NON-CONFIDENTIAL VERSION

BEFORE THE COMPETITION AND MARKETS AUTHORITY

CADENT GAS LIMITED

Appellant

and

GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

NOTICE OF APPEAL
ENERGY LICENCE MODIFICATION
RIIO-GD2 PRICE CONTROL

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	Written Evidence
1.	Witness Statement of David Moon, Director of Treasury and Director of RIIO-2 at Cadent.
2.	Witness Statement of Stephen Hurrell, Chief Financial Officer at Cadent.
3.	Witness Statement of Howard Forster, Chief Operating Officer at Cadent.
4.	Expert Witness Statement of Richard Druce, Director at NERA Economic Consulting, to which the NERA Report is exhibited as Exhibit RD1.
5.	Expert Witness Statement of Dr Maciej Firla-Cuchra, Partner at KPMG LLP, to which the following KPMG reports are exhibited: (a) KPMG Report as Exhibit MFC1; (b) KPMG Outperformance Wedge Report as Exhibit MFC2; (c) KPMG Equity Financeability Report as Exhibit MFC3.

All written evidence is contained within the Core Appeal Bundle.

All other materials referred to throughout the Notice, Witness Statements and expert reports are exhibited within Exhibit CGL1 in the Supporting Evidence Bundle. The materials are divided into relevant volumes, and are tabbed within those volumes. Exhibit CGL1 contains a full index of documents. References are made in this Notice, Witness Statements and expert reports to the relevant volume and tab within Exhibit CGL1 using the convention ***{CGL1/Volume/Tab}****.*

SECTION 1: EXECUTIVE SUMMARY

A. INTRODUCTION TO THIS APPEAL

1.1 Cadent's decision to appeal the modifications to its licence to give effect to the RIIO-GD2 Final Determinations ("**FDs**") was taken after a great deal of deliberation. Cadent has strived throughout the price control process to work constructively with GEMA to ensure the right outcome for its customers, which is an outcome that allows Cadent to attract the necessary investment to efficiently carry out its essential operations and work towards the Government's Net Zero ambitions. Cadent is appealing because the outcome of the FDs is not right. There is an insufficient cost allowance to run its networks efficiently and insufficient return on equity to meet the costs of equity capital. The FDs do not, therefore, strike the right balance of risk and reward to allow the company to be run in the best interests of current and future customers.

1.2 Cadent's RIIO-GD2 Business Plan was intentionally very ambitious. It was designed and developed following extensive, tailored customer and stakeholder engagement and regular, very challenging, feedback from its independent Customer Engagement Group. With its plan, Cadent had the firm intention of setting a new benchmark for the industry on efficiency, including committing to more than £500m of efficiencies from the costs inherited when Cadent was formed. Cadent's plan was also reflective of the challenges and uncertainty for the sector based on the Government's Net Zero ambition, and the different potential pathways to get there. The level of discretionary investment in Cadent's Business Plan was minimal and the uncertainty over demand and supply and government policy evolution was managed appropriately through uncertainty mechanisms. Even correcting for the errors identified in this Notice, the RIIO-GD2 price control will remain a significant efficiency challenge, implying a significant drop in returns for Cadent's investors and a reduction in the gas distribution element of customer bills by at least 10% in real terms.

1.3 There are a number of substantial errors in GEMA's FDs which Cadent could have appealed. But, as agreed with Cadent's board following a thorough review, this appeal is restricted to three key areas that are material to Cadent's customers and investors. The errors that form the basis of this appeal relate to: the way in which the cost assessment was undertaken; the calculation of the cost of equity; and the introduction of the outperformance wedge. Cadent is a critical infrastructure company delivering an essential service to millions of customers, many of them vulnerable customers. If these errors are not corrected, the business will not be financeable from the equity perspective; and the transformation in service and operational efficiency which is being delivered for customers will be undermined. Investment in the gas distribution sector will also be put at risk if the errors are not corrected – at risk at a time when there is an unprecedented need to develop and deliver options to fulfil the Government's, and the country's, Net Zero ambitions.

B. OVERVIEW OF GROUNDS OF APPEAL

1.4 The appeal relates to material errors made by GEMA in: (1) setting Cadent's allowable baseline capex, repex and opex (i.e. the baseline total expenditure allowance or "**baseline totex**"); (2) setting the cost of equity and (3) introducing the outperformance wedge.

(a) ***First Ground of Appeal (Baseline Totex Errors):*** The first set of errors results in a baseline totex allowance that falls some £222 million[1] short of what an efficient network

[1] A breakdown of the £222 million figure explaining the individual and cumulative value of the proposed remedy for each of Grounds 1A to 1C is set out in Section 3 (Sub-Sections C, D, E and G) of this Notice and in Section 8 of the NERA Report.

will in reality be required to spend to deliver its services to customers. In summary, the distinct errors that (individually and collectively) act to reduce Cadent's baseline totex allowance below its efficient costs are as follows:

(i) *Ground 1A (LTS Rechargeable Diversions):* GEMA was wrong to include LTS Rechargeable Diversions Costs in its econometric assessment of Regressed Costs. This materially distorted GEMA's efficiency benchmarking exercise and unfairly penalised (and discriminated against) Cadent for its uniquely high share of such costs.

(ii) *Ground 1B (London Regional Factors):* GEMA's approach to regional factors did not sufficiently control for the costs of operating in London. The implied efficiency gap to the average does not accord with reality. GEMA was wrong to reject or understate specific requested pre-modelling adjustments. And it was wrong to rely solely on pre-modelling adjustments to control for regional factors.

(iii) *Ground 1C (Ongoing Efficiency Target):* GEMA erred in its determination of the Ongoing Efficiency Target. It was wrong to rely exclusively on its advisers' (CEPA) highest estimate of productivity growth. It was wrong to apply a 0.2% innovation uplift. And it incorrectly assumed that Cadent's submitted costs embedded an ongoing efficiency target of 0.50%, when the correct value stated in its Business Plan was 0.94%.

(b) ***Second Ground of Appeal (Cost of Equity):*** The 4.55% real CPIH cost of equity for RIIO-GD2, prior to the application of the outperformance wedge, significantly underestimates the rate of return on equity capital required for an efficient gas distribution network to be able to attract, retain and remunerate the capital needed for investments and to deliver its services to customers. It is materially below the cost of equity deemed appropriate in other relevant regulatory decisions, including, despite the lower risks faced by the relevant GB water companies, in the CMA's recent PR19 Provisional Findings. It also falls significantly below the cost of equity allowance of 6.11% which Cadent's expert witness KPMG estimates and the return of 5.6% which Cadent's Business Plan assumed was required.

(c) GEMA made a number of distinct errors as follows:

(i) *Ground 2A (Errors in estimating CAPM parameters):* GEMA made material errors in estimating each of the three CAPM parameters due to selective and unbalanced use of the available market evidence and an approach inconsistent with financial theory and relevant regulatory precedent, and as a result materially underestimated the allowed cost of equity range that forms the starting point for the baseline allowed cost of equity in RIIO-2.

(ii) *Ground 2B (Failure to aim up):* GEMA wrongly failed to "aim up" when choosing its cost of equity point estimate. GEMA should have aimed up in order to (i) maximise consumer welfare, given the asymmetric risks of setting the cost of equity too low as a result of the inherent and unavoidable uncertainty in the underlying CAPM parameters, and (ii) remunerate asymmetric downside risk exposure resulting from GDN-specific structural demand risk arising from Net Zero and inherent asymmetries reflected in the GD2 price control set by GEMA.

(d) ***Third Ground of Appeal (Outperformance Wedge):*** The third error is the deduction of 25 basis points from the assessed cost of equity to reflect GEMA's assumption that investors will expect to outperform the RIIO-2 settlement. In effect, this requires Cadent to deliver £100 million of additional cost efficiencies (equivalent to an unjustified further 2% efficiency challenge) in order to achieve even GEMA's significantly underestimated required equity return. The inclusion of an "outperformance wedge" mechanism is unjustified and unprecedented, undermines investment and distorts efficiency incentives, and is not in the interests of consumers.

1.5 A fuller summary of the errors is set out below in sub-sections C, D and E. The full description of the errors and their application to the statutory grounds is provided in Sections 3, 4 and 5 of this Notice.

C. GROUND 1 (BASELINE TOTEX)

1.6 The baseline totex allowance is a core component of the Allowed Revenue that a GDN is permitted to recover from its customers under the price control. It covers opex, capex and repex. It is intended to be set at a level that would allow an efficient GDN to recover its costs. Indeed, that is GEMA's stated objective.

1.7 GEMA has made a series of material errors in setting the baseline totex allowance such that it falls below the efficient costs that Cadent's GDNs must incur in order to deliver their legal and regulatory obligations. This outcome is contrary to GEMA's duties and stated objective in the following ways: it is contrary to GEMA's Principal Objective to protect the interests of current and future consumers; it is unevidenced and without proper economic or engineering basis; it is unjustifiably discriminatory against Cadent; and it is a departure from precedent and best practice.

1.8 Each of the individual errors is summarised below.

Ground 1A: LTS Rechargeable Diversions Costs

1.9 Some costs that are incurred by GDNs are recovered directly from third parties rather than through the price control. For example, when a third party requests the relocation of high pressure/high capacity Local Transmission System ("**LTS**") gas pipes to accommodate an infrastructure project, the costs of the works are paid for by the third party making the request (and not the end consumer). These requests are bespoke and *ad hoc.* They are known as "**LTS rechargeable diversions**".

1.10 Cadent will need to undertake a significant volume of LTS rechargeable diversions over the course of GD2 to accommodate various infrastructural projects falling within its network areas (such as HS2 and the Lower Thames Crossing), and was the only company whose Business Plan reported any expenditure associated with such diversions.

1.11 Although GEMA set baseline totex allowances on a "net" basis (i.e. excluding costs associated with LTS rechargeable diversions), it chose to perform its econometric assessment of "regressed costs" (those costs which formed part of GEMA's modelling) on a "gross" basis that included expenditure associated with LTS rechargeable diversions. GEMA only converted to "net" totex allowances after it had carried out its modelling.

1.12 This was a clear and material error because:

(a) GEMA's econometric model did not adequately control for factors that would affect the level of LTS rechargeable diversions costs;

(b) GEMA's inclusion of those costs in the econometric modelling therefore unfairly discriminated against, and penalised, Cadent (as the only GDN to report such costs), giving rise to material and adverse reputational and financial consequences for its business (as described below); and

(c) Its effect is to introduce material errors into the econometric modelling such that its outputs are not reliable, making Cadent appear artificially less efficient compared to other GDNs. Specifically, correcting the error:

(i) increases Cadent's baseline totex allowance by £14 million over GD2, and decreases the total allowance for the industry by £144 million;

(ii) alters the efficiency ranking of the GDNs, with Cadent's networks now ranking 2, 3, 4 and 7 (instead of 3, 4, 6 and 8), meaning that Cadent's GDNs set the efficiency benchmark for GD2, with major knock-on consequences for the valuation and application of the remedies sought for Grounds 1B and 1C; and

(iii) improves the reliability of the econometric model, given that the model now has a higher "R-squared" measure of 0.943 instead of 0.929, meaning it has an improved statistical fit.

1.13 Given the difficulty of controlling for bespoke LTS rechargeable diversions costs within the regression model, and the discriminatory and adverse consequences of including them within the model, they should have been excluded from the model altogether (as GEMA did at GD1).

Ground 1B: Failure to control for the costs of operating in London

1.14 The drivers employed by GEMA's econometric model did not capture variations in GDNs' costs that arise due to regional differences. While GEMA's cost assessment approach acknowledged that deficiency and attempted to control for regional differences through pre-modelling adjustments to submitted costs, it nevertheless failed to account adequately for the significantly higher costs involved in serving the very densely populated London area.

1.15 GEMA's failure is material. Its econometric modelling and efficiency benchmarking show a stark "efficiency gap" for Cadent's London GDN – a gap of 9% to the industry average costs predicted by the model – in circumstances where all other Cadent GDNs outperform those predicted costs.

1.16 Cadent's London team works under the same management, has the same training, performance culture, standards and level of ambition as Cadent's other networks. Cadent witnesses attest to the fact that there is no observable material difference in efficiency between London and Cadent's other GDNs in their view. GEMA's figures therefore raise serious questions as to the ability of its approach to control for London-specific factors.

1.17 In fact, Cadent's expert and factual evidence shows that the London GDN is not an outlier in terms of efficiency. It merely appears inefficient because GEMA does not sufficiently control for the regional factors that impact the London GDN's costs for reasons beyond Cadent's control. This arises for two related reasons.

1.18 **First**, GEMA understated or rejected legitimate pre-modelling adjustments for known regional factors. Cadent submitted substantial evidence to GEMA demonstrating the need for certain adjustments regarding factors that Cadent was able to itemise, capture and quantify in respect of its London GDN. GEMA's reasons for not allowing those adjustments in full do not withstand

scrutiny and demonstrate a failure to engage with available evidence. The quantum of the rejected or understated quantified adjustments is approximately £46 million.

1.19 **Second**, GEMA ignored quantitative and qualitative evidence which showed that it is inappropriate and insufficient to rely solely on discrete pre-modelling adjustments to control for regional factors:

(a) pre-modelling adjustments imply a large degree of subjectivity on the part of the regulator, and are also inherently prohibitive because they incorrectly assume that companies are able to identify and quantify all regional factors that impact their costs;

(b) NERA's econometric evidence shows that the allowance for Cadent's London GDN increases by £101 million when a density driver is included in the econometric model. By contrast, if all the remaining pre-modelling adjustments requested by Cadent (of £46 million) are accepted, the London GDN's allowance increases by a more limited £40 million. This demonstrates that its efficiency would continue to be impacted by regional factors relating to the ultra-dense London operating environment that cannot be itemised and quantified in discrete pre-modelling adjustments and are outside Cadent's control.

1.20 GEMA's error could be remedied by adopting the density driver model; or, as NERA proposes, by assessing the London GDN's efficiency at the same level as Cadent's next least efficient network. This is a reasonable proxy to apply in circumstances where Cadent operates all of its GDNs using a similar management ethos and operating regime. The incremental effect of applying NERA's recommended remedy is to increase Cadent's allowances by £98 million, if applied in isolation, or £73 million if applied following application of the remedy for Ground 1A.

Ground 1C: Ongoing Efficiency Target errors

1.21 GEMA applied a final adjustment to Cadent's costs on the basis of a percentage value (known as the ongoing efficiency target), which it claimed reflects the productivity increases that even the most efficient GDN can achieve year on year. GEMA set the ongoing efficiency target at 1.15% p.a. for capex/repex and 1.25% p.a. for opex.

1.22 GEMA's assessment of ongoing efficiency was based on two fundamental errors.

1.23 **First**, GEMA was wrong to rely exclusively on its advisers' (CEPA) highest estimate of productivity growth for the purpose of determining the ongoing efficiency target. This was an error for at least five reasons:

(a) Self-evidently, placing full reliance on CEPA's upper bound was extreme. This was compounded by the fact that this upper bound was 0.05% points above the highest productivity estimates that CEPA observed in the "EU KLEMS" dataset on which its work was based. Neither GEMA nor CEPA provided any quantitative justification for this course of action.

(b) CEPA's upper bound estimate was above the values it observed in the EU KLEMS dataset for the "Value Added" measure of productivity growth (which is typically lower than the "Gross Output" measure). As such, the upper bound was effectively based solely on (and even exceeded) the higher "Value Added" estimates of productivity growth observed in the EU KLEMS dataset. Among other matters, this was wrong because:

(i) The "Gross Output" measure (on which no reliance was placed, despite GEMA's claims otherwise) is a more reliable and appropriate approximation of a GDN's cost base than the "Value Added" measure; and

(ii) GEMA ignored CEPA's advice that it is good regulatory practice to use both Value Added and Gross Output when determining the target.

(c) CEPA's upper bound estimate was calculated using an inappropriate "economy-wide" comparator set that is not representative of the gas distribution sector. Industries that are more comparable to GDNs (i.e. CEPA's "targeted" set of comparators) experienced significantly lower productivity increases relative to the wider economy. GEMA's ongoing efficiency target was therefore based on an inaccurate assessment of the productivity gains that have been achieved by GDNs over the time period analysed.

(d) The weighting of the time period analysed was itself wrong. Although CEPA observed productivity data over the 1997 – 2016 time period, its upper bound required placing greater weight on the more productive years prior to the 2008/9 financial crisis (or omitting 2009 altogether) on the alleged basis that regulated companies are less exposed to downward shocks. This was an error because:

(i) Best practice involves analysis of full business cycles (i.e. the full 1997 – 2016 period);

(ii) The omission of negative outliers (e.g. 2009) is inappropriate because a large downward movement in productivity may be offset by prior or subsequent increases in productivity at other points during the business cycle in question;

(iii) GEMA ignored recent evidence from the Bank of England showing sustained depressed productivity growth over GD2; and

(iv) In any event, the claim that regulated companies can achieve faster productivity growth over the long-term because they are less exposed to downturns is misplaced. While such companies may be less exposed to downward shocks in demand for their services (and hence lower productivity) in low growth years, they may see less increase in demand for their services (and less increase in productivity) in high growth years.

(e) CEPA's upper bound is equivalent to the highest value that can be observed in recent precedent, and is significantly higher than the capex/repex target that GEMA set at GD1. It also exceeds evidence on long-term productivity growth measured using the EU KLEMS dataset for comparable sectors. In any event, GEMA's ongoing efficiency target was even higher than CEPA's upper bound and is therefore out of step with regulatory precedent.

1.24 **Second**, GEMA has arbitrarily and incorrectly applied a 0.2% innovation uplift to the upper bound productivity growth estimate produced by CEPA. This is wrong for four reasons:

(a) It double counts innovation-driven productivity growth in excess of GEMA's 0.2% estimate, which is already included within the EU KLEMS dataset.

(b) It double counts efficiency savings already embedded in Cadent's Business Plan.

(c) It is based on an assumption that past innovation will produce future cost savings. This assumption is unjustified, as shown for example by evidence that GD1 innovation funding was generally not aimed at cost reduction.

(d) It is contrary to GEMA's own expert evidence. CEPA confirmed to GEMA that it had not identified a firm quantitative relationship between innovation funding and productivity improvements.

1.25 NERA concludes that a proper analysis of the long-term evidence on productivity growth in fact supports a significantly lower ongoing efficiency target of 0.5% p.a. for capex/repex and 0.65% p.a. for opex. However, given that Cadent embedded an ambitious target of 0.94% in its Business Plan, NERA recommends (and Cadent accepts as a reasonable position given its Business Plan commitment) that the GD2 target should be set at 0.94% p.a. for capex/repex/opex. Further, while GEMA assumed that Cadent's submitted costs embedded an ongoing efficiency target of 0.50%, the correct value stated in its Business Plan was in fact 0.94%. Accordingly, adjustments should have been made using this value.

1.26 Applying NERA's recommended ongoing efficiency target and a correct assessment of Cadent's embedded ongoing efficiency increases Cadent's baseline totex allowance by £73 million if applied in isolation or £135 million if applied following application of the remedies for Grounds 1A and 1B.

Remedies

1.27 In summary, the CMA should quash GEMA's Decision in respect of Cadent's baseline totex allowance and should substitute its own decision, which:

(a) excludes LTS rechargeable diversions costs from the assessment of regressed costs, and makes consequential adjustments to: (i) the weights on the components of the composite scale variable driver used in the econometric model, and (ii) the net-to-gross ratio used to convert gross costs into net allowances, in each case to reflect that exclusion;

(b) disregards the results of econometric modelling when estimating the efficiency of the London GDN and, instead, assumes that its efficiency is the same as Cadent's next least efficient GDN (i.e. West Midlands); and

(c) replaces GEMA's ongoing efficiency target with the 0.94% target forecast in Cadent's Business Plan, and corrects GEMA's incorrect assumption on the degree of ongoing efficiency embedded in Cadent's Business Plan.

1.28 The cumulative effect of applying all three remedies is to increase Cadent's baseline totex allowance by a total of £222 million (being the sum of £14 million, £73 million and £135 million).

D. GROUND 2 (COST OF EQUITY)

1.29 The second ground of appeal ("**Ground 2**") is that GEMA has set the allowed cost of equity[2] at a level that is significantly too low.

1.30 The 4.55% real CPIH cost of equity for RIIO-GD2, prior to the application of the outperformance wedge, significantly underestimates the rate of return required for an efficient gas distribution network to be able to attract, retain and remunerate the equity capital needed for investments and to deliver its services to customers. It is materially below the cost of equity deemed appropriate in other relevant regulatory decisions, including, despite the lower risks faced by the relevant GB water companies, in the CMA's recent PR19 Provisional Findings. It also falls significantly below

[2] Prior to the application of the outperformance wedge, which is dealt with separately under Ground 3 (see Sub-Section E of this Section below).

the cost of equity allowance of 6.11% which Cadent's expert witness KPMG estimates and the return of 5.6% which Cadent's Business Plan assumed was required.

1.31 GEMA has made a series of distinct errors in both of the first two steps (described by GEMA as "Step 1 – 'Capital Asset Pricing Model evidence'" and "Step 2 – 'Cross-checks'") through which it has arrived at its cost of equity point estimate:

(a) **Step 1 "Capital Asset Pricing Model evidence"**: The range implied by the Capital Asset Pricing Model (from within which GEMA established an initial cost of equity point estimate) is significantly skewed to the downside as a result of being calculated using risk-free rate (RFR), total market returns (TMR), and asset beta (and resulting equity beta) parameters[3] that do not reflect the full evidence base, or have been estimated using inappropriate methodologies. GEMA has sought throughout to support parameter choices at, or below, the bottom end of plausible ranges. In combination, these choices result in a cost of equity range that is not supported by evidence and materially underestimates the required returns on equity.

(b) **Step 2 "Cross-checks"**: GEMA relied on invalid cross-checks to supports its step 1 approach in reaching a CAPM-implied range and failed to use alternative appropriate cross-checks which support the corrections Cadent proposes to the CAPM parameters.

1.32 Further, GEMA was wrong to select a point estimate without aiming up within the CAPM-implied range to take account of (i) the uncertainty inherent in step 1, (ii) the asymmetry in risk exposure as a result of the GD2 price control regulatory mechanisms set by GEMA, and (iii) sector risks (gas sector specific structural).

1.33 The distinct errors made by GEMA are set out below under:

(a) ***Ground 2A:*** Errors in estimating CAPM parameters; and

(b) ***Ground 2B:*** Failure to aim up.

Ground 2A: Errors in estimating CAPM parameters

1.34 GEMA has made material errors in estimating each of the three key CAPM parameters due to selective and unbalanced use of the available market evidence and an approach inconsistent with financial theory and relevant regulatory precedent, and as a result has materially underestimated the allowed cost of equity range that forms the starting point for the baseline allowed cost of equity in RIIO-2.

1.35 **In respect of RFR** - GEMA has underestimated the RFR because:

(a) In respect of its choice of reference:

(i) GEMA has relied exclusively on index-linked gilts ("**ILGs**") as a proxy for the RFR, and in so doing has disregarded the key requirement of the RFR in CAPM that all relevant market participants can borrow as well as lend at the relevant rate, which led to a clearly biased result.

(ii) GEMA has also disregarded a broad range of other empirical and theoretical evidence that, taken alone, ILGs understate the RFR parameter. In seeking to justify this position, GEMA has selectively quoted from the PR19 Provisional Findings, despite the CMA finding that ILGs should not be used in isolation.

[3] See Paragraphs 4.16 to 4.18 for a fuller definition of these terms.

(iii) GEMA has also ignored the fact that where, historically, ILGs have been used in isolation, there has also been an upward adjustment to/smoothing of ILG spot yields in a way that is not present in GEMA's GD2 RFR.

(b) GEMA has also used too short an averaging window for calculating its indexed annual RFR. This introduces undue volatility into the RFR estimate which is passed through into allowed returns and company cash flows.

1.36 **In respect of TMR** - GEMA has underestimated the TMR because:

(a) GEMA has erred in the way in which it has deflated historical returns:

(i) It has solely used a back-cast CPI based historical inflation series, rather than also taking into account actual RPI figures.

(ii) In so doing, GEMA has ignored both the unreliable nature of the CPI back-cast series and the benefits of using a data series which uses actual reported ONS RPI data.

(iii) GEMA was wrong to dismiss the use of the RPI data series on the basis that it is not the best measure of inflation going forwards, conflating the question of the most appropriate measure of inflation going forwards with the most appropriate measure of inflation for deflating observed historical returns.

(iv) GEMA was also wrong, in dismissing the use of the RPI data series, to place too much weight on the methodological changes made to RPI in 2010.

