflation forecasts are the latest OBR year 5 forecast of CPI and year 5 forecast of RPI available on that given day, subject to the assumption that the OBR forecast is available from the first day of the month following the month of publication;

b) in relation to Regulatory Year 2021/22, for days up to and including 31 October in the year preceding the start of the Regulatory Year, the inflation forecasts are the forecasts used by the Authority in the computation of opening real (CPIH) risk-free rates referred to in 4.16 above; and

c) for all other days, the inflation forecasts are the latest OBR year 5 forecast of CPI and year 5 forecast of RPI available on 31 October in the year in which the AIP is being conducted, subject to the assumption that the OBR forecast is available from the first day of the month following the month of publication,

in each case using the year 4 forecast for the year if the year 5 forecast is not available.

[For reference: the Cost of Equity Report[530] uses the BoE inflation target as its estimate of CPI inflation]

4.22. Currently as per Historical Official forecasts database on OBR website, there are generally two publications in a year. Publication in October in a given year for the period 'November to March' shows a year 5 forecast and publication in March for the period 'April to October' shows a year 4 forecast. For example, the inflation values for 01 November 2018, are the OBR year 5 forecasts of CPI and RPI (for 2023) published in October 2018 and the inflation values for 31 October 2018 are the OBR year 4 forecasts of CPI and RPI (for 2022) published in March 2018.

Step ~~3~~ 4 – derive an RPI-CPIH inflation wedge

4.23. For each day in the periods shown in Table 4.2 , calculate an RPI-CPIH wedge using inflation values from step 2 and applying the following formula:

[529] OBR Historical Official Forecasts Database (NGNNOA1_243), available at https://obr.uk/download/historical-official-forecasts-database/ (accessed on 1 March 2021).
[530] Cost of Equity Report, exhibited at (KPMG_COE1_1).

$$Wedge = \frac{1 + RPI\ year\ 5\ forecast}{1 + CPI\ year\ 5\ forecast} - 1$$

[For reference: the Cost of Equity Report[531] uses the last OBR estimate of the long term RPI-CPIH wedge]

Step ~~4~~ 5 – calculate real risk-free rate (RFR) for each day

4.24. This step converts each of the daily real (RPI) 20-year gilt yields and nominal AAA-rated bond yields collected in Steps 1 and 2 to daily real (CPIH) RFR by using the RPI-CPIH wedge calculated in Step ~~3~~ 4 and the CPI inflation forecast obtained in Step 3 according to the following formula:

$$Real\ (CPIH)\ RFR = 0.50 * (real\ 20yr\ gilt\ yields + 1) * (1 + wedge) - 1)$$

$$+ 0.50 * \left(\frac{1 + nominal\ AAA\text{-}rated\ bond\ yields}{1 + CPI\ year\ 5\ forecast} - 1\right)$$

Step ~~5~~ 6 – calculate average real (CPIH) RFR

4.25. For each Regulatory Year, calculate the arithmetic average value of the real (CPIH) risk-free rates from Step ~~4~~ 5 across the periods shown in Table 4.2 .

4.26. The resulting averages, expressed as a percentage and stated to two decimal places, constitutes the revised Variable Value for the real RFR value for each Regulatory Year.

4.27. Ofgem will provide the licensee with a copy of the spreadsheet used to calculate revised RFR values at the same time as giving the notice (paragraph 2.51).

4.28. The data and spreadsheet used to calculate revised RFR values will be published on the Ofgem Website (by 30 November in each Regulatory Year, or as soon as reasonably practicable thereafter (see para 2.52).

NON-AVAILABILITY OR CHANGES TO BASIS OF DATA FOR COST OF EQUITY – RISK-FREE RATE

4.29. If, for any reason, the Bank of England, iBoxx or OBR series identified above cease to be published (or data is missing for a period considered material by Ofgem), or if Ofgem believes there is a material change in their basis, Ofgem will consult on alternatives, as well as on any

[531] Cost of Equity Report, exhibited at (KPMG_COE1_1).

reconciliation that may need to be undertaken between the above series and any replacements. If the consultation is not completed in time to determine revised variable values for the risk-free rate for any AIP, Ofgem may use an interim approach to ensure timely completion of an AIP.[532] *Any such interim approach for a given Regulatory Year will be revised at the subsequent AIP.*

4.30. If, for reasons other than stated in paragraph 4.29, Bank of England data (20-year real zero coupon, para 4.19) or iBoxx data (AAA-rated bond yields, para 4.20) are unavailable for an entire trading days period in time to determine revised variable values for the RFR for any AIP then, for that AIP only, the trading days period concerned will be deemed to have ended on the last trading day for which data has been published. If the data concerned is subsequently published, revised variable values for the affected Regulatory Years will be determined and published.