(b) When calculating average annual historical returns, GEMA has, in error, used a single approach to averaging (geometric average[4] with a volatility uplift). In its approach GEMA should have instead taken account of a range of alternative averaging techniques (such as use of the arithmetic average and alternative approaches to calculating the uplift needed to geometric averages) as supported by the evidence, regulatory precedent and finance theory. Further, GEMA relied on downwardly biased uplift estimates in order to gain comfort on the level of its uplift.

(c) When cross-checking its approach on TMR, GEMA has used forward looking cross-checks of limited value, while ignoring the evidence provided by more robust long run, ex-ante cross-checks and international evidence. These in fact demonstrate the need to correct GEMA's approach, as set out above.

1.37 **In respect of equity beta** - GEMA has underestimated the equity beta for GDNs because:

(a) GEMA has used UK listed water companies and National Grid as comparator companies to establish GDNs' asset/equity beta where such a comparison:

(i) does not properly reflect the systematic risk faced by GDNs arising as a result of Net Zero;

(ii) in respect of NG specifically, fails to take into account the materiality of NG's US business, which faces a significantly lower risk regulatory regime; and

(iii) fails to take account of an appropriate set of European comparators that can inform the pricing of risk for comparable assets to GDNs.

[4] As per Paragraph 5.2.6 of the KPMG Report, the geometric average is the annualised compound rate of return achieved over the entire period of the dataset. It contrasts with the arithmetic average, which is a simple average of the annual returns.

(b) GEMA has also made various methodological technical errors in calculating and deriving its equity beta, including (inter alia) failing to exclude the period affected by Covid-19 (which had a volatile and transitory impact on the relevant water company betas that cannot be relied upon) from the sample of data used.

1.38 **In respect of its step-2 cross-checks:**

(a) The step 2 cross-checks GEMA has used (namely OFTO, MARs, infrastructure fund discount rates, investment professional forecasts and M&M) are either not valid in the context of RIIO-GD2 or not robust and as such do not provide reliable evidence for providing assurance in respect of GEMA's step 1 approach to CAPM.

(b) The KPMG Report[5] provides alternative cross-checks, in the form of relevant investment funds and asset risk premium – debt risk premium, which instead support the higher cost of equity implied by the corrected CAPM approach set out above.

1.39 As explained in Ground 2B below, for similar reasons these cross-checks do not support an argument that GEMA is aiming up in any meaningful sense through selecting a step 2 point estimate above the mid-point of the lowered and narrowed cross-check cost of equity range that GEMA reached on the basis of its cross-checks.

Ground 2B: Failure to aim up

1.40 GEMA should have aimed up in order to:

(a) maximise consumer welfare, given the asymmetric risks of setting the cost of equity too low as a result of the inherent and unavoidable uncertainty in the underlying CAPM parameters;

(b) account for the asymmetric downside risk exposure resulting from:

(i) the GDN-specific structural demand risk arising from Net Zero; and

(ii) inherent asymmetries reflected in the specification of the GD2 price control set by GEMA.

1.41 Proper consideration of equity financeability on the basis of a notional financial structure, as set out in the KPMG Equity Financeability Report, provides a key cross-check on whether the overall cost of equity allowance is set too low[6] and supports aiming up, through showing that GEMA's proposed cost of equity allowance fails to allow Cadent:

(a) to earn the required return to remunerate equity capital on a mean expected basis, given the asymmetry of the GD2 package;

(b) to receive the return necessary for the company to be able to achieve at least the minimum required levels of key financial ratios; or

(c) to ensure it is resilient to plausible downside shocks (such as RIIO-GD2 totex challenges and incentive downsides and volatility due to greater indexation).

1.42 Aiming up for uncertainty is a well-established regulatory approach[7] that is required to account for the inherent uncertainty in the estimation of the CAPM parameters to avoid setting the return

[5] KPMG Report, Sub-Section 11.4.

[6] This conclusion is supported by the CMA's PR19 determination paper entitled, "Choosing a point estimate for the Cost of Capital – Working Paper", published 8 January 2021 ("**PR19 Cost of Capital Working Paper**"), Paragraphs 97 and 98 **{CGL1/C/36}**.

[7] Including the CMA in the PR19 Provisional Findings **{CGL1/C/32}** (as varied by the PR19 Cost of Capital Working Paper **{CGL1/C/36}**) aiming up by around 0.25% above the middle of its cost of equity allowance range. As the CMA's PR19 Cost of

on equity too low. The consequences of setting the cost of equity too low, namely the serious potential societal consequences given the essential and inelastic nature of regulated services, such as those provided by Cadent, if investment is disabled, are more detrimental to consumers than slightly higher bills. The latter (while undesirable) has, in comparison, a relatively modest impact on societal welfare.

1.43 Aiming up is not, as GEMA appears to believe[8], an argument for providing "excess" returns in order to encourage specific new investment into the sector.

1.44 Aiming up for asymmetry in risk exposure is necessary due to the overall negative asymmetry implied by the regulatory framework and design of regulatory mechanisms and structural risks arising from Net Zero in the gas distribution industry, as both of these risks, which are demonstrated in the KPMG Report, are not accounted for in CAPM or through separate allowances and therefore must be taken into account through aiming up.

1.45 GEMA's statement that "*Our final view in these FDs is arguably consistent with a degree of aiming up"*[9] on the basis that its final step 2 point estimate is above the middle of the cost of equity range it derives from its cross-checks is misplaced. This is because (as shown in the KPMG Report and noted in respect of Ground 2A above) the cross-checks GEMA used are not an appropriate basis on which to arrive at a cost of equity range in the context of RIIO-GD2, and therefore aiming up by reference to that range is not aiming up in any meaningful sense.

Remedies

1.46 In respect of Ground 2 (cost of equity), subject to Paragraph 1.47, Cadent requests that the CMA quashes GEMA's Decision to assess the cost of equity at 4.55% and substitutes its own decision reflecting correction of the errors set out in Section 4: Sub-Sections C and D. Subject to Paragraph 1.47, the proposed methodology for doing so is summarised in Paragraphs 4.51, 4.70, 4.74, 4.96 and 4.160 and set out in the KPMG Report. This will involve correction of the relevant cost of equity values in the GD2 Price Control Financial Model[10] including the individual CAPM parameters (with consequent adjustment to the values based on them) and associated references and impacts in the GD2 Price Control Financial Handbook.

1.47 It is clear that GEMA materially erred in estimating the cost of equity. The right methodology for calculating the cost of equity is set out in Paragraph 1.46 above. As KPMG explains (KPMG Report, Paragraph 2.4.9), this suggests that an appropriate point estimate for the allowed cost of equity based on a balanced review of the academic literature, all relevant market evidence, and consistent with the relevant regulatory precedent, is 6.11% composed of the allowed cost of equity derived using CAPM and an uplift for uncertainty in estimation and asymmetric risks. Notwithstanding that, Cadent requests that the CMA allows a cost of equity that is 5.6%. This is because Cadent wishes to take a pragmatic view and this is the number that Cadent agreed as part of the customer engagement process during which Cadent tested the acceptability of the RIIO-

Capital Working Paper **{CGL1/C/36}** puts it, "There is a history of setting the cost of capital by using a rage, and then setting the point estimate from the top half of that range, both in the UK and internationally". Positioning of the WACC point estimate in UK regulatory decisions since 2004 is also surveyed in the UKRN Study, Sub-Section 8.2 **{CGL1/C/22}**. Further, as cited in Paragraph 9.4.4 of the KPMG Report, in 2014 Oxera found that between 2008 and 2014 UK regulators on average have aimed up to the 73rd percentile.

[8] See quotations from the FDs and DDs at KPMG Report, Paragraph 9.3.6.

[9] FDs, Finance Annex, Paragraph 3.186 **{CGL1/A/22}**.

[10] This will include changes in the "input" tab lines 165-169 and 177 and associated changes in each Cadent network tab **{CGL/E/1}**.

GD2 Business Plan. Cadent's plan was tested with customers and stakeholders at 83% acceptability and therefore Cadent believes it is right to hold to this.

E. GROUND 3 (OUTPERFORMANCE WEDGE)

1.48 For RIIO-2, GEMA has introduced an additional, unprecedented and unjustified step to setting companies' cost of equity allowances, through which GEMA aims to take into account "*the degree of financial incentive (positive or negative) that investors might expect, in order to be consistent with the principle that the cost of equity, is, by definition, an expectation*".[11]

1.49 As a result of this step, GEMA has deducted 0.25% from its already incorrectly set point estimate of 4.55%, on the basis of GEMA concluding that "*investors should expect outperformance of at least 0.25%*".[12] This deduction (which is commonly known as the "outperformance wedge") results in a final baseline allowed return of 4.30%[13] and, as set out in David Moon's Witness Statement, in effect requires Cadent to deliver £100 million of additional cost efficiencies (equivalent to a further 2% efficiency challenge) in order to achieve even GEMA's incorrect assessment of the required equity return.

1.50 The inclusion of the outperformance wedge is fundamentally wrong for the following reasons:

(a) GEMA has failed to consider properly whether the outperformance it expects and seeks to address through the outperformance wedge mechanism would in fact be outperformance that is undesirable, rather than potential outperformance that could be legitimately earned by achieving outcomes deliberately incentivised by the price control.

(b) The outperformance wedge is a wrongly designed regulatory mechanism that distorts the incentive properties of the overall price control and has unintended, negative consequences.

(c) The outperformance wedge mechanism is not in any event an appropriate or targeted way of addressing potential undesirable outcomes. GEMA should instead have sought to calibrate individual price control components appropriately. In fact, it appears to have done so significantly to reduce the scope for any outperformance. GEMA has put considerable focus throughout the price control and the preceding business plan process on minimising the scope for outperformance, calling into question the basic justification for the outperformance wedge.

(d) The outperformance wedge is not consistent with the principles of good regulation or best regulatory practice, and risks severely undermining regulatory confidence.

1.51 It is therefore clear that the introduction of the outperformance wedge is wrong.

Remedies

1.52 The CMA should quash GEMA's Decision to include the outperformance wedge.

[11] GEMA's RIIO-2 sector specific methodology decision of 24 May 2019 ("**Sector Specific Methodology Decision**" or "**SSMD**"), Finance Annex, Paragraph 3.153 **{CGL1/A/6}**.
[12] FDs, Finance Annex, Paragraph 3.147 **{CGL1/A/22}**.
[13] ibid.

SECTION 2: INTRODUCTION TO THE APPEAL

A. OVERVIEW

2.1 Cadent Gas Limited ("**Cadent**") owns, manages and operates four of the eight regional gas distribution networks ("**Gas Distribution Networks**") in Great Britain ("**GB**"), providing an essential service transporting gas to 11 million homes, schools, hospitals, offices, and businesses through 131,000 miles of pipelines. Cadent holds a Gas Transporter Licence under Section 7(2) of the Gas Act 1986 ("**GA86**") (the "**Licence**").

2.2 This appeal is brought in respect of the Gas and Electricity Markets Authority's ("**GEMA**")[14] decision of 3 February 2021 to proceed with modifications to the Licence (the "**Decision**"). These Licence modifications set Cadent's price control (i.e. the revenue that Cadent will be entitled to collect from its customers in respect of its regulated activities) over the period 1 April 2021 to 31 March 2026. They implement GEMA's Final Determinations in respect of Cadent.

B. BACKGROUND TO CADENT

2.3 Cadent owns, manages and operates four of the eight Gas Distribution Networks in GB: (i) London, (ii) East of England, (iii) North West and (iv) West Midlands. Cadent was created midway through the RIIO-GD1[15] period, when it was hived out of National Grid Gas plc ("**NGG**") and sold to a consortium of investors.

2.4 As a GDN, Cadent takes gas from the higher pressure transmission network operated by NGG, reduces that pressure and then transports the gas safely direct to customers and businesses. It also operates the National Gas Emergency Number, which manages calls from customers reporting a suspected smell of gas, carbon monoxide or other gas related emergency.

2.5 Further details regarding Cadent's business are set out in David Moon's evidence.[16]

2.6 Cadent is operating in a dynamic context, particularly as a result of the UK Government's commitment to reduce net greenhouse gas emissions by 100% relative to 1990 levels by the year 2050 ("**Net Zero**").[17] There is a range of technologies that may be deployed to decarbonise the gas sector, and the precise role gas networks will play in the transition to Net Zero has yet to be defined. Nonetheless, as the UK Government recognises in the Energy White Paper,[18] continued investment in gas networks is key to the Government's twin objectives of maintaining security of supply while promoting the use of low-carbon options such as hydrogen. As explained further in the evidence of David Moon[19], Cadent has always believed gas networks have a vital role to play in achieving the Net Zero policy objective, and this has been a key focus of its business in recent years.

[14] In this Notice of Appeal, references to GEMA include references to the Office of Gas and Electricity Markets (Ofgem) or its staff in their capacity as delegates of GEMA.
[15] Defined in Paragraph 2.10.
[16] 1st Moon, Section A.
[17] The Climate Change Act 2008 (2050 Target Amendment) Order 2019 **{CGL1/C/23}**.
[18] Energy White Paper: Powering our Net Zero Future, 14 December 2020, page 84 **{CGL1/C/35}**.
[19] 1st Moon, Section A(iii).

C. OVERVIEW OF THE RIIO-2 PRICE CONTROL REGIME

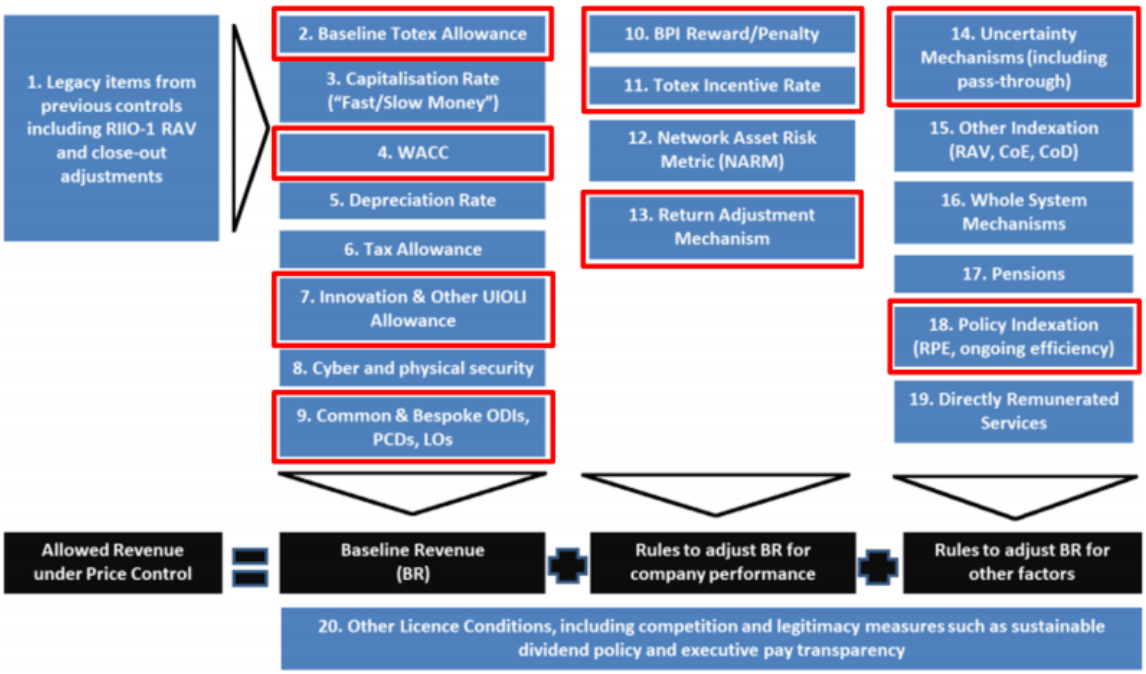
2.7 As the GDNs in Great Britain are natural monopolies, they are regulated by GEMA in the interests of consumers through the conditions GEMA imposes in the licences GDNs are required to hold.[20]

2.8 A licence granted to a GDN by GEMA includes a "price control" to remunerate the costs of constructing, operating, repairing and maintaining those networks, as well as the return to equity and debt investors.

2.9 Since 2013, price controls have been implemented through the "**RIIO**" ("*Revenues = Incentives + Innovation + Outputs*") regulatory framework developed by GEMA. GEMA describes RIIO as being its approach to "*ensuring the monopoly companies who run our gas and electricity networks have enough revenue to run an efficient network that delivers what customers need at an efficient cost*".[21] The CMA will be familiar with RIIO as a result of the appeals to the CMA in 2015 in respect of GEMA's price control review for the electricity distribution network operators for the period 1 April 2015 to 31 March 2023 ("**RIIO-ED1**" or "**ED1**"), and as a result of the CMA's redeterminations in respect of Ofwat's 2014 and 2019 Price Reviews ("**PR14**" and "**PR19**"), as a similar framework is used by Ofwat.

2.10 The first generation of RIIO price controls are known generically as "**RIIO-1**" and in the context of gas distribution are referred to as "**RIIO-GD1**" or "**GD1**". The RIIO-GD1 period is due to end on 31 March 2021 and will be replaced from 1 April 2021 with the second generation ("**RIIO-2**") price controls in respect of GDNs ("**RIIO-GD2**" or "**GD2**").

2.11 RIIO-2 operates by restricting the regulated revenue that a GDN can recover from its customers. This is referred to as Allowed Revenue. As a form of incentive-based regulation, RIIO-2 is also intended to encourage companies to go beyond providing the minimum level of service and to innovate. Consequently, the price control is based on a number of "building blocks" which were illustrated by GEMA as follows:



[20] In addition to licence obligations, GDNs like Cadent are also subject to many other statutory and regulatory obligations, including pursuant to health and safety legislation.
[21] GEMA's RIIO-2 framework consultation of 7 March 2018 ("**RIIO-2 Framework Consultation**"), page 3 **{CGL1/A/2}**.

*Source: GEMA's RIIO-2 Draft Determinations for Transmission, Gas Distribution and Electricity System Operator of 9 July 2020 ("**Draft Determinations**" or "**DDs**"), Core Document, Figure 1 (amended to highlight relevant items)*

2.12 The above illustration shows that "Allowed Revenue" (on the left-hand side) is determined by various building blocks that fall within three large categories, namely:

(a) ***Baseline revenue:*** baseline revenue and its composite parts, e.g. cost allowances and a return on capital;

(b) ***Performance adjustments:*** the mechanisms that adjust baseline revenue during the price control period relative to company performance, e.g. the Totex Incentive Rate (also known as the Totex Incentive Mechanism or "**TIM**"); and

(c) ***Other adjustments:*** other adjustments to baseline revenue, e.g. due to uncertainty mechanisms that increase or reduce allowances within the price control period.

2.13 Each of those three categories contains a number of building blocks, and a brief summary of those items most relevant to this appeal is provided in Appendix 3.

D. GEMA'S APPROACH TO RIIO-2

2.14 GEMA's process for developing RIIO-2 commenced with the publication of an open letter on the RIIO-2 Framework on 12 July 2017. The stages of development of RIIO-GD2 from this point on are set out in Appendix 1.

2.15 As explained in the evidence of David Moon,[22] RIIO-2 marks a material departure from the settlement in RIIO-1. Two issues were prominent throughout GEMA's development of the RIIO-2 process:

(a) the changing nature of the energy system; and

(b) GEMA's concern about the 'legitimacy' of the outcome.

These led GEMA to reform existing mechanisms and introduce several new mechanisms. Examples include a shorter regulatory period (from 8 years to 5 years), the use of a large number of "uncertainty mechanisms" (explained in Appendix 3), fewer output incentives and greater regulation of inputs.

E. CADENT'S APPROACH TO RIIO-2

2.16 As explained in David Moon's evidence[23], Cadent put forward an ambitious and stretching Business Plan in respect of RIIO-2 following extensive engagement with its customers over a three year period. Cadent dedicated significant resources at all levels of its organisation as part of its GD2 planning and, in particular, the preparation of its Business Plan, which was guided by an ambition to lead the industry through setting challenging but achievable targets and reflecting customers' priorities. Cadent has also focused on the future of the gas networks and on how to ensure that Cadent, as the largest GDN, fulfils its crucial role in the transition to Net Zero.

2.17 Cadent never expected to need to bring an appeal in respect of GD2 and it does not do so lightly. As set out in this Notice of Appeal, however, there are errors in the setting of the baseline totex allowance and the allowed return on equity that Cadent does not accept as fair or as being in the best interests of consumers.

[22] 1st Moon, Section A(iv).
[23] 1st Moon, Section A(v).

F. FORMALITIES

2.18 Cadent seeks permission under Sections 23B(1) and (3) GA86 to bring an appeal against the decision of GEMA to proceed with the modifications to the Licence published on 3 February 2021 (defined above as the "**Decision**") under Section 23 GA86.

2.19 Pursuant to Section 23B(2) GA86, a relevant licence holder (within the meaning of Section 23) may bring an appeal. Cadent is a "relevant licence holder" as defined in Section 23(10)(b), by virtue of holding a particular licence the conditions of which are to be modified by the Decision. Accordingly, Cadent has standing to bring this appeal under GA86.

2.20 To the best of its knowledge, Cadent has provided the CMA with all relevant supporting evidence as part of and together with its Notice. However, Cadent's ability to prepare its appeal was impacted by there being errors in GEMA's Final Determinations which should have contained the final figures for Cadent's baseline totex allowance. The figures for baseline totex were not finalised by GEMA until 3 February 2021.[24] Consequently, despite Cadent's best efforts to assess the effect of the final baseline totex decision and identify/quantify the relevant material errors in the time available, it may be necessary (subject to the CMA's permission) for Cadent to revise certain aspects of this Notice and supporting documents/evidence to reflect the outcome of its final analysis which is currently ongoing. We also note that GEMA has acknowledged further errors in the detail of the updated numbers with regards to the disaggregation of costs between activities (which is important for a number of regulatory mechanisms) and is due to issue a formal consultation on these additional corrections shortly.

2.21 Many issues relating to Ground 2 of the Appeal (Cost of Equity Errors), as well as the Ongoing Efficiency elements of Ground 1 of the Appeal, have been considered by the CMA as part of the PR19 redeterminations. At the time of finalising this Notice of Appeal, the CMA has not yet published its final determinations in relation to PR19. It has therefore not been possible for Cadent to consider how the PR19 Final Determinations may affect the Appeal. Cadent therefore requests that the CMA grants permission to Cadent to make further submissions (including the filing of further evidence) once it has considered the relevance of the CMA's PR19 Final Determinations.

G. LEGAL FRAMEWORK AND INTERLINKAGES

2.22 Appendix 4 contains Cadent's submissions on the legal framework for this appeal, including in respect of:

(a) GEMA's principal objective, powers and duties under the GA86.

(b) The statutory right, and grounds, of appeal.

(c) The standard of review to be applied by the CMA in determining the appeal.

(d) The CMA's powers on disposal of the appeal.

2.23 Aspects of this legal framework relevant to the grounds of appeal are highlighted at the appropriate places in this Notice of Appeal.

2.24 Appendix 5 contains Cadent's submissions in relation to whether there are any relevant interlinkages for this appeal.

[24] See NERA Report, Section 4.5.1.

H. KEY DOCUMENTS

2.25 The grounds of appeal, reasons and supporting evidence for those grounds are contained in this Notice, in Exhibit CGL1 and in the Witness Statements (as well as the exhibits to those Witness Statements).

2.26 Cadent has provided the following Witness Statements in support of its appeal, together with Exhibits to those Witness Statements:

(a) Witness Statement of David Moon, Director of Treasury and RIIO2 at Cadent.

(b) Witness Statement of Stephen Hurrell, Chief Financial Officer at Cadent.

(c) Witness Statement of Howard Forster, Chief Operating Officer at Cadent.

(d) Expert Witness Statement of Richard Druce, Director at NERA Economic Consulting – to which the NERA Report is exhibited as Exhibit RD1.

(e) Expert Witness Statement of Dr Maciej Firla-Cuchra, Partner at KPMG LLP – to which the KPMG Report, KPMG Outperformance Wedge Report, and KPMG Equity Financeability Report are exhibited as Exhibits MFC1, MFC2 and MFC3.

2.27 Cadent has also included documents referred to in this Notice in Exhibit CGL1, including the following key materials:

(a) core background documents from the RIIO-GD2 price control (Volume A), including the Decision, the Final Determinations and the Draft Determinations; and

(b) Cadent specific materials (Volume B).

Exhibit CGL1 contains a full index of documents. References are made in this Notice to the relevant volume and tab within Exhibit CGL1 using the convention **{CGL1/Volume/Tab}**.

2.28 All of the matters on which Cadent relies were, in Cadent's belief, matters that GEMA was entitled to have (and could have had) regard to in relation to the Decision.