[532] This interim approach is not restricted to using the value from the most recent publication that did contain the value (as required of the licensee under Special Condition 8.2.8(b)).

Appendix 2

Amendments to GEMA's cost models

1 Background

(12) Amendments to the OE challenge, the efficient cost benchmark and the BPI Stage 4 assessment will initially impact GEMA's benchmarking models, which would need to be run again. This Appendix does not set out how to run these models in detail, but highlights the areas that would need to be updated to correct for any amendments prior to the model being run.

(13) The models would then produce a Totex number and a partial disaggregation of the allowance. This is then used in a separate series of models to further disaggregate the allowance and calculate the various PCD unit rates for Tier 1 Mains and Services, Tier 2a Mains and Services, Domestic Connections Mains and Services, and Fuel Poor Connections, as well as the Network Asset Risk Workbook. This series of models is still being amended by GEMA. Once GEMA has completed its updating of these models we will provide an updated version of this Appendix to provide the CMA with a complete process. .

(14) The output of this process then provides the relevant disaggregated allowances and unit costs to feed into both the Price Control Financial Model and the Licence, as detailed below.

1.1 Benchmarking models

Changing glide path from 85% to 75% to 75% in each year (i.e. the upper quartile)

- File – CostAssessment File
- Tab – Cal_Efficiency
- Row – 104
- Columns – AG to AK
- Formula – =PERCENTILE.INC(AO92:AO99,0.25) Update so shows 0.25 in each formula location – highlighted in Red. Currently starts at 0.15 and glides down.

1.2 Changing ongoing efficiency targets

- File – Allowances_File_GD_noRPEs
- Tab – Inp_OngoingEfficiency
- Rows – 12 to 16
- Columns – AF to AK
- Formula – hardcoded number with either 1.25% or 1.15% in. Amend all cells to reflect final target

1.3 Change calculation methodology for the BPI Stage 4 to assess technically and non-technically assessed costs separately

- File – Allowances_File_GD_noRPEs
- Tab – Cal_BPI

- Row 161 – Change heading to 'Gap, high confidence costs – Modelled'
- Rows 163 – 170 – Change Calculation in cell AG163 to =SUM(AG86)-SUM(AG75), replicate across AG163 to AK170

- Insert new rows from 172 to 183
- Copy rows 161 to 170 and paste to rows 172 to 181
- Row 172 – Change heading to 'Gap, high confidence costs – Technically Assessed'

- Rows 174-181 - Change Calculation in cell AG174 to =SUM(AG108)-SUM(AG97), replicate across AG174 to AK181

- Row 194 – change heading to 'Reward, high confidence costs – Modelled'

- Insert new rows from 205 to 214
- Copy rows 194 to 203 and paste to rows 205 to 214
- Row 205 – Change heading to 'Reward, high confidence costs – Technically Assessed'
- Rows 207-214 - Change Calculation in cell AG207 to =IF($AO174<0,-AG174*AG130,0), replicate across AG207 to AK214

- Under section headed 'Net BPI outcome, prior to cap' – now rows 227 to 236
- Rows 229-236 - Change Calculation in cell AG229 to =AG196+AG207-AG218, replicate across AG229 to AK236

1.4 Totex Disaggregation Models and PCD Unit Rate Calculations

As explained in paragraph 3 above, this step is not considered here.

1.5 Additional Income reward calculated as 1% of allowed totex in line with RIIO-GD1 Framework

(15) This reward could be calculated at the bottom of the Cal_BPI sheet in the file Allowances_File_GD_noRPEs

(16) The Totex value could be linked through from the Cal_Allow tab in the same file with a simple calculation used to determine the 1% Additional Income Reward

(17) This together with the BPI reward already on this sheet would then feed through to the PCFM