I. CONTACT DETAILS

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SECTION 3: GROUND 1 (BASELINE TOTEX)

A. INTRODUCTION

3.1 Section 3 sets out Cadent's appeal in relation to the material errors made by GEMA in its determination of Cadent's baseline totex allowance. Those errors (collectively and individually) have the effect of reducing Cadent's baseline totex allowance significantly below its efficient costs. GEMA's decision in respect of Cadent's baseline totex allowance was therefore wrong on the statutory grounds specified in Sub-Section F of this Section 3. GEMA's errors fall under the following headings:

(a) ***Ground 1A (LTS Rechargeable Diversions):*** GEMA was wrong to include LTS Rechargeable Diversions Costs in its econometric assessment of Regressed Costs.

(b) ***Ground 1B (London Regional Factors):*** GEMA's approach to regional factors did not sufficiently control for the costs of operating in London.

(c) ***Ground 1C (Ongoing Efficiency Target):*** GEMA erred in its determination of the Ongoing Efficiency Target.

3.2 The remedies sought for the above errors have a compounding effect on one another which is explained in the NERA Report. The outcome of correcting the above errors is to increase Cadent's baseline totex allowance by £222 million over GD2 relative to GEMA's Decision. For context, the total increase in allowances represents 4.3% of the forecast baseline totex costs (of £5,137 million)[25] submitted in Cadent's Business Plan.

B. OVERVIEW

General background to baseline totex

3.3 Baseline totex is a core component of the GD2 price control, determining a significant proportion of the "**Allowed Revenue**"[26] that Cadent is permitted to recover from its customers.[27] It provides for the opex, capex and repex costs that Cadent is expected to incur in respect of its GDNs (including in order to deliver the Outputs set by GEMA) during the course of GD2.[28]

3.4 As GEMA explained in the FDs, its objective in determining the baseline totex allowance was to "*set the efficient level of costs that will enable network companies to maintain safe and reliable networks and deliver an appropriate level of service*".[29]

3.5 Not all of the GD2 baseline totex allowance will be recovered during GD2 as a proportion will be recovered in later price controls. This arises due to the split of the baseline totex allowance between "Fast Money" (essentially equivalent to opex that is recovered during GD2) and "Slow Money" (essentially equivalent to capex/repex that is added to the RAV and therefore recovered over multiple price controls through depreciation). The proportion of baseline totex that is allocated to Fast Money or Slow Money depends on the "Totex Capitalisation Rate", which is the percentage of the GD2 totex allowance that is added to the RAV.

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[25] Please note that this figure refers to the Business Plan as revised in September 2020 **{CGL1/B/17}**.
[26] "**Allowed Revenue**" is the amount of money that a network company can earn on its regulated business. Further detail on how Allowed Revenue is determined for each year of the price control can be found in Section 1 of the GD2 Price Control Financial Handbook (as defined in the licence, as modified) **{CGL1/A/19}**.
[27] See also Appendix 3 of this Notice for an overview of the building blocks that make up the RIIO-GD2 price control.
[28] FDs, GD Annex, Paragraph 3.4 **{CGL1/A/23}**.
[29] FDs, GD Annex, Paragraph 3.6 **{CGL1/A/23}**; see also DDs, GD Annex, Paragraph 3.6 **{CGL1/A/13}**.

GD2 baseline totex allowance & GEMA's methods of assessment

3.6 GEMA reviewed the forecast costs submitted by GDNs in their Business Plans ("**Submitted Costs**") to determine each GDN's efficient baseline totex allowance. Cadent's Business Plan forecast and proposed a stretching baseline totex allowance of £5,137 million for GD2, which represented a decrease of approximately 3% in baseline totex expenditure compared to GD1. However, GEMA's final assessment determined that Cadent's GD2 baseline totex allowance should instead be £4,708 million, which in effect disallowed 8.4% of Cadent's Submitted Costs.

3.7 As NERA observes in its report accompanying the Notice, economic theory provides some guidance on what constitutes an "efficient" level of costs but does not prescribe a single definitive method of identifying that level of expenditure. In practice, UK economic regulators deploy a range of economic, econometric, and engineering assessment techniques to estimate efficient costs. At GD2, GEMA calculated GDNs' baseline totex allowances by first splitting Submitted Costs into three categories and then applied different methods to assess the costs included in each category:

(a) ***Regressed Costs:*** Regressed Costs include costs that were considered by GEMA to be similar and comparable across GDNs, and comprised 85% of Cadent's Submitted Costs. GEMA assessed Regressed Costs using econometric modelling and benchmarking techniques;

(b) ***Non-Regressed Costs*:** Non-Regressed Costs include costs that vary across GDNs and were not considered suitable for econometric assessment, such as multiple occupancy buildings ("**MOBs**") repex & opex, and comprised 10% of Cadent's Submitted Costs. GEMA assessed Non-Regressed Costs using various non-econometric techniques; and

(c) ***Technically Assessed Costs:*** Technically Assessed Costs generally relate to items such as large capex and repex projects, bespoke outputs and specialist areas, and comprised 5% of Cadent's Submitted Costs. GEMA assessed Technically Assessed Costs using engineering evaluation (also referred to as "technical assessment").

3.8 GEMA's approach to Regressed, Non-Regressed and Technically Assessed Costs is set out in more detail in Sections 4.2 and 4.3 of the NERA Report. GEMA's econometric assessment of Regressed Costs is addressed in Sections 3 and 4 of the NERA Report, and is further summarised below.

Econometric Modelling

3.9 GEMA assessed "Regressed Costs" by means of econometric analysis (the "**Econometric Modelling**"), which sought to control (to the extent possible given the limitations explained further below) for differences in required workload and operating conditions when estimating the efficient level of costs across each of the 8 GDNs in GB.

3.10 Specifically, GEMA employed a regression model that attempted to establish a relationship between GDNs' Regressed Costs and certain "drivers" (i.e. variables that seek to explain cost variations between companies other than efficiency), such as the size of their respective networks (to account, for example, for the impact of economies of scale on costs).

3.11 Prior to running its econometric model, GEMA applied several "normalisations" and "adjustments" to Submitted Costs with a view to making them more comparable across GDNs, including by means of adjustments for "regional factors" and removal of GEMA's estimate of ongoing efficiency savings that GDNs embedded into their Submitted Costs.

3.12 GEMA used its econometric model to generate predicted, or modelled, costs which were used to estimate the expenditure that an average, notional GDN would incur – at a given value of the cost drivers – over the GD2 period ("**Modelled Costs**"). In GEMA's view, to the extent that a GDN's Submitted Costs exceeded its Modelled Costs, such difference could be attributed to that GDN's relative inefficiency (as a difference in costs that is not explained by the cost drivers used in the econometric model).

Efficiency Benchmarking / Catch-Up Challenge

3.13 The Modelled Costs that GEMA derived from its Econometric Modelling were used to calculate and apply an efficiency adjustment to GDNs' Regressed Costs and Non-Regressed Costs (the "**Catch-up Challenge Adjustment**"). GEMA calculated and applied this adjustment by means of an "**Efficiency Benchmarking**" exercise, consisting of the following four steps:[30]

(a) **First**, GEMA calculated an "efficiency score" for each GDN, expressed as the ratio of its Submitted Costs to its Modelled Costs, and ranked the GDNs on the basis of their scores over the GD2 period.

(b) **Second**, GEMA set an efficiency benchmark effectively by selecting the GDN that was placed at the percentile chosen by GEMA to represent the target level of efficiency for the industry. At FDs, GEMA set a year-by-year efficiency benchmark, based on what it called a "glidepath", being the 75th percentile (between the 2nd and 3rd GDN) in the first year of GD2 and increasing to the 85th percentile (approximately the 2nd GDN) in the final two years of GD2. GEMA's target efficiency level is therefore set by a combination of the second and third most efficient GDN (measured over the period as a whole).[31]

(c) **Third**, GEMA: (i) added Non-Regressed Costs to Modelled Costs for each GDN; (ii) reversed the pre-modelling adjustments for regional factors; and (iii) converted the resulting values into net costs (i.e. net of any direct customer contributions such as for LTS Rechargeable Diversions Costs). The resulting costs are referred to as "**Benchmarked Costs**".

(d) **Fourth**, GEMA applied the Catch-up Challenge Adjustment by multiplying each GDN's Benchmarked Costs by the efficiency score of the GDN setting the benchmark over the GD2 period as a whole, to produce what GEMA refers to as "**Efficient Modelled Costs**" for each year of the RIIO-GD2 period.

3.14 For six out of the eight networks, the adjustment resulted in a decrease to the baseline totex allowance (including for each of Cadent's networks for which Regressed Costs and Non-Regressed Costs comprise 95% of its costs).[32]

Ongoing Efficiency

3.15 Finally, GEMA made a further adjustment to each GDN's Efficient Modelled Costs and Technically Assessed Costs to reflect what GEMA claimed to be "*the productivity improvements that we consider even the most efficient company can achieve*" ("**Ongoing Efficiency**").[33]

[30] See Section 4.4 of the NERA Report for further details.
[31] NERA Report, Paragraph 138.
[32] FDs, GD Annex, Table 10 (see third column) **{CGL1/A/23}**.
[33] FDs, Core Document, Paragraph 5.18 **{CGL1/A/20}**.

3.16 This "**Ongoing Efficiency Adjustment**" was applied in addition (and subsequently) to the Catch-up Challenge Adjustment. It was made on the basis of a percentage value (the "**Ongoing Efficiency Target**") which GEMA determined by reference to reports prepared by its consultants ("**CEPA**"). At FDs, GEMA set the Ongoing Efficiency Target at 1.25% p.a. for opex and 1.15% p.a. for capex and repex.

Disallowances for Cadent

3.17 The detailed breakdown of the disallowances applied by GEMA to Cadent's Submitted Costs is as follows:

Network	**Modelled costs:** *Embedded OE adjustment*	**Modelled costs:** *Pre modelling adjustments*	**Modelled costs:** *Benchmark efficiency adjustments*	**Technically assessed adjustments**	**Ongoing efficiency adjustments**	**Total adjustments**
EoE	32	22	-21	-41	-74	-82
Lon	29	4	-155	-22	-60	-204
NW	23	-3	-9	-33	-52	-74
WM	19	3	-24	-25	-42	-69
Cadent	**103**	**26**	**-209**	**-121**	**-228**	**-429**

Source: GEMA[34]

3.18 Therefore, Cadent's "efficiency gap" is equal to £334 million over GD2. This represents amounts disallowed on efficiency grounds, i.e. the total gap of £429m shown in the table above, accounting for the positive £26 million pre-modelling adjustments[35] and excluding the £121 million disallowed through the technical assessment.

3.19 The remainder of this Section 3 summarises the errors in GEMA's approach; the statutory grounds of appeal to which they give rise; and the relief sought by Cadent as a consequence.[36] The sequencing of the errors below is driven by the order in which the relief sought should be implemented.

C. GROUND 1A (LTS RECHARGEABLE DIVERSIONS COSTS)

Introduction

3.20 Ground 1A concerns a material error made by GEMA in its assessment of Regressed Costs by means of Econometric Modelling, thereby compromising the statistical reliability and robustness of the modelling and of GEMA's Efficiency Benchmarking.

3.21 Correcting this error increases Cadent's allowances by £14 million. In addition, and crucially, it materially alters the efficiency rankings of the GDNs such that Cadent's GDNs set the benchmark for GD2, which has very material knock-on consequences for the other remedies sought and also confirms the ambition of its Business Plan to lead the industry on efficiency.

[34] FDs, Cadent Annex, Table 37 **{CGL1/A/21}**.
[35] GEMA explains that, in addition to its pre-modelling adjustments for regional factors, it also applied "volume adjustments" to Submitted Costs to remove, increase or reclassify certain costs to ensure comparable baseline forecasts across GDNs (DDs, GD Annex, Paragraph 21 **{CGL1/A/13}**). In the case of Cadent, GEMA applied a £26 million uplift as part of its pre-modelling "volume adjustments".
[36] Please see Appendix 5 for a discussion of interlinkages relating to baseline totex.

GEMA's approach to Regressed Costs & LTS Rechargeable Diversions[37]

3.22 The practical purpose of GEMA's cost assessment was to determine the baseline totex allowance for each GDN. As explained, that allowance forms a large part of the "Allowed Revenue" that licensees can recover from their customers through network charges.

3.23 GDNs sometimes also incur certain costs that are not subject to the price control because they are not recovered from the generality of their customers through network charges, but are instead recovered directly from the third parties that require the relevant works to be carried out ("**Rechargeable Works**").

3.24 To ensure that there is no double recovery of Rechargeable Works (i.e. recovery of the same costs both from the third party requesting the works and from the generality of customers through network charges), GEMA set baseline totex allowances on a "net" basis, excluding costs associated with Rechargeable Works.

3.25 However, GEMA's assessment of Regressed Costs using Econometric Modelling was performed on a "gross" basis, which included (and therefore assessed) costs associated with Rechargeable Works as well as those recoverable through the price control. This constituted a departure from its approach at GD1 where GEMA assessed costs on a "net" basis (i.e. excluding costs associated with Rechargeable Works).

3.26 While GDNs undertake various types of Rechargeable Works, this Ground 1A concerns the inclusion in (and assessment as) Regressed Costs of expenditure incurred for re-routing the high pressure/high capacity pipelines, known as "**Local Transmission System**" or "**LTS**", to accommodate third party works carried out in proximity to those pipelines ("**LTS Rechargeable Diversions Costs**").

3.27 While GEMA later used a "net-to-gross" ratio to remove costs associated with Rechargeable Works (such as LTS Rechargeable Diversions Costs) when setting allowances, this "netting off" occurred only after it had used the output of its Econometric Modelling (i.e. Modelled Costs) to calculate the "efficiency score" for each GDN and rank its efficiency accordingly: see Paragraph 3.13 above and Section 4.4 of the NERA Report. The efficiency scores/rankings were therefore capable of being impacted by the inclusion of LTS Rechargeable Diversions Costs in GEMA's Econometric Modelling.

The reasons why GEMA's approach was materially flawed

3.28 By including LTS Rechargeable Diversions Costs in its Econometric Modelling, and therefore in its Efficiency Benchmarking, GEMA committed a clear and material error of assessment.

3.29 This error has three elements as explained below: (1) GEMA's Econometric Modelling failed to control for factors (besides efficiency) affecting the level of LTS Rechargeable Diversions Costs; (2) its approach disadvantaged (and unfairly discriminated against) Cadent for its uniquely high share of such costs; and (3) it compromised the Efficiency Benchmarking exercise, reducing Cadent's baseline totex allowance and materially compounding the effect of the other errors raised in this Section 3.

[37] NERA Report, Section 5.1.

(1) GEMA's failure to control for LTS Rechargeable Diversions Costs[38]

3.30 None of the drivers included by GEMA in its Econometric Modelling adequately controlled for differences in LTS Rechargeable Diversions Costs. While GEMA assumed that a certain component of its driver that measures the scale of GDNs' network assets (known as "**MEAV**")[39] could explain those costs, that assumption is demonstrably incorrect. MEAV is related to a network's scale (and the replacement value of its assets) and is therefore unrelated to the levels of work required to divert LTS pipelines. That type of work is not driven by network needs (or scale); it is undertaken on a highly bespoke, *ad hoc*, basis as and when third parties request diversions in order to accommodate their infrastructure programmes.[40]

3.31 The inclusion of LTS Rechargeable Diversions Costs in Econometric Modelling without appropriate drivers was an error, which penalised GDNs that submitted such costs by making them appear inefficient.[41] GEMA's approach did not therefore meet the standards of good econometric practice because the inclusion of those costs introduced additional unexplained differences in the levels of costs between GDNs which have been incorrectly attributed to their relative efficiency.

3.32 The only explanation offered by GEMA in the FDs as to why it had chosen to depart from its approach at GD1, where it performed its assessment of costs on a "net" basis, was as follows:

> "*We assessed costs on a gross basis (ie including customer contributions) and then adjusted to net costs after modelling. A GDN commented that costs should be assessed on a net basis, because net costs are what consumers need to fund. Nonetheless, we have adopted our Draft Determinations position and assessed costs on a gross basis, as we consider that the level of efficiency is better assessed on the overall costs incurred by networks, independently of how these costs are funded. Although different from RIIO-GD1, the approach we adopted is in line with RIIO-ED1.*"[42] [Emphasis added]

3.33 GEMA's explanation for its change of approach is not well-founded.

3.34 **First**, GEMA's claim that it adjusted to net costs "after modelling" is not relevant. As explained by NERA[43] and summarised above at Paragraph 3.27, GEMA in fact used gross costs to benchmark the GDNs before it converted Modelled Costs into net allowances. It was the impact of those "gross" costs which materially distorted the Efficiency Benchmarking. While GEMA subsequently also claimed that it had adequately controlled for differences in LTS Rechargeable Diversions Costs by performing its assessment over a long time period and smoothing the costs using a 7-year trailing average to address volatility, NERA confirms that these perceived mitigations "*do not eliminate or even reduce the downward bias in Cadent's allowances from including rechargeable LTS diversions in the regression, without a driver to explain them*".[44] [emphasis added]

3.35 **Second**, notwithstanding GEMA's reasons for wishing to assess costs on a "gross" basis, in order to do so it would have been necessary to ensure that the assessment technique for LTS Rechargeable Diversions Costs (i.e. Econometric Modelling) could control for factors affecting

[38] NERA Report, Section 5.2.1 and Paragraph 173.
[39] MEAV is an abbreviation for Modern Equivalent Asset Value.
[40] 1st Moon ¶¶63 and 75.
[41] NERA Report, Section 5.5 and Paragraph 172.
[42] FDs, Step-by-Step-Guide to Cost Assessment, Paragraph 1.15 **{CGL1/A/17}**.
[43] NERA Report, Section 4.4 and Paragraphs 157 and 158.
[44] NERA Report, Section 176.

the level of those costs. That was not the case and, as explained in the NERA Report, it is highly unlikely that appropriate drivers for such ad hoc and highly bespoke costs could be identified.[45]

(2) GEMA's approach penalised and unfairly discriminated against Cadent[46]

3.36 GEMA's failure to recognise that its Econometric Modelling did not (and could not in any event) control for LTS Rechargeable Diversions Costs had a particularly onerous and adverse effect on Cadent.

3.37 David Moon explains in his witness statement that GEMA's guidance instructed GDNs to include costs associated with Rechargeable Works in their Business Plan Data Templates ("**BPDTs**"). The BPDTs were the Business Plan template documents that set out each GDN's detailed Submitted Costs, which GEMA used for its assessment and benchmarking of costs.[47]

3.38 In line with GEMA's guidance, Cadent's BPDTs reported approximately £240 million of LTS Rechargeable Diversions Costs which it expects to incur over GD2.[48] Those costs are driven by a substantial volume of rechargeable LTS diversions requested (and paid for) by third parties as a result, in particular, of a number of large infrastructure projects which fall within Cadent's area of operations, such as HS2, the Lower Thames River Crossing, and Heathrow Terminal 5.[49]

3.39 By contrast, other GDNs' BPDTs specified zero gross costs associated with LTS rechargeable diversions for GD2, despite all eight GDNs having incurred such costs over GD1.[50] Consequently, as concerns the cost data that GEMA used to perform its Econometric Modelling and Efficiency Benchmarking, Cadent was the only GDN to have included LTS Rechargeable Diversions Costs in its GD2 Business Plan.[51]

3.40 In the circumstances, and given both the scale of Cadent's expenditure and the model's inability to control for LTS Rechargeable Diversions Costs, their inclusion in Regressed Costs (and assessment by means of Econometric Modelling) had an obvious distortionary effect on Cadent's position in GEMA's Efficiency Benchmarking.

(3) Impact on Econometric Modelling and Efficiency Benchmarking[52]

3.41 As mentioned above, the highly bespoke nature of LTS Rechargeable Diversions Costs means that they could not readily have been controlled for. NERA's recommended remedy for this Ground 1A is therefore to exclude LTS Rechargeable Diversions Costs from Regressed Costs (and therefore also from Econometric Modelling and Efficiency Benchmarking) altogether.

3.42 That simple and pragmatic approach (which GEMA itself applied at GD1) has wide-ranging effects, both for industry allowances and efficiency rankings, revealing the true extent of the error and the need to rectify it. In brief, removing LTS Rechargeable Diversions Costs from Regressed Costs:

(a) increases Cadent's baseline totex allowance by £14 million over GD2, while decreasing the total allowance for the industry by £144 million;

[45] NERA Report, Paragraphs 166 and 185.
[46] NERA Report, Sections 5.3 to 5.6.
[47] 1st Moon ¶65.
[48] 1st Moon ¶65.
[49] 1st Moon ¶65.
[50] NERA Report, Paragraph 171.
[51] NERA Report, Paragraph 171.
[52] NERA Report, Section 5.6.

(b) materially alters the efficiency rankings of the GDNs such that Cadent's GDNs now rank second, third, fourth and seventh, with Cadent's East of England and the North West networks setting the efficiency benchmark for GD2, while West Midlands is only marginally behind; and

(c) improves the reliability of the Econometric Modelling, by increasing the R-squared value from 0.929 to 0.943, which indicates that the drivers capture a greater proportion of the variation in costs than under GEMA's approach.

3.43 The resulting change in the Cadent GDNs' efficiency scores and rankings has wider implications for the relief sought in respect of Grounds 1B and 1C, as explained in Section 8 of the NERA Report.

Conclusion

3.44 GEMA's inclusion of LTS Rechargeable Diversions Costs in its Econometric Modelling, without appropriate controls, amounted to a clear error of approach. The error had a clear and discriminatory adverse impact on Cadent, making it appear inefficient by reason of its uniquely high LTS Rechargeable Diversions Costs among the GDNs.[53] Correcting the error triggers a material change in both allowances and efficiency rankings, with Cadent's GDNs setting the benchmark for GD2.[54]

D. GROUND 1B (LONDON REGIONAL FACTORS)

Introduction

3.45 The cost drivers used by GEMA in its Econometric Modelling do not account for regional differences in the GDNs' operating environment that may increase their costs for reasons beyond their control.[55] Instead, GEMA relies exclusively on making "pre-modelling" regional factor adjustments to the cost data used in the regression in an attempt to render it more comparable before running the model.[56]

3.46 Even after those pre-modelling adjustments are applied, however, GEMA's Econometric Modelling continues to produce a large "efficiency gap" of 9% for the London GDN relative to the industry average costs predicted by the model.[57] This is particularly striking in circumstances where Cadent's other GDNs outside London perform substantially better in the modelling (all three showing higher Modelled Costs than Submitted Costs, meaning they outperform the costs predicted by the model).[58] Therefore, the London GDN is a clear outlier within GEMA's Econometric Modelling relative to Cadent's other GDNs.

3.47 This difference does not accord with the reality of Cadent's actual operational practice. Cadent applies a similar management ethos and operating regime across all of its networks, and one would therefore expect them to operate at comparable levels of efficiency, as David Moon and Howard Forster testify.[59]

[53] NERA Report, Paragraph 184.
[54] NERA Report, Paragraphs 190 and 191.
[55] NERA Report, Section 6.1.
[56] NERA Report, Section 6.2.
[57] NERA Report. Section 6.3.
[58] NERA Report, Table 6.2.
[59] 1st Moon ¶89; 1st Forster Section B.

3.48 As explained further below, the reason why the London GDN is a negative outlier is because GEMA has failed adequately to control for regional factors through its pre-modelling adjustments approach. The outputs of its Econometric Modelling are therefore in error and require to be adjusted.

GEMA's approach to regional factors

3.49 GEMA attempted to control for regional factors by means of the following four pre-modelling adjustments (the "**Regional Factors Methodology**").[60]

(1) Regional labour cost adjustments[61]

3.50 First, GEMA applied an adjustment in order to control for regional variation in wage costs ("**Regional Labour Cost Adjustment**"). The adjustment was calculated using similar methods to previous price controls, i.e. by reference to hourly wage data for relevant types of worker and industry in the London and the South East regions as published by the ONS. The adjustment required GEMA to make certain assumptions regarding (i) the proportion of work that is carried out in a particular region; and (ii) the proportion of labour costs in each category of cost (e.g. in repair, repex, maintenance, etc.). At FDs, GEMA applied Regional Labour Cost Adjustments of 18% to London GDN; of 1% to East of England GDN; and of 10% to SGN's Southern GDN. The difference in percentage values reflects the extent to which each GDN's activities are carried out in London.

(2) Sparsity adjustments[62]

3.51 Second, consistent with its GD1 approach, GEMA applied a sparsity adjustment to GDNs' emergency and repair costs, to account for the lost productivity resulting from operating in remote areas (e.g. longer travel time between customers). This adjustment was again based on ONS data, specifically data showing district-level population density. WWU and SGN's Scotland GDN received the largest sparsity adjustment of 15%, while the least sparse network (Cadent's London GDN) received no adjustment.

(3) Urbanity adjustments[63]

3.52 Third, GEMA recognised that some GDNs with operations in the London region face: (i) lower labour productivity and (ii) additional reinstatement costs.[64] GEMA therefore calculated two separate adjustments with the aim of accounting for those separate effects of urbanity, and applied them to Cadent's London and East of England GDNs and to SGN's Southern GDN.

3.53 The first "**Urbanity Productivity Adjustment**" sought to reflect lower productivity in urban areas, which GEMA assumed to create a 15% gap for the London region only. This adjustment was pro-rated to the proportion of each of the relevant GDN's work in that area. The London GDN received a reduced 11% adjustment because only 77% of its customers were classified as falling within the London area. The Urbanity Productivity Adjustment was applied only to the following cost categories: connections, reinforcements, emergency, and repex costs.[65]

[60] NERA Report, Section 6.2.
[61] NERA Report, Section 6.2.1.
[62] NERA Report, Section 6.2.2.
[63] NERA Report, Section 6.2.3.
[64] 1st Forster, Section C; 1st Moon ¶ 92.
[65] FDs, Step-by-Step Guide Annex, Table 11 **{CGL1/A/17}**.

3.54 The second "**Urbanity Reinstatement Adjustment**" aimed to capture higher reinstatement costs in urban areas, for which GEMA assumed labour costs could act as a proxy. GEMA therefore applied the same 18% adjustment as it allowed for the London GDN under the separate Regional Labour Cost Adjustment. The Urbanity Reinstatement Adjustment was applied only to the following cost categories: emergency, repair, maintenance, and 'other direct activities'.[66]

(4) Specific claims[67]

3.55 In addition to the above adjustments, GEMA invited GDNs to make specific claims for other regional factor pre-modelling adjustments ("**Specific Claims**"), provided that the following criteria were met:[68]

(a) ***Material****:* the claim was required to meet a materiality threshold of 0.5% of a GDN's "gross unnormalized total expenditure";

(b) ***Unique****:* the claim was required to be unique, i.e. applicable only to one or a small number of GDNs;

(c) ***Control****:* the claim had to be outside the control of an efficient company, with the GDN showing that mitigating steps had been taken where these were available;

(d) ***Drivers****:* it was necessary to show that the claim was not captured by the cost drivers used in Econometric Modelling; and

(e) ***Other adjustments****:* the claim had also to fall outside the pre-modelling adjustments described above. Where there was a partial overlap, the materiality of the claim was tested on the part that was not covered by the other adjustments.

3.56 Cadent adopted a disciplined approach and submitted a limited number of Specific Claims in respect of its London GDN.[69] Two of those claims were accepted and were assessed by GEMA outside the Econometric Modelling. A further three Specific Claims were accepted but only partially on the basis that they were otherwise addressed by the Urbanity Productivity/Reinstatement Adjustments. The remaining six Specific Claims were rejected principally on the basis that they were immaterial.

The reasons why GEMA's approach was materially flawed

3.57 GEMA's Regional Factors Methodology failed adequately to control for the higher costs of operating in the London region. While this was an error in and of itself, it stemmed from two underlying errors of approach, namely:

(a) GEMA's understatement or rejection of legitimate adjustments for known regional factors; and

(b) GEMA's exclusive reliance on discrete pre-modelling adjustments to control for regional factors in circumstances where evidence shows that approach to be insufficient.

Those errors are addressed in turn below.

[66] FDs, Step-by-Step Guide Annex, Table 11 **{CGL1/A/17}**.
[67] NERA Report, Section 6.4.1.
[68] FDs, GD Annex, Paragraph 3.52 **{CGL1/A/23}**.
[69] 1st Moon ¶¶ 90 to 93; NERA Report, Table 6.3.

(1) GEMA's understatement or rejection of legitimate adjustments for known and quantifiable regional factors

3.58 As explained in the evidence of David Moon, Cadent undertook a significant amount of work to identify, quantify and thoroughly assess issues impacting its operations in London.[70] While GEMA accepted approximately 80% of Cadent's claims, the balance – of approximately £46 million – were disallowed in error.[71] Cadent presented substantial evidence in support of each of its requested pre-modelling adjustments.[72] GEMA's reasons for not allowing those adjustments in full do not withstand scrutiny and demonstrate a clear failure to engage with the available evidence.

3.59 The following paragraphs explain GEMA's errors in relation to each of the relevant adjustments.

(A) Unrepresentative notional labour shares reduce the labour adjustment[73]

3.60 As set out at paragraph 3.50 above, GEMA's Regional Labour Cost Adjustment required (among other things) an estimation of the proportion of labour within each cost category. In assessing what proportion to apply in the case of each GDN, GEMA assumed that all efficient GDNs have the same "notional" share of labour for each relevant cost category. GEMA's assumption was unrepresentative of (and understated) the labour costs incurred by the London GDN.

3.61 At the DDs stage when the mechanics of the adjustment became available, Cadent's response highlighted this difficulty and the material disadvantage it created for Cadent's London GDN, for which the efficient labour costs are materially higher than the "notional" amount assumed by GEMA.[74] However, GEMA chose to maintain its approach at FDs and continued to use the incorrect "notional" share of labour costs to apply the Regional Labour Cost Adjustment.

3.62 As NERA confirms, the additional labour costs incurred by GDNs operating in the London region are not adequately controlled for by any of GEMA's other adjustments, with the consequence that those networks operating in London are made to appear inefficient for reasons outside their control.[75]

3.63 Correcting this error by uplifting the proportion of labour costs to reflect the additional labour and urbanity adjustments applied to the London GDN increases the Regional Labour Cost Adjustment by £6.17 million in total over GD2. Additionally, NERA has identified that this correction would have an indirect positive impact on GEMA's Urbanity Productivity Adjustment, increasing that adjustment by £2.18 million over the GD2 period.

(B) Failure to control or adjust for London's high emergency workload[76]

3.64 In its Business Plan, Cadent proposed that variations in the emergency costs incurred by different GDNs would be most appropriately explained by the inclusion of a driver in GEMA's Econometric Modelling based on the levels of Public Reported Escapes ("**PREs**"),[77] i.e. calls

[70] ibid.
[71] NERA Report, Paragraph 292.
[72] 1st Moon ¶¶ 92 and 93.
[73] NERA Report, Section 6.4.11.
[74] Cadent DD Response, GDQ29, page 111 **{CGL1/B/10}**; 1st Moon ¶¶ 101 to 104.
[75] NERA Report, Paragraph 279.
[76] NERA Report, Section 6.4.12.
[77] Cadent Business Plan 2021-2026, Appendix 9.20, page 5 **{CGL1/B/2}**.

made by the public to the Gas Emergency Call Centre in the event of a suspected gas leak or other gas-related emergency.[78]

3.65 As explained in the evidence of David Moon, Cadent incurs substantial "emergency costs", associated with responding to suspected internal and external PREs.[79] "**Internal PREs**" are suspected gas escapes occurring inside customer properties on pipework or other apparatus owned by the customer and for which the customer is responsible. "**External PREs**" are suspected escapes of gas on Cadent's network, so outside of a customer's home or commercial building. London has higher numbers of Internal PREs than other parts of the country, each of which need to be investigated and, where necessary, made safe by Cadent. The factors leading to suspected Internal PREs are all beyond Cadent's control. It is believed that factors that feed into the higher number of Internal PREs in London include the higher number of flats, increased levels of rented/tenanted accommodation and social factors, including higher levels of fuel poverty, all of which may impact the level of regular maintenance and inspection of internal pipework and internal gas appliances.[80]

3.66 When GEMA published its drivers for Econometric Modelling at DDs stage, it became clear that it had not accepted Cadent's proposed driver for emergency costs based on PREs. Instead, GEMA used a driver that was constructed using a weighted average of: (i) customer numbers (80%) to explain Internal PREs, and (ii) total external conditions reports (20%) to explain External PREs (the "**Emergency CSV**"). It justified its position by stating that customer numbers are stable for all GDNs and account for the fixed costs of their emergency service functions.

3.67 As Cadent explained in its response to the DDs, the Emergency CSV ignores the consistently higher number of Internal PREs per capita recorded by Cadent's London GDN and SGN's Scotland GDN over the GD1 period.[81] In other words, GEMA's use of customer numbers to explain 80% of emergency costs belies the fact that some networks have a higher volume of emergencies per customer, and this adversely impacted the London GDN's performance in Econometric Modelling and Efficiency Benchmarking. To address this flaw in GEMA's Emergency CSV driver, Cadent asked GEMA either: (i) to replace it with a driver based on PREs; or alternatively (ii) if the Emergency CSV driver were retained, to make a pre-modelling adjustment uplifting the customer numbers for the London and Scotland GDNs by 32% and 19% respectively, so as to reflect the higher proportion of Internal PREs per customer recorded by each network relative to the average.

3.68 GEMA failed to implement either of those proposals in the FDs. It contended that using PREs as a driver would not produce "substantially" different results compared to its approach, but did not substantiate that claim and did not address the merits of Cadent's proposed driver, despite Cadent having highlighted in its DDs response that using PREs generates positive statistical effects.[82] Nor did GEMA even acknowledge Cadent's alternative solution of uplifting customer numbers to reflect the higher number of PREs in London and Scotland.

3.69 NERA calculates that Cadent's alternative solution would require a pre-modelling adjustment of £8.46 million to be applied to the London GDN's Submitted Costs for GD2.

[78] 1st Moon ¶ 95.
[79] 1st Moon ¶¶ 94 to 100.
[80] 1st Moon ¶ 96.
[81] Cadent DD Response, GDQ32, pages 150 to 153 **{CGL1/B/10}**; 1st Moon ¶ 97.
[82] See Cadent DD Response, GDQ32, pages 150 to 153 for a fuller summary of those positive effects **{CGL1/B/10}**.

(C) Unevidenced and insufficient Urbanity Productivity Adjustment[83]

3.70 Further, GEMA's Urbanity Reinstatement Adjustment does not adequately reflect the higher reinstatement costs associated with urbanity.

3.71 Cadent's Business Plan presented GEMA with evidence for a substantially larger 21% adjustment based on an analysis of reinstatement unit costs comparing tender costs per metre of reinstatement between the London and East of England GDN.[84] GEMA failed to respond to that evidence in any substantive manner, other than simply to assert that Cadent had not provided enough explanation or evidence to support the 21% figure.[85] That criticism is unjustified and unfair, for the reasons set out in Paragraphs 254 and 255 of the NERA Report.

3.72 GEMA's Urbanity Reinstatement Adjustment was therefore unsupported by adequate reasons, and was inadequate to achieve its stated objective.

(D) Partially accepted claims understate efficient costs[86]

3.73 In its Business Plan, Cadent identified and quantified three separate factors which have the effect of increasing the London GDN's costs for reasons beyond its control, and submitted Specific Claims for each: (i) longer duration of emergency interventions, (ii) high plant hire costs associated with the repex programme, and (iii) high reinstatement costs in relation to repex and repair activities.[87]

3.74 As to (i) above, Cadent submitted evidence based on an analysis of productive labour time showing that London requires on average 41% more time than the average of Cadent's other GDNs to perform external jobs and 26% more for internal jobs.[88] At FDs stage, GEMA acknowledged the materiality of this issue and accepted that there were substantive reasons for the longer job times in London. However, it disputed the quantum of the adjustment sought by Cadent, asserting without investigation or supporting evidence that the additional costs could partly reflect inefficiency on the London GDN's part. On that basis, GEMA accepted the claim only in part by extending the 11% Urbanity Productivity Adjustment calculated for the London GDN so that it covered emergency costs. As NERA explains, GEMA's reasons for confining the adjustment to 11% are not well-founded.[89] Among other matters, it is inappropriate in this case for GEMA to apply an adjustment developed at GD1 for a different activity that was based on a selective reading of evidence presented by one GDN over 8 years ago.[90]

3.75 As to (ii) above, Cadent's Business Plan presented evidence based on the difference in tender prices between its London and East of England GDNs demonstrating that the former incurs 19.7% higher costs associated with plant hire for the repex programme.[91] At FDs stage, GEMA partially accepted the claim, and again sought to address it by extending the 11% Urbanity Productivity Adjustment to cover the London GDN's plant hire repex costs. GEMA justified its approach on the basis that the balance of the plant hire costs claimed by Cadent are "too uncertain" and also disputed the validity of evidence based on tender prices. Finally, GEMA asserted (without any evidence or quantification) that plant hire costs were already partially captured by the Regional

[83] NERA Report. Section 6.2.3.
[84] 1st Moon ¶ 108.
[85] FDs, Cadent Annex, Paragraph 3.82 **{CGL1/A/21}**.
[86] NERA Report, Sections 6.4.2, 6.4.3 and 6.4.4.
[87] 1st Moon ¶¶ 94 to 108.
[88] 1st Moon ¶¶ 98 to 100.
[89] NERA Report, Section 6.4.2.
[90] NERA Report, Paragraphs 237 and 238.
[91] 1st Moon ¶¶ 105 and 106.

Labour Cost Adjustment. There is no merit in either of those justifications. There was no uncertainty as to Cadent's plant hire costs, which were quantified accurately and in their entirety by reference to competitive tender prices. Nor is there any basis for GEMA's claim that the additional plant hire repex costs are covered by GEMA's Regional Labour Cost Adjustment.[92]

3.76 As to (iii) above, Cadent's Business Plan included evidence showing that reinstatement costs are 21% higher for London than other networks; and requested that a commensurate adjustment be applied to the reinstatement element of the London GDN's repex and repair costs.[93] At FDs stage, GEMA partially allowed the claim by applying the lower 18% Urbanity Reinstatement Adjustment to the reinstatement element of both repex costs and repair costs. GEMA failed to respond to the evidence submitted by Cadent in support of its claim for a 21% adjustment, which was calculated using comparative unit cost tender data, workloads and actual costs for the London GDN and the East of England GDN (being Cadent's sparsest network). Instead, GEMA asserted that Cadent had not provided sufficient explanation and evidence for its full claim. As explained in the evidence of David Moon, this is simply incorrect: Cadent's claim is supported by robust and reliable data, and GEMA should properly have considered it or requested additional information.[94]

3.77 The additional adjustments which GEMA incorrectly disallowed amount to approximately £13 million over GD2.[95] By denying those adjustments, GEMA materially understated the London GDN's efficiently incurred costs.

(E) Claims rejected due to arbitrary application of materiality threshold[96]

3.78 Cadent also identified further costs specific to the operations of the London GDN for which adjustment was required. The costs in question concerned Traffic Management Hire, London Depot Rental Costs, 24h Shift Patterns, London Congestion Charge, London Local Authority Tunnels and Locksmiths.[97]

3.79 At FDs, GEMA declined to adjust for them on the basis that they were insufficiently material. The total value of the costs in question amounts to approximately £9 million over GD2, which comfortably exceeds GEMA's materiality threshold once it is applied to net totex as it should be (see Paragraph 3.84 below) and in any event is only marginally short of that threshold on GEMA's incorrectly applied gross basis. GEMA, however, applied a line-by-line approach to the materiality threshold on the basis that the items claimed "*relate to different aspects of operations and affect different cost activities*". It also contended that some of the costs were in any event "*being recognised and adjusted for separately*" through the urbanity and labour cost adjustments. On that basis, it concluded that, although some the claims had "*merit in principle*", it "[*did*] *not believe they* [*were*] *material enough to warrant an adjustment*".[98]

3.80 GEMA's reasons for rejecting Cadent's claim are without merit.

3.81 **First**, the relevant costs are all linked to the ultra-dense characteristics of the London region.[99] GEMA did not question the uniqueness or merit of the vast majority of the claims, a number of which are self-evidently specific to operating in London (e.g. the London Congestion Charge).

[92] NERA Report, Paragraph 247.
[93] 1st Moon ¶¶ 107 and 108.
[94] 1st Moon ¶ 108.
[95] NERA Report, Table 6.4.
[96] NERA Report, Section 6.5.
[97] NERA Report, Sections 6.4.5 to 6.4.10.
[98] FDs, Cadent Annex, Paragraph 3.113 **{CGL1/A/21}**.
[99] 1st Moon ¶¶ 109 and 110; 1st Forster ¶ 19.

3.82 **Second**, as NERA explains, "*GEMA provides little or no evidence or analysis to support its assertions of why Cadent's claims regarding the high costs of operating in London may be covered by other adjustments*".[100]

3.83 **Third**, GEMA's insistence on treating the various items in question discretely is in contrast with its approach at ED1, where it accepted a large number of claims made by UKPN as part of an overall London regional adjustment. Its failure to do so in this case was an error, and led to the incorrect exclusion of a material category of London-specific costs.

3.84 **Fourth**,[101] GEMA's materiality threshold is in any event arbitrary and prevented Cadent from recovering its efficient costs. This is inconsistent with the intended effect of the regulatory regime, which is to remunerate all efficient costs and, as NERA notes, the "*need for such company-specific adjustments is particularly acute, given the limitations of the modelling, and the fact that the London GDN has submitted costs so far below those identified as efficient by GEMA's modelling*".[102] Further, GEMA applied the materiality threshold to "gross" totex (i.e. including costs associated with Rechargeable Works), which disadvantaged (and discriminated against) companies like Cadent that undertake a large volume of third-party funded projects. Applying the materiality threshold to "net" totex is more appropriate and allows Cadent's rejected claims to comfortably meet the materiality criterion.

(2) GEMA's exclusive and insufficient reliance on discrete pre-modelling adjustments to control for regional factors

3.85 While allowing Cadent's claims in full would go some way towards resolving GEMA's failure to control for regional factors and company-specific costs, evidence shows that relying solely on discrete adjustments is insufficient to ensure that the London GDN is not disadvantaged in GEMA's Econometric Modelling and Efficiency Benchmarking.[103] That evidence is both quantitative and qualitative, as described below, and ultimately clearly establishes that the unique and complex nature of the London environment does not lend itself to itemisation and quantification of claims for pre-modelling adjustments, which cannot capture the full spectrum of the uniquely high costs of serving the London region.[104]

3.86 Consequently, even if all adjustments requested by Cadent are allowed in full, GEMA's Econometric Modelling will necessarily continue incorrectly to classify some Cadent costs as inefficient and therefore adversely impact its performance in Econometric Modelling and Efficiency Benchmarking.

(A) Pre-modelling adjustments do not adequately account for London regional factors[105]

3.87 GEMA's reliance on discrete pre-modelling adjustments assumes an ability on the part of networks to identify and quantify all of the cost disadvantages they face as a consequence of regional factors. In practice, this is not realistic, at least in the case of London. The evidence of Howard Forster explains that GDNs operating in London are faced with unique challenges arising from the built environment, the onerous traffic and highways regulatory environment, complex stakeholder management, the 24/7 nature of London and the supply chain. These give rise to

[100] NERA Report, Paragraph 305.
[101] NERA Report. Paragraph 300.
[102] NERA Report. Paragraph 300(B).
[103] 1st Moon ¶¶ 111 to 114; 1st Forster, Sections D and E.
[104] A description of the challenging London environment is provided in 1st Forster.
[105] NERA Report, Sections 6.6.1, 6.6.2 and 6.6.3.

London-specific features such as the high number of multiple occupancy buildings and flats, crowded utility infrastructure, protected buildings additional costly traffic management schemes, and many others.[106] It is simply not possible to capture, itemise and quantify the totality of such features into discrete claims for pre-modelling adjustments (at least not to the standard required by GEMA).

3.88 The difficulty is compounded by GEMA's approach to such costs, which set unduly stringent criteria for Specific Claims;[107] and disincentivised the submission of "lower confidence costs" through the Business Plan Incentive Mechanism (see footnote for an explanation of such costs).[108] As NERA explains, the effect may have been to deter the submission of claims that are more complex to quantify or not sufficiently material when considered artificially in isolation.[109] This may in turn explain why GEMA's Econometric Modelling continues to produce a large efficiency gap for the London GDN even if all of Cadent's adjustments for known factors were accepted.[110]

(B) The Regional Labour Cost Adjustment illustrates the subjectivity of GEMA's reliance on pre-modelling adjustments[111]

3.89 GEMA's reliance on pre-modelling adjustments also introduced a significant element of subjectivity into the cost assessment process, as can be seen from the design of the Regional Labour Cost Adjustment.

3.90 Cadent's response to the DDs highlighted that GEMA's reliance on outdated cost data depressed the quantum of the adjustment to the detriment of its GDNs and requested GEMA to use only data from the last two years (2017/18 and 2018/19) to inform the calculation of adjustment.[112]

3.91 However, at FDs GEMA maintained its approach of calculating the wage indices based on data from 2013/14 to 2018/19. While using a longer timeframe may address year-on-year fluctuations in wages, this consideration is outweighed by the fact that the data from the earlier years of GD1 will be over a decade old by the end of GD2 and may not reflect current and future labour market conditions. In any event, Cadent prepared its Business Plan over 2018 and 2019 and therefore its Submitted Costs are consistent with the pay premia prevailing at the time.

3.92 NERA shows that applying Cadent's proposed approach of using the most recent data from 2017/18 and 2018/19 (so as to avoid relying on a single year) increases the quantum of the Regional Labour Cost Adjustment from 18.3% to 19.6%, with a corresponding increase of £7 million in the adjustment applied to Cadent's London GDN.

3.93 This shows that a more reasonable alternative to the design of GEMA's pre-modelling adjustments generates higher allowances. GEMA has chosen an approach that tends to understate the London GDN's efficient costs, which demonstrates that it is wrong to rely exclusively on pre-modelling adjustments to control for regional factors.

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[106] 1st Forster, Section C.
[107] See for example the Business Plan Guidance (31 October 2019), Paragraph 3.14 **{CGL1/A/8}**.
[108] 1st Moon ¶ 38(H). The term "**lower confidence costs**" is a specific term used by GEMA for the purpose of determining rewards and penalties under the Business Plan Incentive Mechanism.
[109] 1st Moon ¶¶ 111 to 114; 1st Forster, Sections D and E.
[110] NERA Report, Table 6.6.
[111] NERA Report, Section 6.4.13.
[112] Cadent DD Response, GDQ29, page 110 **{CGL1/B/10}**.

(C) Econometric analysis supports Cadent's claim[113]

3.94 The inadequacy of the pre-modelling adjustments is confirmed by further econometric analysis undertaken by NERA. Specifically, NERA has adjusted GEMA's Econometric Modelling to include a "density driver", which regulators have employed in other contexts as a proxy for the effect of urbanity and sparsity on costs. In its PR19 Provisional Findings, for example, the CMA viewed density as a "key cost driver".

3.95 In this connection, the witness evidence of Howard Forster explains that, although the challenges of working in London are broad and varied, the majority are rooted in issues related to the density of population and infrastructure in London.[114]

3.96 NERA's econometric analysis finds that the coefficient on the density driver is statistically significant, supporting the hypothesis that density has a material influence on GDNs' costs. NERA further explains that including the density driver in GEMA's corrected model increases the London GDN's baseline totex allowance by the highly material sum of £101 million and changes its efficiency ranking from eighth to sixth.[115]

3.97 In its response to DDs, Cadent submitted that GEMA could either include a density driver to account for regional factors or at least use it to inform a larger pre-modelling adjustment for the London GDN. At FDs, however, GEMA dismissed Cadent's proposal. Its reasons are without merit.

3.98 **First**, GEMA contended as a general matter that its pre-modelling adjustments were an adequate means of addressing regional factors. GEMA fails, however, to provide any evidence in support of that contention. As explained above, there are strong indications that the pre-modelling adjustments are <u>not</u> an adequate measure of regional costs, and that an alternative approach is needed. Such adjustments are inadequate in part because of GEMA's inappropriate and arbitrary application of a materiality threshold to such adjustments on a line-by-line basis, which led to the exclusion of legitimate adjustments for known and quantifiable regional factors.

3.99 **Second**, GEMA argued that the cost of operating in a highly dense urban environment may already be captured by its Regional Labour Cost Adjustments, given that population density is highly correlated with regional wage differentials. On that basis, GEMA claimed that using a density driver could lead to double counting.[116] However, as NERA observes, the Regional Labour Cost Adjustment only controls for higher wages in London/South East, while the London GDN incurs higher costs for a series of <u>other</u> operational and technical reasons related to the dense London environment.[117] GEMA does not sufficiently control for these because, as shown above, it has understated or rejected adjustments for known London factors.

<u>Conclusion</u>[118]

3.100 The consumer interest is served by enabling efficient GDNs to recover the costs they incur in discharging their legal and regulatory obligations. This applies equally to higher costs that arise from the specific characteristics of their operating environments. NERA observes that the London GDN is clearly a "*material outlier"* in the results of the Econometric Modelling and Efficiency Benchmarking because of GEMA's failure adequately to control for the unique costs that it incurs.

[113] NERA Report, Section 6.7.
[114] 1st Forster ¶ 19.
[115] NERA Report, Paragraph 325.
[116] FDs, Cadent Annex, Paragraphs 3.116 and 3.117 **{CGL1/A/21}**.
[117] NERA Report, Paragraph 329.
[118] NERA Report, Sections 6.8 and 6.9.

Cadent's Chief Operating Officer emphasises that the London GDN's efficiency gap at FDs is simply not credible from a factual perspective.[119]

3.101 That failure is in part caused by:

(a) GEMA's rejection and understatement of the costs arising from known and quantifiable regional factors, as a result of which its pre-modelling adjustments fail to address the particular burdens upon the London GDN; and additionally

(b) the fact that the London GDN's costs are adversely impacted by regional factors that cannot be captured, itemised and quantified in discrete claims. It was therefore wrong for GEMA to rely solely on pre-modelling adjustments to determine the London GDN's efficiency.

3.102 Acknowledging that both GEMA's pre-modelling approach and NERA's density driver model have advantages and limitations, NERA considers that a balanced "middle ground" would be to conclude that the London GDN's efficiency is no worse than Cadent's next least efficient network (i.e. West Midlands). This approach recognises that the London GDN would continue to be an outlier, even if every adjustment evidenced by Cadent would be allowed in full, whilst also reflecting the fact that its four GDNs are under common management and that (as shown by Cadent's factual evidence) there is no reason to assume the London GDN is any less efficient than its other networks. In addition, the econometric evidence suggests that Cadent's other GDNs (operating under the same management team, standards, performance culture and ambition) are clustered around the efficiency benchmark. It is a pragmatic solution to a clear error.

3.103 The incremental effect of applying NERA's recommended remedy is to increase Cadent's allowances by £98 million, if applied in isolation, or £73 million if applied following application of the remedy for Ground 1A.

E. GROUND 1C (ONGOING EFFICIENCY)

Introduction

3.104 In addition to its Efficiency Benchmarking analysis, GEMA also sought to address a concept known as "frontier shift", which seeks to capture the expected rate of change in GDNs' costs during the GD2 period.

3.105 In accordance with general practice in utilities regulation, there were two components to GEMA's assessment of "frontier shift" in GD2: (i) real price effects ("**RPEs**"), aimed at capturing variability in the prices of GDN inputs compared to changes in inflation (as measured by the CPI-H index); and (ii) the Ongoing Efficiency Target, which aimed to assess the efficiency improvements achievable on an ongoing basis across the industry, e.g. as a result of changes in technology and working practices.[120]

3.106 The present ground concerns GEMA's determination of the Ongoing Efficiency Target. As a result of the errors set out below and in Section 7 of the NERA Report, the target arrived at by GEMA is unrealistic, unevidenced and excessive.

[119] 1st Forster, Section B.
[120] FDs, Core Document, Paragraph 5.18 **{CGL1/A/20}**.

GEMA's approach to the Ongoing Efficiency Target

3.107 At FDs stage, GEMA decided that the Ongoing Efficiency Target for GD2 should be: 1.15% p.a. for capex/repex and 1.25% p.a. for opex.[121] In brief summary:[122]

(a) **First**, GEMA's consultants (CEPA) produced "Lower Bound" and "Upper Bound"[123] estimates of long-term productivity growth, which were informed (to varying degrees) by the "EU KLEMS" dataset and GDNs' Business Plans, applying different methodological choices to arrive at each bound.[124] CEPA's "**Lower Bound**" estimate was 0.5% for opex/capex/repex, while the "**Upper Bound**" was 0.95% for capex/repex and 1.05% for opex.

(b) **Second**, GEMA chose to "aim up" in CEPA's range of estimates, placing full weight and sole reliance on the "Upper Bound" estimate provided by its consultants.[125]

(c) **Third**, GEMA applied an additional 0.2% uplift to the "Upper Bound" estimate, in order to account for additional productivity increases that it alleged to be achievable by GDNs as a result of upfront innovation funding provided to them in previous price controls (the "**Innovation Uplift**").

The reasons why GEMA's approach was materially flawed

3.108 GEMA's assessment of Ongoing Efficiency for capex/repex and opex was flawed (a) by reason of errors in CEPA's analysis and/or erroneous reliance on and/or selective reading of CEPA's analysis by GEMA; and (b) as a result of GEMA's erroneous decision to apply an additional Innovation Uplift. As a consequence, the Ongoing Efficiency Target arrived at by GEMA substantially overstated the productivity growth (and therefore the efficiency increases) that the GDNs can reasonably be expected to achieve during GD2. GEMA's errors are addressed in turn below.

(1) Errors in CEPA's analysis and/or erroneous reliance on and/or selective reading of CEPA's analysis by GEMA

3.109 GEMA was wrong to rely exclusively on CEPA's Upper Bound estimate of long-term UK productivity growth for the purposes of determining the Ongoing Efficiency Target.[126] This was an error for at least the five reasons set out below.

(A) CEPA's Upper Bound estimate is not supported by its own evidence[127]

3.110 CEPA observed long-term productivity data over the 1997 – 2016 time period (as published in the EU KLEMS dataset) in order to formulate a range of productivity growth estimates. On inspection, however, its Upper Bound estimate of 0.95% (capex/repex) and 1.05% (opex) is not supported by its own evidence. That estimate is in fact 0.05% points above the highest productivity estimates observed in the EU KLEMS dataset.

[121] At DDs stage, GEMA proposed a higher ongoing efficiency target of 1.4% p.a. for opex and 1.2 for capex/repex.
[122] A more detailed explanation of GEMA's methodology is set out in the Sections 7.1 and 7.2 of the NERA Report.
[123] The NERA Report refers to the "Upper Bound" by using the term "more stretching", which reflects CEPA's terminology.
[124] EU KLEMS provides information on long term productivity changes in certain industries using different measures over various time periods.
[125] FDs, Core Document, Paragraph 5.21 **{CGL1/A/20}**.
[126] NERA Report, Paragraph 349.
[127] NERA Report, Section 7.3.

3.111 CEPA did not provide any quantitative evidence to support that overstatement but offered instead a number of "qualitative" explanations that sought to justify its Upper Bound estimate. Those explanations, which are addressed in the following paragraphs, are without merit and offer no additional support for CEPA's Upper Bound.

(B) GEMA was wrong to rely exclusively on the "Value Added" measure of output[128]

3.112 CEPA's analysis employed two alternative measures for assessing productivity improvements in the EU KLEMS dataset: the Value Added ("**VA**") measure and the "Gross Output" ("**GO**") measure. VA measures the value added at each stage of the production process but does not include intermediate inputs. GO measures both VA and the full value of any intermediate inputs. Consequently, VA productivity is higher.

3.113 CEPA's "Upper Bound" estimate is based exclusively on (and even exceeds) the VA estimates it observed in the EU KLEMS dataset for its chosen comparators. By relying exclusively on the Upper Bound estimate, GEMA therefore afforded no weight to the GO measure. This approach was wrong for the following reasons.

3.114 **First**, such an approach is inconsistent with good economic and regulatory practice. From an economic perspective, the GO measure is a closer approximation of a GDN's regulated cost base and therefore it is appropriate to place some weight on it. Consequently, in four previous regulatory determinations dealing with the appropriate measure for assessing productivity growth,[129] equal weight was placed on the GO and VA measures in two cases;[130] while in the remaining two[131] GO was used as the central estimate with an uplift based on observations of higher productivity in the VA measure. In no case did the regulator rely solely (or even primarily) on VA. Indeed, GEMA's own advisers, CEPA, cautioned against using only one measure, having regard to regulatory best practice.[132] GEMA wrongly disregarded that advice.

3.115 **Second**, neither CEPA's nor GEMA's analysis provides any support for the contention that they afforded weight to the GO as well as the VA measure:

(a) In its report to GEMA, CEPA stated that its Upper Bound estimate is supported by placing *greater* weight on VA, suggesting that at least some weight had also been given to the GO measure.[133] That statement is incorrect. Even a summary reading of CEPA's underlying data shows that its Upper Bound in fact exceeds the highest VA estimate observed in the EU KLEMS dataset for the chosen time period and comparators.

(b) In the FDs, GEMA likewise contended that it had placed "*some weight to Gross Output (GO) productivity measures, which have reduced the level of efficiency challenge.*"[134] It appears, however, that GEMA relied only on CEPA's "Upper Bound" estimate at the FDs stage, which was in turn derived only by reference to the VA measure. The reduction made to the Ongoing Efficiency Target at the FDs stage was the result of other (unexplained) changes in CEPA's underlying EU KLEMS analysis.[135]

[128] NERA Report, Section 7.3.3, 7.3.4 and 7.3.5.
[129] NERA reviewed the following determinations: Ofwat at PR19, CMA at PR19, CC at RP5, and GEMA at GD1 . See NERA's review of the four relevant regulatory decisions at Section 7.3.4 of the NERA Report.
[130] CC at RP5 and GEMA at GD1.
[131] Ofwat at PR19 and CMA at PR19.
[132] CEPA (27 November 2020), RIIO-GD2 and T2: Cost Assessment – Advice on Frontier Shift policy for Final Determinations, page 24 **{CGL1/C/34}**.
[133] CEPA (27 November 2020), RIIO-GD2 and T2: Cost Assessment – Advice on Frontier Shift policy for Final Determinations, pages 8 and 9 **{CGL1/C/34}**.
[134] FDs, Core Document, Paragraph 5.22 **{CGL1/A/20}**.
[135] NERA Report, Paragraph 377(B) and 378.

3.116 GEMA should instead have placed equal weight on the VA and GO measures, on the basis that this would "*better reflect the productivity target that is achievable by an efficient GDN*".[136] In any event, GEMA should not have applied its VA-derived Ongoing Efficiency Target to any non-VA components of a GDN's costs.[137]

(C) GEMA was wrong to rely exclusively on a dataset which includes industries that are not good comparators for the gas distribution industry[138]

3.117 Any benchmark measure of productivity improvements made by businesses over time is bound to depend on which industries are included in the comparator set. CEPA recognised this and identified a "targeted" set of comparator industries that it believed represented a reasonable proxy for network utilities. These comprised the Construction (excluding manufacturing); Wholesale and Retail Trade: Repair of Motor Vehicles and Motorcycles; Transportation and Storage; and Financial and Insurance activities.

3.118 While CEPA reviewed EU KLEMS long-term productivity data for both this "**targeted**" and an "**economy-wide**"[139] comparator set, it advised GEMA that its Upper Bound estimate could be supported by placing greater weight on the latter. On examination, however, CEPA's Upper Bound is in fact derived solely from the "economy-wide" comparator set. This approach is a material error because it is (i) unsupported by any economic rationale or regulatory precedent; and (ii) is contradicted by CEPA's own recommendations to GEMA.

3.119 As to (i) above, while regulators often consider "economy-wide" evidence when setting efficiency targets, precedent shows that it is good regulatory practice also to draw on evidence from comparable industries. That was the approach taken by GEMA at GD1; and by both Ofwat and the CMA provisionally at PR19. However, at GD2 GEMA reversed course without justification by relying solely on an economy-wide set of industries that do not resemble gas networks.

3.120 As to (ii) above, CEPA recommended to GEMA to use both the "targeted" and "economy-wide" comparator datasets when determining the Ongoing Efficiency Target. In spite of that, NERA notes that "*GEMA does not comment on the distinction between industry definitions in its Final Determination*".[140] Put simply, GEMA simply assumed without any supporting evidence or justification that GDNs will be able to replicate efficiency gains seen in the wider economy. That assumption defies economic logic: the economy-wide set includes sectors that have benefitted from significant technological leaps and globalisation to a much greater extent than GDNs could reasonably be expected to achieve.

3.121 Given (i) and (ii) above, GEMA's full reliance on the Upper Bound (and therefore on the economy-wide comparators only) overstates the productivity growth that is capable of being achieved by GDNs. As NERA explains, GEMA should instead have placed equal weight on both the "targeted" and "economy-wide" comparator sets.[141]

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[136] NERA Report, Paragraph 386.
[137] NERA Report, Paragraph 385.
[138] NERA Report, Section 7.3.6.
[139] CEPA's "**economy-wide**" set of comparator industries used the weighted average of all industries excluding real estate, public administration, education, health and social services.
[140] NERA Report, Paragraph 388.
[141] NERA Report, Paragraph 450(A).

(D) GEMA wrongly failed to take proper account of the period of lower productivity in the business cycle since 2008/9[142]

3.122 Further, CEPA sought to justify its Upper Bound by placing greater weight on the more productive years prior to the 2008 – 2009 financial crisis (or omitting 2009 altogether). Similarly, GEMA also justified its selection of the highest estimate by arguing that regulated sectors are less exposed to downward shocks post-crisis, and therefore post-crisis data may be misleading. GEMA was wrong to rely on either of those justifications.

3.123 **First**, good regulatory and economic practice requires analysis of full business cycles, and the 1997 – 2016 period observed by CEPA is the longest timeframe in which complete business cycles can be analysed in EU KLEMS. The omission of 2009 as a negative outlier is inappropriate (and constitutes bad regulatory practice) because a large downward movement in productivity may be offset by prior or subsequent increases in productivity at other points during the business cycle in question. GEMA was therefore wrong to have placed any weight on that justification for the Upper Bound when deciding where to aim in CEPA's range.

3.124 **Second**, GEMA ignored recent evidence which suggests that there has been a structural break in productivity growth since the financial crisis. Although CEPA attempted to corroborate its Upper Bound estimate with forecast OBR and BoE data that were said to suggest a recovery to pre-crisis levels, NERA demonstrates that CEPA's analysis was flawed and selective and that the latest available productivity evidence from the BoE actually shows sustained depressed productivity growth over GD2.[143] GEMA's failure to account for this further highlights its selective approach.

3.125 **Third**, GEMA was wrong to proceed on the basis that regulated companies are less exposed to negative shocks and may therefore outperform the wider economy during a persistent slowdown in productivity. No evidence was offered either by GEMA or CEPA in support of that hypothesis. GEMA also ignored the corollary that energy networks may also benefit less from high rates of productivity growth during high-growth periods. In fact, the "targeted" comparator set considered by CEPA, which more closely resembles regulated energy networks, experienced lower productivity growth than the economy as a whole over the 1997 – 2016 period observed by CEPA.[144]

3.126 In any event, the 1997 – 2016 period covered by CEPA's analysis already necessarily places more weight on the 11 years prior to the financial crisis (from 1997 to 2007) than the 9 years following it (from 2008 to 2016).

3.127 GEMA was therefore wrong to justify its Ongoing Efficiency Target by affording greater weight to levels of productivity growth achieved prior to the financial crisis (and/or omitting 2009).

(E) Regulatory Precedent[145]

3.128 Finally, CEPA claimed that regulatory precedent supports an Ongoing Efficiency Target of 1%. CEPA referred in this connection specifically to the PR19 Provisional Findings where the CMA decided to use a target of 1%.[146] As to this: (i) that estimate is the highest that recent precedent would support, and significantly exceeds the 0.7% (capex/repex) target set by GEMA as recently as GD1; (ii) CEPA's more recent EU KLEMS evidence for the "targeted" comparator set suggests

[142] NERA Report, Sections 7.3.7, 7.3.8 and 7.3.9.
[143] NERA Report, Paragraph 407.
[144] NERA Report, Paragraph 411.
[145] NERA Report, Section 7.3.1.
[146] PR19 Provisional Findings, Paragraph 4.377 **{CGL1/C/32}**.

those precedents overestimate what is achievable over GD2; and (iii) in any event, as discussed in more detail below, at GD2 GEMA set the target significantly higher than the 1% ceiling supported by precedent when it applied the additional 0.2% Innovation Uplift to CEPA's Upper Bound Estimate.

3.129 Further, NERA explains that in the Bristol Water Determination, where a 1% target was used, the CMA employed other mitigating measures to reduce the possibility of overstatement, for example setting the efficiency benchmark at the industry average. By contrast, at GD2 GEMA chose to set the Ongoing Efficiency Target at the even higher value of 1.2%, and also increased the level of the efficiency benchmark to the 85th percentile (for the last two years of GD2).

(2) GEMA was wrong to apply any uplift for innovation funding[147]

3.130 GEMA made a further error by applying a 0.2% Innovation Uplift to CEPA's "Upper Bound" estimate, which it claimed to represent "a reasonable return" to consumers for the upfront innovation funding provided to GDNs during GD1.[148] The application of this uplift is wrong for the following four reasons, individually and collectively.

(A) GEMA double counted innovation-driven productivity included in EU KLEMS[149]

3.131 As noted above, the 0.2% Innovation Uplift is applied on top of CEPA's Upper Bound estimate derived from the EU KLEMS estimates for the "economy-wide" comparator set. Therefore, by applying that uplift GEMA assumes that innovation funding previously granted to GDNs can deliver cost savings over and above any innovation-driven efficiencies embedded in the EU KLEMS estimates (and captured in CEPA's Upper Bound estimate). However, neither GEMA nor CEPA considered the extent to which CEPA's Upper Bound already includes such innovation-driven efficiency.

3.132 NERA notes official evidence[150] which shows that total UK R&D expenditure has been between 1.5% and 1.7% in each year of the 2000 – 2008 period and therefore the effects of this R&D are already captured in the EU KLEMS dataset. By contrast, CEPA assumed that GDNs' innovation funding was around 1% of their total GD1 allowances, i.e. less than the level of R&D expenditure observed in the wider UK economy. Consequently, even if (hypothetically) GDNs' innovation expenditure could yield cost reductions, this would only allow them to catch up with the effects of innovation already captured in the EU KLEMS dataset.

3.133 The EU KLEMS-derived Upper Bound estimate, which forms the basis of the Ongoing Efficiency Target set by GEMA, therefore already includes (and may overstate) the scope of efficiency savings that energy networks can deliver through innovation.

[147] NERA Report, Section 7.4.
[148] See Section 7.4.1 of the NERA Report for an explanation of CEPA's calculation of the 0.2% "reasonable return" on innovation funding.
[149] NERA Report, Section 7.4.4.
[150] House of Commons Library, Briefing Paper Number SN04223 (17 June 2020), Research & Development spending, page 6 **{CGL1/C/29}**.

(B) GEMA further double counted innovation savings embedded in Cadent's Business Plan[151]

3.134 While CEPA claimed to have found no firm quantitative evidence that innovation-driven efficiency was embedded in Submitted Costs,[152] it does not follow that no such relationship exists: GDNs may already have exhausted any innovation-driven efficiency gains during the GD1 period. GEMA recognised that "*companies will have baselined some savings from past innovation projects*" into their Business Plans,[153] but it failed to seek to quantify the level of embedded savings in their Submitted Costs. NERA echoes CEPA's warning to GEMA that such failure could result in GEMA double-counting those innovation savings.[154] The evidence of David Moon confirms this is in fact the case.[155]

(C) GEMA's Innovation Uplift was unevidenced and ignored CEPA's recommendations[156]

3.135 In its final report to GEMA, CEPA did not comment on whether the uplift is appropriate (and, indeed, did not include it in its Upper Bound estimate). CEPA merely attempted to calculate the quantum of a "reasonable return" on innovation funding. As NERA notes, however, that calculation "'*goal seeks*' *an arbitrary set of input assumptions that yield that result*" and, as such, is neither evidenced nor credible.[157] Put simply, CEPA's method "back-solved" the 0.2% estimate by relying on selective assumptions that supported that quantum.

3.136 Moreover, GEMA disregarded CEPA's acknowledgment that it had not identified a firm quantitative relationship between innovation funding and Ongoing Efficiency in the energy network sector.[158] GEMA also ignored CEPA's caveat that the 0.2% return may be lower insofar as the objective of innovation funding/projects was not to improve efficiency.[159]

(D) GEMA was wrong to assume that past innovation funding will produce future cost savings[160]

3.137 GEMA and CEPA assumed, without proper evidence or justification, that past innovation funding provided to GDNs will yield cost reductions in the future, above and beyond those already built into GDNs' past efficiency improvements, their catch-up efficiency targets and the EU KLEMS estimates. GEMA's assumption is not valid. NERA's review of gas projects funded by the NIC shows that only a minor proportion (£19.9m out of £73.3m) was focused on cost reductions in areas that are within the scope of the price control (as was envisaged by the criteria set out in the guidelines for innovation funding). The position is similar for the more limited NIA funding, which primarily sought to facilitate smaller projects or fund preparation of NIC submissions. Most RIIO-1 innovation funding was targeted towards decarbonisation projects which would not yield

[151] NERA Report, Section 7.4.3.
[152] CEPA (27 May 2020), RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper, page 26 **{CGL1/C/28}**.
[153] FDs, Core Document, Paragraph 5.26 **{CGL1/A/20}**.
[154] CEPA (27 November 2020), RIIO-GD2 and T2: Cost Assessment – Advice on Frontier Shift policy for Final Determination, page 8, footnote 7 **{CGL1/C/34}**.
[155] 1st Moon ¶ 80.
[156] NERA Report, Section 7.4.1.
[157] NERA Report Paragraph 424.
[158] CEPA (27 May 2020), RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper, page 35 **{CGL1/C/28}**.
[159] CEPA (27 May 2020), RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper, page 35 **{CGL1/C/28}**.
[160] NERA Report, Section 7.4.2.

cost reductions even if they were successful (and indeed may even increase costs due to the conversion of grids to support hydrogen deployment).[161]

Conclusion[162]

3.138 GEMA's Ongoing Efficiency Target lacks (and in places ignores) evidence. It contains material errors. It contradicts best regulatory and economic practice. In each case, its errors are such that the final estimate is inflated beyond what can be supported by any reasonable analysis.

3.139 Cadent's expert witness concludes that, after correcting those errors, the long-term evidence on productivity growth observed by CEPA in fact supports a significantly lower Ongoing Efficiency Target of 0.5% p.a. for capex/repex and 0.65% p.a. for opex. However, NERA also recognises that Cadent's Business Plan embedded an ambitious and stretching target of 0.94% per annum. In view of those considerations, NERA recommends that an Ongoing Efficiency Target of 0.94% p.a. for capex/repex/opex would be appropriate. Indeed, CEPA itself advised GEMA that all recent regulatory determinations used an Ongoing Efficiency Target "of around 1%"[163] but, as NERA has demonstrated, the latest available data, as well as a proper reading of EU KLEMS, in fact suggests that a materially lower target would be appropriate for GD2. When also considered in light of the potential impact of Brexit and the continuing (and potentially scarring) economic effects of Covid-19, the 0.94% target embedded in Cadent's Business Plan is not only in line with precedent but in the circumstances amounts to a highly ambitious commitment to its customers that it intends to deliver.

3.140 Further, David Moon explains in his witness evidence that GEMA attempted to make GDNs' Submitted Costs more comparable by applying a pre-modelling adjustment to their costs that "added back" any amount of Ongoing Efficiency embedded in their Business Plans ("**Embedded OE**").[164] While GEMA assumed that Cadent's Embedded OE was 0.5% (and, as a first step, uplifted its Submitted Costs by that amount as a pre-modelling adjustment prior to applying its Ongoing Efficiency Target), the correct value – as supported by the evidence of David Moon[165] – was in fact 0.94%.

3.141 As explained in the NERA Report[166] and David Moon's evidence,[167] it is possible that GEMA used a lower value for Cadent's Embedded OE because it assumed that the 0.94% figure included an element of catch-up efficiency (as opposed to wholly representing Ongoing Efficiency). This is evidently not the case: once the errors raised in this appeal are corrected, Cadent's GDNs set the efficiency benchmark for GD2 and therefore the entire 0.94% figure represents Ongoing Efficiency. That is the correct Embedded OE value for Cadent.

3.142 NERA's recommended remedy therefore applies both the correct Embedded OE value of 0.94% and the revised Ongoing Efficiency Target of the same amount, which together increase Cadent's allowances by a total of £73 million (where no other remedies are applied). The incremental effect of applying this remedy once the relief sought for Grounds 1A and 1B is applied is to increase Cadent's allowances by a further £135 million. The difference between the two figures arises because, without the correction of Grounds 1A and 1B, Cadent's networks receive a larger Catch-up Challenge Adjustment that offsets any reduction in the Ongoing Efficiency Adjustment.

[161] 1st Moon ¶ 80.
[162] NERA Report, Sections 7.5 and 7.6.
[163] CEPA (27 November 2020), RIIO-GD2 and T2: Cost Assessment – Advice on Frontier Shift policy for Final Determination, page 29 and Table 2.2 **{CGL1/C/34}**.
[164] 1st Moon ¶ 85(B).
[165] 1st Moon ¶¶ 82 to 86.
[166] NERA Report, Paragraph 461.
[167] 1st Moon ¶ 85.

However, once the errors in Grounds 1A and 1B are corrected, Cadent's networks set the benchmark which means they receive a smaller Catch-up Challenge Adjustment, and therefore the total increase in allowances is greater.

3.143 Finally, NERA explains that there is an alternative approach to setting the Ongoing Efficiency Target, which can at least serve as a cross-check of the above remedy.[168] The alternative method is explained in the NERA Report, but in brief it involves adopting GEMA's approach at ED1 which was to allow the Econometric Modelling to compare GDNs' Submitted Costs (which include an element of Embedded OE) in order to determine the appropriate Ongoing Efficiency Target for the industry. Applying this alternative approach (without other remedies) increases Cadent's allowances by £132 million, which rises to £224 million when the remedies for Grounds 1A and 1B are also applied. Therefore, this alternative approach provides further supporting evidence that NERA's recommended remedy (i.e. assuming a 0.94% Embedded OE and using the same value as the target) is ambitious and appropriate.

F. GROUNDS OF APPEAL TO WHICH THESE ERRORS GIVE RISE

3.144 In light of the foregoing, GEMA's Decision in respect of Cadent's baseline totex allowance is wrong within the meaning of Section 23D(4) GA86. In particular, GEMA:

(a) failed properly to have regard to, and failed to give appropriate weight to, the interests of current, and in particular, future consumers and thereby its Principal Objective, by understating Cadent's efficient level of baseline totex;

(b) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to, its Finance Duty, by limiting Cadent's scope to recover costs that it necessarily and efficiently incurs in order to discharge its legal and regulatory obligations (including delivering the Outputs);

(c) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to, its Security of Supply Duty and its Sustainability Duty, in failing to consider the long-term effects of its failure to set Cadent's baseline totex allowance at an efficient level;

(d) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to, its Best Practice Duty;[169]

(e) gave excessive, and therefore failed to give appropriate, weight to its Efficiency and Economy Duty;

(f) committed a number of errors of fact in respect of the evidence that was before it;[170]

(g) adopted modifications that fail to achieve, in whole or in part, the effect stated by GEMA in respect of Cadent's baseline totex, which was to set baseline totex at an efficient level;

[168] NERA Report, Section 7.6.2.
[169] See for example: (1) Paragraph 3.31 (as concerns Ground 1A); (2) Paragraph 3.57 (as concerns Ground 1B); and (3) Paragraph 3.138 (as concerns Ground 1C).
[170] See for example: (1) Paragraph 3.42(b) (as concerns Ground 1A); (2) Paragraph 3.85 (as concerns Ground 1B); and (3) Paragraph 3.139 (as concerns Ground 1C).

(h) erred in law, including as a result of:

(i) proceeding on the basis of no, or no adequate, evidential base in relation to a number of its conclusions;[171]

(ii) failing in its duty of enquiry to take reasonable steps to gather the information needed to take an informed decision; and

(iii) assessing Regressed Costs in a manner that was discriminatory.[172]

G. RELIEF SOUGHT

3.145 Cadent requests that the CMA quashes GEMA's Decision in respect of Cadent's baseline totex allowance and substitutes its own decision that corrects the errors set out in Grounds 1A to 1C in accordance with Section 8 and Appendix A of the NERA Report (with consequent adjustments to the GD2 Price Control Financial Model and the Licence). In brief summary, NERA's recommended remedies require:

(a) ***Ground 1A (LTS Rechargeable Diversions Costs):***

(i) excluding LTS Rechargeable Diversions Costs from Regressed Costs (and therefore removing those costs from Econometric Modelling and Efficiency Benchmarking); and

(ii) making consequential adjustments to: (1) the weights on the components of the CSV driver used in the Econometric Modelling, and (2) the net-to-gross ratio used to produce net allowances, in each case to reflect that exclusion;[173]

which increases Cadent's baseline totex allowance by £14 million.

(b) ***Ground 1B (London Regional Factors):***

(i) disregarding the results of GEMA's Econometric Modelling when estimating the efficient costs of the London GDN; and

(ii) instead, determining that the London GDN has the same level of efficiency as Cadent's next least efficient GDN (i.e. West Midlands);

which, when applied together with the remedy for Ground 1A, increases Cadent's baseline totex allowance by £87 million.

(c) ***Ground 1C (Ongoing Efficiency Target):***

(i) revising GEMA's Econometric Modelling such that the pre-modelling adjustment for Embedded OE uses the correct value of 0.94% in respect of Cadent, instead of the 0.5% value assumed by GEMA; and

(ii) determining that the appropriate Ongoing Efficiency Target is 0.94% p.a. for capex/repex/opex;

which, when applied together with the remedies for Grounds 1A and 1B, increases Cadent's baseline totex allowance by £222 million in total over GD2.

[171] Cadent specifies in the relevant paragraphs of Section 3, Sub-Sections C to E where GEMA has ignored or failed to engage with the available evidence.
[172] See Section 3, Sub-Section C (LTS Rechargeable Diversions Costs).
[173] NERA Report, Paragraph 188.

3.146 While Cadent considers that the errors identified in this Section 3 can and should be rectified by the CMA, in the alternative Cadent requests that the CMA remits the matter to GEMA under Section 23E(2)(b) GA86 for reconsideration and determination in accordance with such directions as are necessary and appropriate adequately to address the errors.

SECTION 4: GROUND 2 (COST OF EQUITY)

A. INTRODUCTION

4.1 Section 4 sets out Cadent's appeal in relation to the material errors made by GEMA in arriving at its estimate for the cost of equity. This estimate, together with the adjustment for expected outperformance discussed in Section 5, forms the basis for the allowed return on equity, which is a significant component of the total allowed returns under RIIO-GD2. As a result of the errors identified in this Section 4, GEMA has significantly underestimated the rate of return required for an efficient licensee to be able to attract, retain and remunerate the investment needed to deliver its regulated activities. GEMA's assessment of the cost of equity (4.55%)[174] falls significantly below the cost of equity allowance of 6.11% which Cadent's expert witness KPMG estimates and the return of 5.6% which Cadent's Business Plan assumed was required.

4.2 As GEMA explained in its SSMC:

> "[The cost of equity] *is a significant part of the price control settlement. It is important because the energy sector requires investors that are willing to invest in utility infrastructure to meet consumer needs*."[175]

4.3 An appropriate rate of return is of particular importance where, as GEMA recognised in its FDs,

> "*Investment in the energy networks is likely to need to increase to meet Net Zero targets as we progress through this decade.*"[176]

and, in GEMA's own words:

> "*Our price control for 2021-26 will play an unprecedented role in shaping the energy system in a way that works for current and future generations.*"[177]

4.4 Without an appropriate return on equity:

(a) an efficient licensee's ability to attract, retain and remunerate the capital needed for investments and to deliver services for existing and future consumers is put in jeopardy; and

(b) in the long-term, the cost of capital required to attract investment, and the amount of investment needed, is increased.

4.5 Setting the allowed return on equity correctly is therefore integral to (among other things) GEMA properly having regard to the Principal Objective and to its Finance Duty.

4.6 The adverse consequences of setting the allowed return on equity too high or too low are also not symmetrical, as is explained in more detail below in the context of Ground 2B. Short term benefits to consumers, in the form of lower bills during RIIO-GD2 from lower allowed returns, are quickly outweighed by the longer-term consequences of reduced investment and the risk of an outflow of capital from the sector.

4.7 GEMA has made a series of distinct errors in setting the cost of equity allowance which, instead of being representative of the 'robust process' GEMA says it has aimed for, portray a selective and unbalanced approach to the available evidence which has been chosen throughout with a

[174] Unless stated otherwise, percentage rates of return in this Section are expressed in CPIH terms.
[175] SSMC, Finance Annex, Paragraph 3.1 **{CGL1/A/4}**.
[176] FDs, Core Document, Paragraph 8.2 **{CGL1/A/20}**.
[177] FDs, Overview, Page 5 **{CGL1/A/16}**.

consistent focus on justifying returns that are too low during RIIO-2. GEMA has materially underestimated the required cost of equity.

4.8 Specifically, GEMA erred in both of the steps ("CAPM evidence" and "cross-checks") through which it arrived at its cost of equity range and point estimate. This is **Ground 2A**.

4.9 Further, GEMA was wrong to select a point estimate which did not aim up within the CAPM-implied range to take account of (i) the uncertainty inherent in assessing the CAPM parameters, (ii) the asymmetry in risk exposure as a result of the GD2 price control regulatory mechanisms set by GEMA, and (iii) sector risks (gas sector specific structural). This is **Ground 2B**.

4.10 The collective impact of these errors is that GEMA has arrived at a cost of equity "assessed point estimate" of 4.55%,[178] which materially underestimates the required return on equity and is materially below the cost of equity deemed appropriate in other relevant regulatory decisions, including, despite the lower risks faced by the relevant GB water companies, in the CMA's recent PR19 Provisional Findings. Expert evidence, commissioned by Cadent from KPMG for this appeal, finds that an appropriate point estimate would instead fall into a CAPM-implied range of 5.18% to 6.24%[179] and aim up from the mid-point of that range to account for the inherent uncertainty of, and the risks not captured by, CAPM.[180]

4.11 The remainder of this section sets out:

Sub-Section B: GEMA's approach to setting the RIIO-GD2 allowed cost of equity.

Sub-Section C: Ground 2A concerning GEMA's errors in estimating CAPM parameters.

Sub-Section D: Ground 2B concerning GEMA's failure to "aim up".

Sub-Section E: the statutory grounds of appeal to which these errors give rise.

Sub-Section F: the relief sought.

B. GEMA'S APPROACH TO SETTING THE RIIO-2 ALLOWED COST OF EQUITY

GEMA's Methodology for Setting the Allowed Return on Equity

4.12 GEMA adopts a three-step process through which it establishes a cost of equity range and then narrows this to a final single allowed equity return figure. Ground 2 of this appeal, as set out below in this Section 4, identifies errors that relate to steps 1 and 2 of the process and the failure to aim-up when selecting a cost of equity point estimate.

4.13 A further adjustment at step 3 for a perceived discrepancy between expected and required returns on equity is subject to appeal under Ground 3, which is set out in Section 5.

Step 1: CAPM-implied cost of equity

4.14 GEMA's decision in respect of step 1 of its process for setting an allowed cost of equity is set out in Paragraphs 3.1 to 3.100 of the Final Determinations' Finance Annex.

4.15 In step 1, GEMA estimates a CAPM-based range for the allowed cost of equity of 3.85% to 5.24%.[181] (Under the subsequent step 2 of its process, described in the next subsection, GEMA then reaches a point estimate from within this range.)

[178] FDs, Finance Annex, Table 11 **{CGL1/A/22}**.
[179] KPMG Report, Paragraph 2.4.1 and Table 1 therein.
[180] KPMG Report, Paragraph 2.4.8 and Table 2 therein.
[181] FDs, Finance Annex, Tables 9 and 11 **{CGL1/A/22}**.

4.16 CAPM can be expressed as the following equation:

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

4.17 The three central inputs to a CAPM based estimate of the required cost of equity (CoE) are:

(a) The risk-free rate, referred to in this Notice as "**RFR**".

(b) The expected market return, referred to by GEMA as "Total Market Returns" and in this Notice as "**TMR**".

(c) The "**equity beta**" (β), a measure of the systematic riskiness of equity assets of the sector in question, relative to the market as a whole.

4.18 See the KPMG Report for a fuller introduction to CAPM,[182] and each of RFR,[183] TMR,[184] and equity beta (β).[185]

4.19 As set out under Ground 2A below, GEMA has made material errors in estimating each of these three key CAPM parameters due to selective and unbalanced use of the available market evidence and an approach inconsistent with the financial theory and relevant regulatory precedent, and as a result has materially underestimated the allowed cost of equity range that forms the starting point for the baseline allowed cost of equity in RIIO-2.

4.20 The following table sets out the parameter values and resultant cost of equity range used by GEMA together with a more appropriate set of inputs, derived by Cadent's expert witness KPMG, that correct for GEMA's errors and in consequence lead to a more robust estimate of the cost of equity:

CAPM Parameter	**GEMA's FD step 1 estimates**[186]	**KPMG estimates**[187]
RFR[188]	-1.58%	-1.16%
TMR	6.25% to 6.75%	7.00% to 7.20%
Asset beta[189]	0.323 to 0.373	0.36 to 0.40
Equity Beta	0.694 to 0.819[190]	0.78 to 0.89[191]

[182] KPMG Report, Sub-Section 4.2.
[183] KPMG Report, Paragraphs 6.1.1 to 6.1.3.
[184] KPMG Report, Paragraphs 5.2.1 to 5.2.2.
[185] KPMG Report, Paragraphs 8.1.2 to 8.1.5.
[186] FDs, Finance Annex, Table 11 **{CGL1/A/22}**.
[187] KPMG Report, Paragraph 2.4.1 and Table 1 therein.
[188] In both cases an average, applying a forward curve uplift of 0.16%, for consistency with GEMA's approach to presenting this figure; see FDs, Finance Annex, Tables 11 and 7 **{CGL1/A/22}** and KPMG Report, Paragraph 6.4.13.
[189] Using a debt beta of 0.075; see FDs, Finance Annex, Table 9 **{CGL1/A/22}** and KPMG Report, Paragraph 2.4.1, Table 1.
[190] Applying a notional gearing of 60%; see FDs, Finance Annex, Table 9 **{CGL1/A/22}** for further breakdown on how this final notional equity beta figure is arrived at by GEMA.
[191] Applying a notional gearing of 60%; see KPMG Report, Paragraph 2.4.1, Table 1, for further breakdown on how this final notional equity beta is arrived at by KPMG.

CAPM Parameter	GEMA's FD step 1 estimates[186]	KPMG estimates[187]
Step 1 CAPM-implied allowed cost of equity range	3.85% to 5.24%	5.18% to 6.24%

Step 2: cross-checks of the CAPM-implied cost of equity

4.21 GEMA's decision in respect of Step 2 of its process for setting an allowed cost of equity is set out in Paragraphs 3.101 to 3.121 of the Final Determinations' Finance Annex.

4.22 In step 2, GEMA applies a number of cross-checks to the range it has reached in Step 1 and uses these to establish an initial point estimate for the cost of equity within that range. (Subsequently, in its third and final Step 3, GEMA further adjusts the point estimate to derive its allowed return on equity. This further adjustment is the subject of Ground 3 of the appeal.)

4.23 GEMA describes Step 2 of its process as "*designed to check CAPM results against other information on equity investor expectations*" and states that "*Doing so helps provide assurance that the estimate for the cost of equity is not unduly influenced by individual or combined CAPM parameters, all of which have a degree of uncertainty*".[192]

4.24 For cross-checks, GEMA relies on a combination of market to asset ratios ("**MARs**"), implied internal rates of return ("**IRR**") from offshore transmission owner ("**OFTO**") bids, investment professional forecasts, selected infrastructure fund discount rates and Modigliani Miller ("**M&M**"). On the basis of these cross-checks, GEMA narrows and lowers its range from the step 1 CAPM-implied range of 3.85% to 5.24% to 3.8% to 5.0%.[193] GEMA adopts a step 2 point estimate of 4.55%,[194] which represents the arithmetical mid-point of GEMA's step 1 CAPM-implied range.

4.25 As set out under Ground 2A below, GEMA erred in selecting cross-checks that do not appropriately reflect the risk of RIIO-regulated energy networks, and in particular gas networks.

4.26 Moreover, as set out under Ground 2B below, in selecting a step 2 point estimate of 4.55%, GEMA:

(a) rejected the principle of choosing a point estimate that "aims up" from the middle of its CAPM-implied cost of equity range, contrary to consistent regulatory precedent[195] and the wide range of other evidence for so doing; and

(b) wrongly suggests that setting its point estimate in the middle of its CAPM-implied cost of equity range is "*arguably consistent*"[196] with aiming up, on the basis of such point estimate being above the mid-point of GEMA's lowered step 2 range.

[192] SSMD, Finance Annex, Paragraph 3.181 **{CGL1/A/6}**.
[193] FDs, Finance Annex, Paragraph 3.121 **{CGL1/A/22}**.
[194] ibid.
[195] Including the CMA in the PR19 Provisional Findings **{CGL1/C/32}** (as varied by its Cost of Capital Consultation) aiming up by around 0.25% above the middle of its cost of equity allowance range. As the CMA's PR19 Cost of Capital Working Paper **{CGL1/C/36}** puts it, "*There is a history of setting the cost of capital by using a rage, and then setting the point estimate from the top half of that range, both in the UK and internationally*". Positioning of the WACC point estimate in UK regulatory decisions since 2004 is also surveyed in the UKRN Study, Section 8.2 **{CGL1/C/22}**. Further, as cited in Paragraph 9.4.4 of the KPMG Report, in 2014 Oxera found that between 2008 and 2014 UK regulators on average have aimed up to the 73rd percentile.
[196] FDs, Finance Annex, Paragraph 3.186 **{CGL1/A/22}**.

4.27 GEMA's failure to aim up against the mid-point of its CAPM-implied range compounds the downward bias introduced by a step 1 CAPM-derived cost of equity range that relies on inappropriately estimated parameter inputs.

C. GROUND 2A (ERRORS IN ESTIMATING CAPM PARAMETERS)

4.28 GEMA has erred in setting each of the three main CAPM parameters. It has underestimated the RFR, TMR and equity beta, in each case by taking a selective approach to the available market evidence in order to support parameter choices that are inappropriately biased towards a reduction in the cost of equity estimate used by GEMA. GEMA has also erred in relying on inappropriate cross-checks to validate its CAPM-based estimate, when more appropriate cross-checks would have demonstrated that it was invalid.

(1) RFR Errors

4.29 GEMA's approach to setting the RFR, and its methodological errors therein, are set out in detail in Section 6 of the KPMG Report.

4.30 In short, GEMA estimates RFR exclusively by reference to ILG yields (the yields of 20-year RPI linked UK government gilts) observed during a one-month period in the October preceding each RIIO-GD2 price control year and adjusted from RPI to CPIH terms using 4-year RPI and CPI forecasts from Office for Budget Responsibility ("**OBR**") (2024 at the FD) in the OBR's preceding annual March publication.[197]

4.31 Using this methodology, GEMA arrived at an estimate for the average real RFR over the price control period of -1.58%;[198] this is an estimated average figure over the GD2 period as the indexed nature of GEMA's RFR means it will be updated on a yearly basis.

4.32 In employing this approach, GEMA has erred for two reasons:

(a) The sole use of ILGs as a basis for estimating the RFR clearly underestimates the RFR that can actually be achieved by borrowers and lenders in the economy.

(b) The use of a short averaging window of only one month to determine an RFR point estimate in respect of each year is not robust and is liable to introduce undue volatility and distortions into the estimation process.

(A) RFR Errors – Use of ILGs

4.33 The sole use of ILG yields as a proxy for the RFR is inappropriate. As explained more fully in the KPMG Report, a key requirement of the RFR in the CAPM is that all relevant market participants can borrow as well as lend at the relevant rate.[199] ILG yields, however, do not adequately capture the rates at which market participants, other than government, can borrow.[200] This is explained in the corporate finance literature[201] by the presence of a "convenience yield"

[197] KPMG Report, Paragraph 6.2.2.
[198] Average, applying a forward curve uplift of 0.16%; see FDs, Finance Annex, Tables 11 and 7 **{CGL1/A/22}**.
[199] KPMG Report, Paragraphs 6.3.2 to 6.3.6.
[200] The KPMG Report charts comparisons between the yields on the highest quality corporate bonds and the yields on nominal Gilt over the last 20 years, illustrating this fact, see KPMG Report, Paragraphs 6.3.5 to 6.3.6 (and Figure 3 included therein).
[201] KPMG Report, Paragraph 6.3.11.

premium for government securities (which reflects the safe, money-like, liquid asset features of government debt).

4.34 There is a broad range of empirical and theoretical evidence which demonstrates that, taken alone, ILGs understate the risk-free rate. In particular:

(a) Comparisons of historical yields on AAA rated corporate debt versus historical yields on nominal gilts[202] demonstrate that even the highest rated market participants (e.g. corporate entities) cannot borrow at ILG rates.

(b) Corporate finance literature on the 'zero beta' CAPM framework[203] which relaxes the assumption of the standard CAPM framework that there has to be a single RFR at which market participants can borrow and lend, and which provides the theoretical basis for the RFR being based on a rate available on a 'zero beta' portfolio. In practice, the borrowing rate that can be achieved by the most highly-rated investors, e.g. the AAA corporate borrowing rate, will be higher than the government borrowing rate, which implies that a combination of the sovereign rate and the corporate AAA rate provides the best estimate of the risk-free rate within a 'zero beta' CAPM framework.

(c) Corporate finance research[204] that explains the unique features (e.g. safe, money-like and liquid assets) of government debt that account for this difference in yield versus even the most high-quality corporate debt.

4.35 While UK regulators have used ILGs to inform the RFR in the past, as the CMA notes in the PR19 Provisional Findings[205] and as illustrated in the KPMG Report,[206] historically this has been accompanied by various forms of upward adjustment (e.g. by way of a "dragging anchor" smoothed estimate based on a longer-term view of interest rates) to the RFR from that implied by observed spot yields. In its spot based index approach, GEMA does not incorporate such adjustment, and as a result relies on too low an estimate of the RFR.

4.36 GEMA has wrongly decided to estimate the RFR solely based on ILG yields as it has ignored available evidence and recent regulatory best practice, including in particular the CMA's own approach in respect of PR19.

The CMA's findings in PR19

4.37 In the course of the PR19 redeterminations, the CMA considered extensive evidence on whether it was appropriate to use ILGs as the sole proxy for the RFR. The CMA, like KPMG, provisionally concluded that:

> "*ILGs do not meet the first requirement of the RFR as applied in the CAPM, that all market participants can borrow at the same rate"*[207]

4.38 The CMA went on to note that:

> "*appropriate maturity ILGs remain a useful input to the RFR estimation process, but that they are unlikely to provide a perfect (or wholly sufficient) proxy for the RFR in isolation*."[208]

[202] KPMG Report, Paragraphs 6.3.5 to 6.3.6 (and Figure 3 included therein).
[203] KPMG Report, Paragraphs 6.3.8 to 6.3.10 and Appendix 2.
[204] KPMG Report, Paragraph 6.3.11.
[205] PR19 Provisional Findings, Paragraph 9.80 **{CGL1/C/32}**.
[206] KPMG Report, Paragraphs 6.3.14 to 6.3.18 and Figure 3 therein.
[207] PR19 Provisional Findings, Paragraph 9.86 **{CGL1/C/32}**.
[208] PR19 Provisional Findings., Paragraph 9.88 **{CGL1/C/32}**.

4.39 In summary, the CMA's assessment was that:

> "*ILGs closely but imperfectly match the key requirements of the RFR within the CAPM model. They are very low risk but their yields demonstrate that the government can borrow at rates substantially lower than even higher-rated non-government market participants. As such, the yield on ILGs is likely to sit below the "true" estimate of the theoretical RFR, if the RFR is expressed as the yield on a "zero beta" asset*".[209]

4.40 The CMA accordingly in the PR19 Provisional Findings adopted an RFR range with an upper bound given by yields on AAA rated corporate bonds (derived from HIS iBoxx F Non-Gilt AAA indices) and a lower bound derived from ILGs.[210]

4.41 GEMA acknowledged the CMA's analysis in its FDs but chose to interpret it as support for its decision to rely solely on ILGs. Taking in isolation the CMA's observation that "*ILGs closely but imperfectly match the key requirements of the RFR within the CAPM model*", GEMA took the view that:

> "*The quoted text suggests that the use of ILGs is an acceptable basis upon which to estimate the RFR. In other words, using ILGs is not necessarily wrong, in the CMA's view*".[211]

4.42 This ignored the CMA's stated view that ILGs "*...are unlikely to provide a perfect (or wholly sufficient) proxy for the RFR in isolation"*[212] and that "*the yield on ILGs is likely to sit below the "true" estimate of the theoretical RFR"*. It also ignored the fact that the CMA had used the same language that GEMA relies on to support the use of ILGs as a proxy for the RFR, i.e. "*closely but imperfectly match the key requirements of the RFR within the CAPM model*"[213] with regards to corporate AAA rated debt. This is clearly not a satisfactory basis upon which to base elements of a price control. GEMA should have estimated the RFR taking account of all of the available evidence, which taken as a whole does not support the sole use of ILGs.

GEMA's error in concluding that there is no better way than ILGs to calculate the RFR

4.43 Having acknowledged the potential shortcomings of relying solely on ILGs, GEMA nonetheless concluded that:

> "*Having considered the alternatives, we could not confirm a necessarily better estimation method. Relying on ILGs alone is simpler, more principled, and supported by greater precedent, than other methods or combinations of methods*".[214]

4.44 This conclusion is mistaken for the following reasons, each of which is explained more fully in Paragraphs 6.3.19 to 6.3.37 of the KPMG Report:

(a) GEMA's position that academic literature and the regulatory precedent favour sole use of ILGs ignores both the significant body of academic literature referred to above and (as noted above) that until recently regulatory precedent has involved an upward adjustment to/smoothing of ILG spot yields which has masked the issue and which GEMA has moved away from.

(b) The arguments made by GEMA against the use of the AAA corporate debt rate misrepresent the theoretical and empirical evidence; in particular through placing undue

[209] ibid., Paragraph 9.135.
[210] ibid., Paragraph 9.140.
[211] FDs, Finance Annex, Paragraph 3.10 **{CGL1/A/22}**.
[212] PR19 Provisional Findings, Paragraph 9.88 **{CGL1/C/32}**.
[213] PR19 Provisional Findings, Paragraph 9.137 **{CGL1/C/32}**.
[214] FDs, Finance Annex, Paragraph 3.23 **{CGL1/A/22}**.

emphasis on the marginal investor in a utility being a net lender when in fact the relevant marginal investor for the purposes of the relevant CAPM RFR theory is the investor in the market portfolio, not in the asset being priced. See the additional detail provided by KPMG at Paragraphs 6.3.26 to 6.3.31 of the KPMG Report.

(c) GEMA seeks to rebut the use of AAA bonds on the basis of certain perceived issues with AAA bonds (illiquidity, specialised nature and elements of default risk) which, as set out in Paragraphs 6.3.33 to 6.3.36 of the KPMG Report, can be easily discounted/dealt with.

(d) GEMA suggests that the indexation of RFR somehow negates the risk of its approach understating the RFR or a need to "aim up".[215] As set out more fully in Paragraph 6.3.25 of the KPMG Report, the issue however is one of ILGs, used alone, not being a proper proxy for the RFR; it is not solved by indexation and is not about looking to "aim up".

(e) GEMA's use of cross-checks based on the Sterling Overnight Index Average ("**SONIA**") and nominal gilts to support the RFR, while useful for the lending rates, is flawed in respect of the RFR as a whole due to neither SONIA nor nominal gilts representing a proxy for the borrowing rates available to all relevant market participants.[216] In any event, these SONIA and nominal gilt cross-checks conducted by GEMA suggest a higher RFR than derived using GEMA's approach,[217] but GEMA placed no weight on these which rendered these cross-checks meaningless.

4.45 On a proper consideration of the available evidence, GEMA should have followed the CMA's approach in the PR19 Provisional Findings. As explained in Sub-Section 6.4 of the KPMG Report, a benchmark instrument reflecting both ILGs and AAA corporate debt would not violate the assumptions of the CAPM in the way that the sole use of ILGs does. While AAA corporate debt is not free from the risk of default in the way that government debt is, the risk of loss resulting from default is exceptionally low.[218]

4.46 Moreover, as to GEMA's assertion that a reliance on ILGs alone is "*simpler, more principled and supported by greater precedent*":

(a) "*Simple*" is not in itself an appropriate criterion for an estimation approach that gives rise to clear issues. In any event, calculating the RFR using both AAA corporate debt rates and ILGs is no less simple in any real world sense than relying on ILGs alone, as explained in Sub-Section 6.4 of the KPMG Report.

(b) The criticism of ILGs is precisely that they are not "*principled*" when assessed against the key assumptions of the CAPM.

(c) In terms of "*precedent*", GEMA ignores that the RFR has typically been set above the spot yield on ILGs. In addition, it is only recently that the underlying problem of ILGs under-estimating actual risk-free rates has been fully acknowledged due to its significant impact in the current unprecedented very low interest rate environment, which makes it inappropriate to place such extensive weight on historical precedent at the expense of taking into account the extensive consideration given to the issue by CMA in the PR19 Provisional Determination.

[215] FDs, Finance Annex, Paragraphs 3.20 to 3.21 **{CGL1/A/22}**.
[216] KPMG Report, Paragraphs 6.3.37 and 6.4.7 to 6.4.8.
[217] KPMG Report, Paragraph 6.2.6.
[218] KPMG Report, Paragraph 6.4.3.

4.47 Consistent with the PR19 Provisional Findings,[219] this is best taken into account through using both AAA rates and ILGs.[220]

(B) RFR Errors – RFR averaging window

4.48 Cadent does not object to GEMA's approach of indexing the RFR to periodically observed market evidence. However, GEMA's conclusion to use only a short one month average of the relevant proxy is inappropriate, as it introduces undue volatility into the RFR estimate (heightened by COVID-19 and Brexit) which is passed through into allowed returns, company cash flows and customer bills.

4.49 Instead, in order to avoid this undue volatility and the associated effects, KPMG note it is appropriate to apply a 6-month averaging window,[221] consistent with the CMA's PR19 Provisional Findings.[222] The KPMG Report illustrates, at Paragraph 6.3.42 and Figure 4, the heightened volatility resulting from a one-month averaging window in contrast to a 6-month window, although the move to a 6-month average will at present not result in a material change to the estimates.

4.50 Finally, as explained at Paragraphs 5.4.40 to 5.4.42 of the KPMG Report, for adjustment of ILGs and nominal AAA yields into CPI terms the use of long-run inflation assumptions (rather than the 4-year forecasts used by GEMA) is more appropriate because the inflation expectation embedded in a 20-year gilt will reflect the full period over which the bond produces cashflows. Long-term inflation assumption should have been adopted also for consistency with the rest of the CAPM parameters, as supported by the CMA's approach in the PR19 Provisional Findings and the UKRN Study[223]. Therefore, this approach should be taken by way of the methodology provided at Paragraph 6.4.14 of the KPMG Report.

4.51 In summary, GEMA should have derived its RFR estimate using:

(a) an equally weighted average of AAA rates and ILGs;[224] and

(b) applied an averaging window of 6 months (up to October of the previous year) to the relevant proxies,[225]

by way of a methodology[226] that:

(c) uses an average of (i) ILGs over the relevant 6 month window, adjusted for the long term expected RPI / CPI(H) wedge, and (ii) the average of 10+ years and 10-15 years iBoxx AAA non-Gilts over the relevant 6 month window ("**Relevant AAA non-Gilts**"), deflated into CPI terms using long run inflation assumptions.[227]

4.52 This results in the following figures (GEMA's figures included for reference):

[219] PR19 Provisional Findings, Paragraph 9.137 **{CGL1/C/32}**.
[220] KPMG Report, Paragraph 6.4.5.
[221] KPMG Report, Paragraph 6.4.10.
[222] PR19 Provisional Findings, Paragraphs 9.124 to 9.128 **{CGL1/C/32}**.
[223] Estimating the cost of capital for implementation of price controls by UK Regulators: An update on Mason, Miles and Wright (2003)", commissioned by certain members of the UKRN and dated March 2018 ("**UKRN Study**") **{CGL1/C/22}**
[224] KPMG Report, Paragraph 6.4.5.
[225] KPMG Report, Paragraphs 6.4.10 and 6.4.11.
[226] This would involve a change to the relevant methodology in the GD2 Price Control Financial Handbook **{CGL1/A/19}**.
[227] KPMG Report, Paragraphs 6.4.12 to 6.4.15 and Table 9 therein.

	GEMA FD estimates[228]	KPMG estimates [229]
ILGs, six month average	N/A	-1.62%
Relevant AAA non-Gilts, six month average	N/A	-1.02%
Forward uplift of 16 bps[230]	0.16%	0.16%
RFR (average, applying a forward curve uplift of 16 bps)	-1.58%	-1.16% (average of ILGs and Relevant AAA non-Gilts figures in rows above, plus 0.16 bp uplift)

(2) TMR Errors

4.53 GEMA has calculated its TMR range incorrectly by, in respect of the historical ex post approach that forms the primary basis of its estimated TMR:

(a) applying an incorrect approach to deflating historical nominal returns, in the form of deflation of underlying nominal returns solely based on a back-cast CED/CPI BoE composite historical CPI series (the "**BoE Millennium Dataset (CPI)**");[231] and

(b) applying an incorrect approach to deriving the annual average of historical returns needed to reach a TMR estimate, in the form of misapplying the geometric average plus volatility adjustment method GEMA chose to use and failing to take into account the evidence provided by alternative averaging approaches supported by the academic literature and by relevant regulatory precedent.

4.54 GEMA has then:

(a) used inappropriate downwardly skewed forward-looking cross-checks with material limitations, as recognised by the CMA and financial literature;[232] and

(b) failed to use cross-checks based on historical ex ante evidence or fully consider international evidence, in arriving at its final chosen TMR range of 6.25% to 6.75%. Appropriate use of cross-checks reveals that GEMA's TMR range is understated and supports the TMR proposed herein.

[228] FDs, Finance Annex, Table 11 **{CGL1/A/22}**.
[229] KPMG Report, Paragraph 6.4.15 and Table 9 therein.
[230] KPMG Report, Paragraph 6.4.13; for consistency with GEMA approach to presenting an ex ante RFR estimate. Note, as explained in the KPMG Report, Paragraph 6.2.2: "*GEMA presented the numbers after applying a forward rate uplift, however given indexation, the sole aim of the uplift is to present the best ex ante estimate of the RFR (post-indexation) over the price control rather than at the start.*"
[231] See KPMG Report, Paragraphs 5.3.3 and 5.4.6; 'A Millennium of UK Data', Bank of England OBRA dataset, tab A47 **{CGL1/H/39}**
[232] KPMG Report, Paragraphs 5.4.67 to 5.4.70.

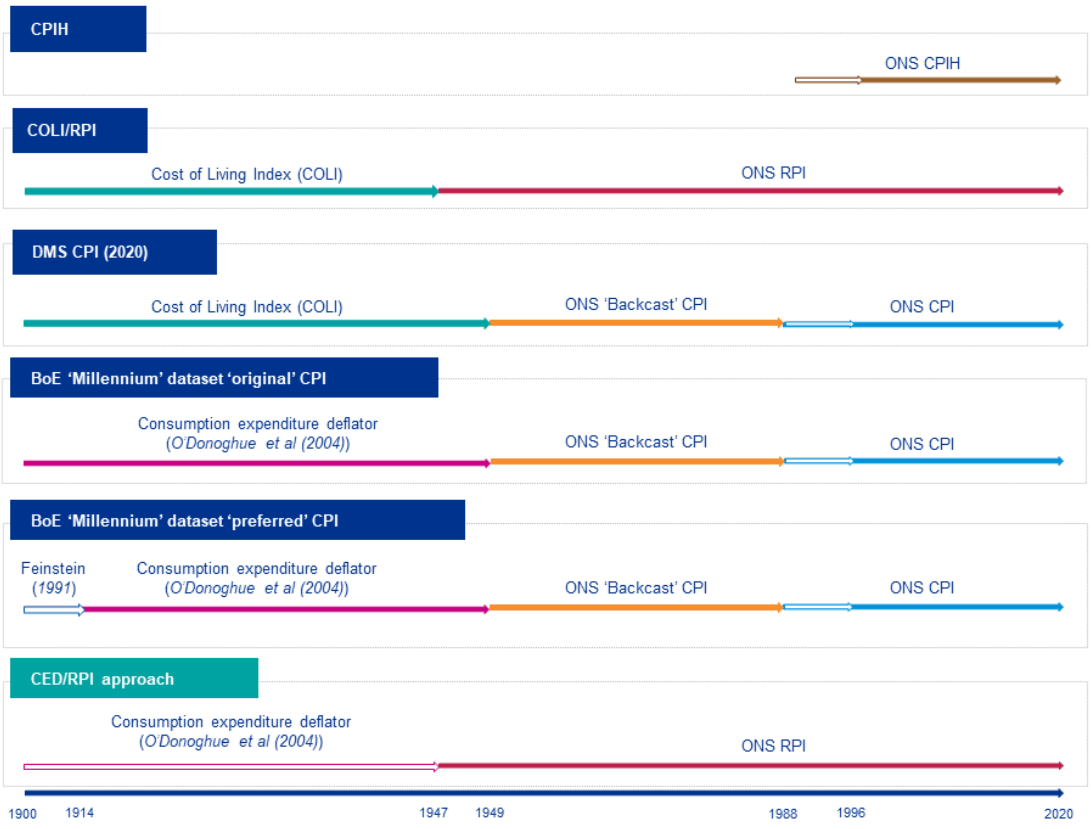
(A) *TMR Errors – Use of Incorrect Approach to Deflating Historical Nominal Returns*

4.55 In estimating TMR, GEMA needed to convert the nominal historical returns extracted from its chosen set of historical returns data[233] into real returns using an appropriate historical inflation series across the relevant 116 year historical period.

4.56 In line with the approach of the UKRN Study, GEMA chose to solely rely upon the BoE Millennium Dataset (CPI), a composite historical CPI series, as this inflation series.[234]

4.57 This dataset uses different approaches over different time periods, but, most relevantly in the context of this error, relies on an Office for National Statistics ("**ONS**") modelled "back-cast" CPI for a significant period of time.

4.58 Full details on the make-up of GEMA's/the UKRN Study's preferred BoE Millennium Dataset (CPI), and the alternative relevant recognised UK historical composite inflation series, are set out in Paragraphs 5.4.5 to 5.4.7 (and Figure 1 therein) of the KPMG Report. For ease of reference, we repeat below the graphical representation at Figure 1 of the KPMG Report of these alternative data series. The fifth bar down in the graph ("BoE 'Millennium' dataset 'preferred' CPI") is the BoE Millennium Dataset (CPI) used by GEMA:



Source: KPMG Report, Figure 1, "Possible approaches to constructing composite inflation series using publicly available data for the UK back to 1900"

4.59 GEMA was wrong to use the BoE Millennium Dataset (CPI) as the sole inflation series when deflating the historical nominal TMR.

[233] The DMS Global Investment Returns Yearbook, see KPMG Report, Paragraph 5.4.3.
[234] FDs, Finance Annex, Paragraph 3.87 **{CGL1/A/22}**.

4.60 In taking this approach and not using a data series incorporating actual RPI data, GEMA and the UKRN Study take the position that RPI is not the best measure of inflation expectations, with GEMA in particular noting that "*CPI is a more reliable measure of inflation"* (than RPI) (evidenced by the systematic change to RPI in 2010) and that *"investors would today consider CPI or CPIH the best proxy for inflation expectations in assessing a real return*".[235] The UKRN Study asserts that "*the ONS and the Bank of England have published consistent historical estimates of the CPI*".[236]

4.61 GEMA's position is wrong for several reasons.

4.62 **First**, it ignores the fact that for a substantial period (1950 to 1988) the BoE Millennium Dataset (CPI) uses an ONS estimated back-cast series,[237] upon which the ONS authors have publicly cautioned against placing reliance[238] and which uses an underlying model that is not available and therefore cannot be scrutinised. The KPMG Report demonstrates that the assertion in UKRN Study that "*the ONS and the Bank of England have published consistent historical estimates of the CPI*"[239] is not supported by the evidence and is contrary to the caveats and reservations expressed by both the ONS authors and the BoE with regards to the back-cast CPI series.

4.63 **Second**, it ignores key advantages of using a data series which uses actual ONS RPI data:

(a) RPI was historically the UK's preferred measure of inflation (a reported National Statistic until 2013, used as a basis for construction of ILGs and so forth) and therefore was the reported measure upon which business and investment decisions were made. It is striking that to ignore RPI in deflating returns represents ignoring the actual reported official inflation statistic for the longest portion of the relevant historical returns period (i.e. 1947 to 2013).

(b) Back to June 1947 RPI is available in the form of actual reported data and therefore is not vulnerable to the same modelling issues as the back-cast CPI measure.

4.64 **Third**, GEMA was wrong to dismiss the use of RPI on the grounds of it not being the best measure of inflation going forwards and the methodological changes made in 2010:

(a) GEMA's position that RPI should not be embedded in an estimate of ex-ante return conflates the question of the most appropriate measure of inflation going forwards with the most appropriate measure of inflation for deflating observed historical returns. Using different measures of inflation for these distinct purposes is not inconsistent as each reflects the best contemporaneous measure of inflation.

(b) In arguing that RPI should be disregarded because of the methodological changes made to it in 2010[240] GEMA ignored the fact that if necessary this can be taken into account through adjustment/weighting (with total disregard for RPI a wholly disproportionate remedy) and ignores the fact that there is inherent (and unavoidable) uncertainty in other areas of the historical data and therefore the 2010 changes should be viewed in the context of (and indeed may be offset by) other such historical issues.[241] Therefore, it is

[235] SSMD, Finance Annex, Paragraph 3.81 **{CGL1/A/6}**.
[236] UKRN Study, Sub-Section 4.2 **{CGL1/C/22}**.
[237] ONS, "Modelling a Back Series for the Consumer Price index", Robert O'Neill and Jeff Ralph, 2013 **{CGL1/C/13}**.
[238] KPMG Report, Paragraph 5.4.16
[239] UKRN Study, Sub-Section 4.2 **{CGL1/C/22}**.
[240] SSMD, Finance Annex, Paragraph 3.81 **{CGL1/A/6}** and see also KPMG Report, Paragraphs 5.4.24 to 5.4.25.
[241] See KPMG Report, Paragraphs 5.4.25 and 5.4.27 to 5.4.33, which highlight in particular the uncertainty in the pre-1938 data used in the data series.

simply not proportionate or justified to discount the use of historical RPI data on the basis of the 2010 systematic change to RPI.

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

4.66 The CMA clearly recognised the issues set out above in the PR19 Provisional Findings, with the CMA stating that:

> "*over the last 70 years – the period for which both CPI and RPI figures are available – the CPI inflation numbers are modelled for around 40 of these years, more than half the period. While this 'backcast' has been estimated using a sophisticated econometric approach, it is impossible to know how accurate the figures are.*
>
> *In contrast, the relevant data has been collected and actual RPI figures produced for the whole of the last 70 years, providing greater certainty over the actual figures (albeit recognising the data issues set out above)*"[242]

4.67 GEMA however takes the view that its TMR range of 5-6% "*is not necessarily wrong in the CMA's view*".[243] Similarly to GEMA's justification for its approach to RFR, GEMA seeking to support its decisions on the basis they are "not necessarily wrong" is not appropriate. GEMA should aim to arrive at the best possible estimate of TMR based on all the available evidence, and as discussed above (and in line with the conclusion reached by the CMA in the PR19 Provisional Findings) the evidence does not support exclusive reliance on a CPI based reference series.

4.68 GEMA's approach to deflating the historical nominal TMR using solely the BoE Millennium Dataset (CPI) is wrong, as it does not reflect the best evidence available to GEMA in determining the TMR and contributes to GEMA's resulting TMR range not reflecting the best estimate of actual TMR.

4.69 Instead, as set out in the KPMG Report[244], the available evidence best supports an approach which uses both the CED/RPI series[245] and a CED/CPI series, with the CED/RPI series given at least equal weighting to CED/CPI.

4.70 Therefore, the TMR should be calculated using both:

(a) the CED/RPI Series; and

(b) the CED/CPI series (in the form of the BOE 'Millennium' dataset 'original' CPI Series)[246] [247]

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[242] PR19 Provisional Findings, Sub-Paragraphs 9.160(d) and (e) **{CGL1/C/32}**.
[243] FDs, Finance Annex, Paragraph 3.96 **{CGL1/A/22}**.
[244] KPMG Report, Section 5.
[245] See KPMG Report, Paragraph 5.4.6 for details of this series. The bottom bar in the graph at Paragraph 4.58 above ("CED/RPI approach") also illustrates this series.
[246] As shown above in Paragraph 4.58, in respect of a CED/CPI series GEMA had two primary options (i) the "BoE 'Millennium' dataset 'preferred' CPI", or (ii) the "BoE 'Millennium' dataset 'original' CPI" series. Both of these datasets use the same CPI and CED data back until 1914, however from 1900 to 1914 the former series used by GEMA uses estimates by Feinstein (1991).
As set out in Paragraphs 5.4.34 to 5.4.39 of the KPMG Report, while the impact of the choice between the two is not material, the figures from Feinstein are based on relatively narrow analysis and both Ofwat and the CMA chose to use the BoE 'Millennium' dataset 'original' CPI series in respect of PR19. Therefore, in respect of CED/CPI the use of the BoE 'Millennium' dataset 'original' CPI series is proposed.
[247] See KPMG Report, Paragraph 5.4.6 for details of this dataset; 'A Millennium of UK Data', Bank of England OBRA dataset, tab A47 **{CGL1/H/39}**.

with the CED/RPI Series used on at least an equally weighted basis to the CED/CPI series.[248]

(B) TMR Errors – Use of Incorrect Averaging Approach

4.71 The second aspect of GEMA's error in calculating its CAPM TMR range is using an annual averaging approach that:

(a) incorrectly applies the UKRN Study based geometric average returns plus volatility uplift, by way of underestimating the level of the uplift required; and

(b) incorrectly places sole reliance on the approach used where a geometric average of the historical returns is uplifted by an estimated volatility adjustment, rather than also taking account of evidence from alternative averaging techniques (such as use of average geometric returns implied by 10 and 20-year overlapping and non-overlapping windows, Blume and JKM adjusted returns, and alternative approaches to calculating the uplift needed to geometric averages)[249] as supported by the evidence, finance theory and regulatory precedent.

4.72 As set out in Paragraphs 5.4.58 to 5.4.60 of the KPMG Report, the volatility adjustment applied by GEMA to geometric average returns to reach its TMR understates the uplift needed as a result of downwards bias in analysis by PwC upon which GEMA placed reliance.

4.73 Further, as set out in Paragraphs 5.4.61 to 5.4.63 of the KPMG Report, review of the averages resulting from using alternative averaging approaches such as those put forward by Blume (1974), Jacquier, Kane and Marcus (2005: JKM),[250] together with relevant recent CMA/CC precedent, demonstrates that GEMA's proposed range is downwardly skewed from the mid-point derived using such a range of robust averaging techniques, further showing it is too low.

4.74 Instead, TMR should be calculated:

(a) using a range of averaging approaches across a range of holding periods; and

(b) deflating returns using both CED/RPI and CED/CPI on an equally weighted basis and using CED/RPI and CED/CPI[251] on a 70:30 basis, thereby giving CED/RPI at least equal weighting,

by way of the methodology more fully set out in Paragraphs 5.5.3 to 5.5.5 of the KPMG Report. As set out by KPMG, this results in a TMR range of 7.0% to 7.2%,[252] with a mid-point of 7.1%. This mid-point of 7.1% is also consistent with the number derived from the average across all suggested averaging approaches[253] (and holding periods), using CED/RPI and CED/CPI on an equally weighted basis,[254] providing further support for the use of this point estimate.

(C) TMR Errors – Cross-Checks

4.75 At the SSMD stage, GEMA solely relied on cross-checks of its approach to TMR using CEPA's forward looking Dividend Growth Model ("**DGM**") and investment manager forecasts.[255] While

[248] KPMG Report, Paragraph 5.4.55.
[249] KPMG Report, Paragraph 5.4.65; for further information on the different averaging approaches see KPMG Report, Appendix 1.
[250] For further information on the different averaging approaches see KPMG Report, Appendix 1.
[251] See footnote 246.
[252] KPMG Report, Paragraph 5.5.5.
[253] Namely, based on the average of the following estimates: Blume (1974), JKM (2005) unbiased, JKM (2005) MSE, overlapping and non-overlapping returns at 10 and 20-year holding periods. See KPMG Report, Paragraph 5.5.4 and Table 4 therein.
[254] KPMG Report, Paragraph 5.5.5.
[255] SSMD, Finance Annex, Paragraph 3.48 **{CGL1/A/6}**.

GEMA appeared in its DDs and FDs to no longer place emphasis on these cross-checks,[256] it maintained at FDs its TMR range of 6.25% to 6.75% arrived at the SSMD stage (and narrowed from its pre-cross-check range of 6% to 7%)[257] suggesting that no material change to GEMA's approach to cross-checking was taken.

4.76 As set out in detail in Paragraphs 5.4.67 to 5.4.78 of the KPMG Report, this approach to cross-checking is not appropriate, as DGM estimates are recognised (including by the CMA in the PR19 Provisional Findings)[258] as too volatile and too reliant on judgement for key parameters, and investment manager forecasts are recognised as subjective, as having the potential to be downward biased and as producing an overly wide range of estimates. Specifically:

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

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

4.77 Further, GEMA noted in the SSMC and FDs[259] (drawing on the UKRN Study) that the use of UK returns measured in US Dollar terms provided it comfort that its assumptions on inflation adjustment were reliable. Paragraphs 5.5.13 to 5.5.22 of the KPMG Report discuss this and conclude that international evidence on TMR in fact also points to GEMA's proposed TMR range being understated.

4.78 An appropriate historical ex ante approach to cross-checking TMR (using Dimson March and Staunton ("**DMS**") historical decomposition) is set out in Paragraphs 5.5.7 to 5.5.12 of the KPMG Report. The use of this cross-check, which GEMA has not considered, and international evidence would have revealed the errors made by GEMA in respect of the TMR range and are consistent with (albeit above) the range from a corrected historical ex post approach.[260]

(D) TMR Errors – Conclusion

4.79 In summary:

(a) The TMR cross-checks that GEMA used to assure itself that its approach to TMR is correct are inappropriate.

(b) An appropriate historical ex ante cross-check supports the TMR range derived from KPMG's proposed deflation and averaging methodology.

4.80 Had GEMA instead taken a balanced approach to the available "cross-check" evidence, GEMA would have realised that its TMR range was biased downwards, and it should have made an adjustment to the TMR range as a result and/or revisited its approach to estimating TMR.

4.81 A TMR estimation methodology (as set out above at Paragraph 4.74) using an appropriate approach to deflating and averaging of historical returns, and therefore corrected for the errors set

[256] See for example DDs, Finance Annex, Appendix 3, Consultancy report 8, Page 201 **{CGL1/A/12}** and FDs, Finance Annex, Appendix 2, Consultancy report 15, Page 166 **{CGL1/A/22}**.
[257] SSMD, Finance Annex, Paragraphs 3.103 to 3.104 **{CGL1/A/6}**.
[258] PR19 Provisional Findings, Paragraphs 9.220 and 9.214 **{CGL1/C/32}**.
[259] FDs, Finance Annex, Paragraphs 3.90 to 3.91 **{CGL1/A/22}**.
[260] KPMG Report, Paragraphs 5.5.7 to 5.4.12.

out above, leads to the following TMR range which is consistent with a set of appropriate cross-checks:

	GEMA's FD estimates[261]	**KPMG estimates**[262]
TMR	6.25% to 6.75%	7.0% to 7.2%

(3) Equity Beta Errors

4.82 The KPMG Report discusses and analyses, in Section 7, the comparative risk faced by investors in GB GDNs versus those risks faced by investors in NG and the water sector companies that GEMA has used to ultimately determine the equity beta applied to Cadent. This analysis takes into account the paradigm shift in the risk environment for GDNs as a result of the building momentum of the Net Zero agenda. The impacts on Cadent of this paradigm shift are further explained in the Witness Statement of David Moon.[263]

4.83 This analysis finds that GEMA's approach to reaching its allowed return on equity fails to properly take into account:

(a) ***Certain systematic risks*** faced by GDNs in respect of Net Zero, in particular (but not solely) resulting from the systematic component of the greater degree of uncertainty of expected future payoff of investments and the long-term demand risk given Net Zero; see Paragraphs 7.4.39 to 7.4.70 of the KPMG Report.

(b) ***Certain asymmetric risks:***

(i) ***structural asymmetric business risks*** faced by GDNs as a result of the demand risk arising from Net Zero; see Paragraphs 7.4.17 to 7.4.33 of the KPMG Report; and

(ii) risk as a result of ***asymmetry in the GD2 package***; see Paragraphs 7.4.34 to 7.4.38 of the KPMG Report.

(c) ***Real options:***[264] in light of the uncertainty arising from Net Zero, investors will require a premium for investments to be frontloaded in the present, given that they have the alternative of adopting a "wait and see" approach, investing once they see how uncertainty around Net Zero resolves in the future;[265] see Paragraphs 7.4.15 to 7.4.16 and 7.4.71 to 7.4.82 of the KPMG Report.

4.84 As explained in the KPMG Report,[266] under the CAPM only systematic risk is priced (through the equity beta component). Properly taking account of systematic risk (including impact from relevant real option value)[267] is therefore discussed in this Ground 2A(3).

[261] FDs, Finance Annex, Table 11 **{CGL1/A/22}**.
[262] KPMG Report, Paragraph 5.5.5.
[263] 1st Moon ¶¶ 21-30.
[264] As set out in Paragraph 7.4.11 of the KPMG Report, real options relate to it being prudent for investors to "wait and see" how uncertainty resolves before committing capital. In order to incentivise investment in the presence of such uncertainty the cost of equity needs to reflect this option value.
[265] Such real options also have an impact on increasing a firm's beta, to the extent that the firm can be viewed as a portfolio of the underlying asset plus a call option
[266] KPMG Report, Paragraph 7.4.12.
[267] KPMG Report, Paragraph 7.4.81.

4.85 Conversely, asymmetric risk is not taken into account by CAPM and therefore requires an adjustment outside CAPM.[268] Therefore, properly taking into account the asymmetric risks alluded to above and relevant real option value, is discussed in Ground 2B (Failure to "aim up") below.

4.86 Through using the right beta comparator set of companies, and weighting this set of companies properly, the full range of systematic risks (including the impact of real options on beta) in respect of GDNs can be taken into account in the CAPM equity beta parameter. However, GEMA's choice and weighting of comparator companies for estimating equity beta fails to do this.

4.87 Therefore, equity beta should be set on the basis of a different comparator set and approach to weighting thereof. This is set out below under the heading "*Equity Beta Errors – Benchmarking/comparator selection*".

4.88 In addition, GEMA has made a number of technical methodological errors in its approach to arriving at its equity beta figure. These, and the proposed remedy to them, are set out below under the heading "*Equity Beta Errors – Technical Approach*".

(A) Equity Beta Errors – Benchmarking/comparator selection

4.89 In estimating equity beta, there exists the unavoidable challenge that there are no publicly listed UK pure-play GDNs. GEMA therefore has to rely on a set of proxies which, in order to be informative, should mirror the systematic risks of GDNs as closely as possible. GEMA's choice of comparator companies for estimating equity beta for the purposes of RIIO-GD2, namely NG (Group) and the listed UK water companies Severn Trent, United Utilities and Pennon ("**UK Water Comparators**"),[269] however, fails this test.

4.90 **First,** GEMA has placed too much weight on beta data from water companies, with water companies forming three out of four of the comparators used:[270]

(a) While water companies are relevant comparators to energy networks because they are utilities and are subject to broadly similar regulation, as set out in the KPMG Report, they face a significantly different set of systematic risks[271] than energy networks generally and gas networks specifically. GEMA's consultants, CEPA, have carried out a limited risk benchmarking exercise which fails to take account of the full set of systematic and asymmetric risk as well as available real options that affect required equity returns for GDNs and which lead to differences between risk and therefore required equity returns for the gas distribution and UK water sectors. The KPMG Report presents a detailed risk assessment, with this difference demonstrated both through detailed analysis and benchmarking[272] and from review of NG's beta and review of a carefully selected group of European comparators.[273]

(b) It seems that GEMA may have belatedly recognised this issue at the stage of Final Determinations, where GEMA decided that "*placing greater weight on National Grid's (NG) observed beta*",[274] would be appropriate albeit without explanation. However,

[268] KPMG Report, Paragraphs 7.4.13 to 7.4.14.
[269] FDs, Finance Annex, Paragraphs 3.64 to 3.80 **{CGL1/A/22}**.
[270] GEMA's estimation of equity beta in CAPM for the purposes of GD2 uses outturn data from the FTSE all share index to estimate the market return and, as the comparators designed to represent the systematic risk exposure of the energy network licensees, four FTSE listed reference companies, National Grid plc ("**NG**"), Pennon Group PLC, Severn Trent plc, and United Utilities Group plc.
[271] KPMG Report, Paragraphs 7.4.39 to 7.4.52.
[272] KPMG Report, Section 7 and Appendix 3.
[273] KPMG Report, Paragraphs 7.4.44 to 7.4.70 and Appendix 3.
[274] FDs, Finance Annex, Paragraph 3.69 **{CGL1/A/22}**.

GEMA still chose a beta point estimate that falls squarely within the range of beta evidence from water comparators and therefore plainly did not reflect the difference in risks between the sectors.

4.91 **Second**, GEMA has failed to recognise the impact of NG's lower risk US business on NG's Group beta, which biased downwards the beta derived using this approach. The US business is lower risk than the GB business because it is subject to "rate of return" regulation and accounts for circa 40% of the Group's operating profit during the last 10 years.[275] The KPMG Report, at Paragraphs 8.4.13 to 8.4.26, provides detailed decomposition of NG's beta, in order to arrive at an equity beta for the UK business (i.e. the aspect relevant as a comparator to Cadent's beta). Based on a prudent interpretation of the evidence and recognising the sensitivity of decomposition as discussed in the KPMG Report,[276] this results (using KPMG's averaging methodology) in an NG UK asset beta above 0.4.[277] This evidence implies that GEMA's overall asset beta mid-point of 0.349[278] is materially understated.

4.92 **Third**, GEMA has failed to take into account evidence from relevant European comparators. This appears to be because the inclusion of the European comparators, based on the sample developed by CEPA at Draft Determinations, would not have altered GEMA's estimate materially.[279] However, as KPMG sets out,[280] CEPA's analysis suffers from too narrow a selection of comparators, which in addition includes inappropriate businesses that have features indicating a lower risk profile. These factors in combination introduce a downward bias to CEPA's estimates which GEMA then adopts. KPMG's analysis at Paragraphs 7.4.53 to 7.4.63 and Appendix 4 of the KPMG Report provides and explains an appropriate set of comparators operating in Western Europe ("**KPMG European Comparators**").[281] Beta evidence from these comparators, as set out in Paragraphs 8.4.7 to 8.4.12 of the KPMG Report, should be taken account of as part of a prudent interpretation of the data in calculating an equity beta that properly takes account of the relevant systematic and real options risks faced by GDNs.

4.93 A combination of asset betas from UK Water Comparators, NG (Group), NG's decomposed UK business, and KPMG European Comparators should therefore be used to derive a robust and unbiased equity beta estimate. The methodological technical corrections to the asset beta calculation (as set out in the "*Technical approach*" section immediately below), leads to a corrected asset beta range of 0.36 to 0.40,[282] with the UK Water Comparators providing the 0.36 figure as the lower bound of this range only (where KPMG state any point estimate should sit comfortably above this evidence) and the top-end 0.40 figure derived from a prudent interpretation of the NG (Group) (0.39), KPMG European Comparators (0.40) and NG decomposition (0.40 to 0.51) asset beta figures.[283]

[275] KPMG Report, Paragraph 8.4.13.
[276] KPMG Report, Paragraphs 8.4.24 and 8.5.7.
[277] KPMG Report, Paragraphs 8.4.24.
[278] FDs, Finance Annex, Table 9 **{CGL1/A/22}**.
[279] GEMA noted in the DDs 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 downward pressure on asset beta estimates, compared to our preferred four comparator stocks*". DDs, Finance Annex, Paragraph 3.51 **{CGL1/A/12}**.
[280] KPMG Report, Paragraph 7.3.5 to 7.3.8.
[281] Namely Enagas, Red Electrica, Snam, and Terna. See Paragraphs 7.4.53 to 7.4.63 and Appendix 3 and Paragraphs 8.4.7 to 8.4.12 of the KPMG Report.
[282] Using a debt beta of 0.075. See KPMG Report, Paragraph 8.5.5.
[283] All figures in brackets using a debt beta of 0.075. See KPMG Report, Paragraphs 8.5.5 to 8.5.8.

(B) Equity Beta Errors – Technical approach

4.94 As explained in Section 8 of the KPMG Report, aside from the above issues, GEMA has also made a number of methodological errors in calculating and deriving its equity beta which need to be corrected.

4.95 These are explained more fully by KPMG, but are in short that:

(a) When reaching its beta estimates GEMA has not taken into account the need for an absence of structural breaks in the estimation windows it has used. Evidence from the UK water sector suggests a structural break for UK water (and therefore relevant to the UK Water Comparators) around the PR14 period. Therefore, more weight should be placed on 5-year window estimates in respect of the UK Water Comparators. KPMG also finds visual inspection of the NG US sample supports more weight being placed on a 5-year window estimate in respect of NG's beta. See KPMG Report, Paragraphs 8.3.5 to 8.3.9 for further detail on this methodological error.

(b) GEMA's approach to averaging of "rolling beta" estimates is flawed and difficult to interpret, introducing arbitrary weighting of the underlying price signals; GEMA's average rolling beta estimates are also conceptually no more relevant to an estimate of the current pricing of risk than a spot estimate. This approach should not be used for interpretation of the data. See KPMG Report, Paragraphs 8.3.14 to 8.3.20 for further detail on this methodological error.

(c) GEMA has included data up to October 2020 for deriving its beta estimates, meaning it has failed to exclude the period effected by Covid-19 (which had a volatile and transitory negative impact on the relevant water company betas) from the sample of data used. Instead, data from 1 March 2020 onwards should be excluded in deriving beta estimates. See KPMG Report, Paragraphs 8.3.10 to 8.3.13 for further detail on this error.

(d) GEMA has relied on market values of debt in its calculation of beta, which is inconsistent with the established practice in UK regulation of allowing the efficient cost of embedded debt in the WACC allowance; and is also practically challenging to do given a large part of companies debt is not listed. Instead, unlevered beta estimates should be based on the book values of debt. See KPMG Report, Paragraphs 8.3.34 to 8.3.43 for further detail on this error.

(e) GEMA places some weight on GARCH estimates for assessing betas, despite the fact that, whilst adding considerable complexity, there is neither academic consensus, nor regulatory precedent to suggest, that GARCH estimates improve the ability to estimate beta risk versus standard OLS tools. Instead, as discussed in Paragraphs 8.3.21 to 8.3.25 of the KPMG Report, GEMA should have used solely OLS without placing weight on GARCH estimates.

(C) Equity Beta Errors – Conclusion

4.96 The result of:

(a) the correction of these technical errors; and

(b) the use of the corrected asset beta range derived from UK Water Comparators, NG (Group), NG's decomposed UK business, and European Comparators[284]

[284] See Paragraph 4.93.

is a corrected equity beta as follows (GEMA's proposed figures included for comparison purposes):

	GEMA FD estimates[285]	**KPMG estimates** [286]
Asset beta range[287]	0.323 to 0.373	0.36 to 0.40[288]
Equity beta range[289]	0.694 to 0.819[290]	0.78 to 0.89[291]

(4) Cross-Check Errors

4.97 At step 2 of its process for setting the allowed cost of equity, GEMA cross checked the step 1 CAPM-implied cost of equity range it reached on the basis of its approach to the CAPM parameters against OFTOs, MARs, infrastructure fund discount rates, investment manager forecasts and M&M.[292] On the basis of these cross-checks, GEMA argued that a lowered and more narrow allowed cost of equity range than that reached using its CAPM process is justified, namely a range of 3.8% to 5.0% instead of the step 1 range of 3.85% to 5.24%.

4.98 GEMA appears to use its step 2 cross-checks for two purposes:

(a) to provide assurance that its step-1 CAPM implied allowed cost of equity range is correct;[293] and

(b) to some extent to justify that in using the mid-point of its step 1 CAPM-implied cost of equity range GEMA is in some sense aiming up in its approach to reaching a cost of equity point estimate.

4.99 The latter of the above, in respect of aiming up, is dealt with in Ground 2B below. However, this Ground 2A(4) is concerned with making clear that GEMA's cross-checks should not be viewed as valid support for GEMA's approach to calculating the CAPM-derived cost of equity range and conversely should not be viewed as undermining the corrected CAPM parameter methodologies proposed in this Ground 2A.

4.100 The cross-checks GEMA has chosen to use in respect of its CAPM-implied range are:

(a) OFTO benchmarks;

(b) MARs in respect of UK listed water companies, NG and SSE;

(c) selected data on infrastructure fund discount rates;

[285] FDs, Finance Annex, Table 9 **{CGL1/A/22}**.
[286] KPMG Report, Paragraph 2.4.1 and Table 1 therein.
[287] Debt beta of 0.075, see FDs, Finance Annex, Table 9 **{CGL1/A/22}** and KPMG Report, Paragraph 2.4.1
[288] 0.36 (UK Water Comparators) to 0.40 (prudent interpretation of the NG (Group), KPMG European Comparators, and NG decomposition asset beta figures); see Paragraph 4.93.
[289] Applying a notional gearing of 60%; see FDs, Finance Annex, Table 9 **{CGL1/A/22}** and KPMG Report, Paragraph 2.4.1 and Table 1 therein.
[290] See FDs, Finance Annex, Table 9 **{CGL1/A/22}** for further breakdown on how this final notional equity beta figure is arrived at by GEMA.
[291] KPMG Report, Paragraph 2.4.1 and Table 1 therein.
[292] FDs, Finance Annex, Paragraphs 3.101 to 3.121 **{CGL1/A/22}**.
[293] See Paragraph 4.23 of this Notice.

(d) investment manager/advisor forecasts; and

(e) M&M.

4.101 As set out in Section 11 of the KPMG Report, KPMG conclude, citing precedent including PR19, that each of these cross-checks are demonstrably inappropriate for providing reliable evidence in setting/cross-checking the allowed cost of equity in a RIIO-2 context.

4.102 In brief summary, this is because:

(a) **OFTOs** have a very materially different risk exposure from RIIO-regulated energy network infrastructure. They are instead assets with no construction risk and significantly greater cashflow visibility achieved through a project finance structure with a wide range of de-risking contractual mechanisms which do not apply to RIIO networks. See Paragraphs 11.3.1 to 11.3.18 of the KPMG Report for further detail on this.

(b) GEMA's **MARs** cross-checks take the form of:

(i) enterprise Value ("**EV**") to regulatory asset value ("**RAV**") for certain publicly listed UK water and energy companies; and

(ii) transaction price paid for full/partial ownership versus RAV in respect of certain privately owned companies,

with GEMA finding that both of these variants of MARs cross-checks suggest an asset premia against RAV. However, as set out in Paragraphs 11.3.19 to 11.3.28 of the KPMG Report, this ignores the wide range of factors that impact these MARs tests and their use in respect of the relevant comparison companies, which results in them not being credible or robust evidence in respect of the cost of equity for regulatory control setting purposes generally, including for RIIO-2.

(c) GEMA's **infrastructure fund** cross-check considers the implied IRRs of fourteen Infrastructure Funds. However, as set out in Paragraphs 11.3.29 to 11.3.34 of the KPMG Report, the investments of the Infrastructure Funds used by GEMA do not, for a number of reasons, have a risk equivalent to that of RIIO networks (e.g. they include holdings of PPP/PFI and renewables investments), and, further, GEMA has not risk-adjusted the IRRs to account for this. (As set out below, KPMG propose an alternative valid cross-check using comparable fund IRRs.)

(d) GEMA's **investment manager/advisor forecasts cross-check** are calculated on an inconsistent basis, may not be based on complete/up to date data, and have ceilings imposed on them by the Financial Conduct Authority. This is set out in Paragraphs 11.3.35 to 11.3.37 of the KPMG Report.

(e) GEMA's **application of M&M** is not fit for purpose as a result of GEMA's approach to gearing assumptions and a failure to take account of the impact of gearing on debt beta. This is set out in Paragraph 11.3.38 of the KPMG Report.

4.103 As such, the cross-checks used by GEMA do not provide reliable evidence to support GEMA's step 1 CAPM-implied cost of equity range (let alone to justify that GEMA is aiming up in its step 2 point estimate, as dealt with in Ground 2B below).

4.104 Instead, as set out in Sub-Section 11.4 of the KPMG Report:

(a) the IRR of appropriately selected investment funds; and

(b) asset risk premium ("**ARP**") – debt risk premium ("**DRP**")

can be used to provide valid cross-checks, in the context of RIIO-GD2, to the CAPM-implied cost of equity range. These valid cross-checks support the higher cost of equity allowance implied by the corrected CAPM approach set out above.

D. GROUND 2B (FAILURE TO "AIM UP")

4.105 As set out above, at step 2 of its process for setting the cost of equity allowance, GEMA took a decision to set its step 2 cost of equity point estimate at 4.55%, which is in the middle of GEMA's step 1 CAPM-implied cost of equity range.[294] While (as explained below) GEMA sought to present this as aiming up in some sense, this clearly represents a decision by GEMA not to "aim up" against the middle of its CAPM-implied cost of equity range. In the remainder of this Ground 2B "aim up" and "aiming up" refer to the concept of setting an allowance above the midpoint derived using CAPM.

4.106 This Ground 2B, together with Section 9 of the KPMG Report, explain why this decision by GEMA not to aim up is in error together with proposing how this failure could best be remedied by the CMA.

4.107 Cadent also separately contests GEMA's decision to "aim down" (in the subsequent third and final step of GEMA's process for setting its cost of equity allowance) by way of introducing an adjustment for what GEMA terms "expected versus allowed returns" (widely referred to as the "outperformance wedge").[295] As this erroneous decision to introduce the outperformance wedge and the remedies associated with remedying it are (despite some overlap) distinct from GEMA's decision not to aim up, Ground 3 in Section 5 separately sets out the reasons why the introduction of the outperformance wedge is wrong and how that error could best be remedied by the CMA.

4.108 There are clear reasons of principle why GEMA was wrong not to have 'aimed up' on its cost of equity point estimate and the need to aim up is further supported by robust financeability cross-checks.

4.109 GEMA was also wrong to conclude that setting the point estimate above the mid-point of the range that GEMA reached based on its step 2 cross-checks is "*arguably consistent with a degree of aiming up*".[296] As set out at the end of this Sub-Section, proper cross-checks (including but not limited to in respect of financeability) in fact indicate that this is not the case and justify aiming up from the middle of a CAPM-implied cost of equity range.

4.110 Below (supported by the analysis in Section 9 of the KPMG Report) Cadent explains:

(a) why GEMA was wrong not to aim up for the reasons given above and why the reasons GEMA gave for choosing not to aim up are flawed; and

(b) the way and extent to which GEMA in fact should have aimed up to account for the above factors, supported by quantitative assessment in the KPMG Report and including

[294] FDs, Finance Annex, Paragraph 3.121 **{CGL1/A/22}**.
[295] FDs, Finance Annex, Paragraph 3.147 **{CGL1/A/22}**.
[296] FDs, Finance Annex, Paragraph 3.186 **{CGL1/A/22}**.

assessment of the Monte Carlo simulation presented by GEMA in its response to the PR19 Provisional Findings ("**GEMA PR19 Response**").[297]

Aiming up for consumer welfare

4.111 The argument for aiming up to maximise consumer welfare is straight-forward. There is inherent uncertainty in whether the mid-point of a CAPM-implied cost of equity allowance will reflect the true cost of equity required by investors, while the consumer and social costs of under-estimating the cost of capital exceed the costs associated with setting the cost of capital too high.

4.112 In the words of the CMA, "*The CAPM cost of equity is not directly measurable and the parameters are subject to both theoretical debate and statistical uncertainty*".[298] This risk will remain even once GEMA's clear errors explained in relation to Ground 2A are corrected because of the inherent uncertainty in the parameter estimates used in CAPM.

4.113 The consequences of setting the cost of equity too low, namely the serious potential societal consequences given the essential and inelastic nature of regulated services, such as those provided by Cadent, if investment is disabled, are more detrimental to consumers than slightly higher bills. The latter (while undesirable) has, in comparison, a relatively modest impact on societal welfare.

4.114 Contrary to GEMA's mischaracterisation of the argument, 'aiming up' for consumer welfare is not an argument for providing 'excess' returns in order to encourage specific new investment into the sector, for deliberately over-remunerating, or for promoting additional inefficient investment that is not in the consumer interest. Rather, it is intended to reduce the risk of the allowed cost of equity being set below the true cost of equity and thereby to avoid 'disabling' investment including both through failure to attract capital and through an exit of capital over time. It should be emphasised that 'disabling investment' includes but is not limited to preventing specific and large new investments/growth. Instead, as also emphasised by the CMA in its PR19 Cost of Capital Working Paper and set out in more detail in the KPMG Report at Paragraphs 9.3.5 to 9.3.7, it also relates to the exit of capital from the sector over time, which is relevant whether or not significant new investment is required.

4.115 The CMA expressed the point well in its PR19 Cost of Capital Working Paper, stating:

> "*Investors have a choice of options in where to invest their capital* […] *Where the cost of capital is low, the preference will be to withdraw capital rather than to increase the level of invested capital over time. This might be achieved, for example, through a high dividend pay-out policy.*"[299]

4.116 The severe negative societal consequences of underinvestment have been considered by a number of authors (including of course by the CMA in the context of PR19), they include:

(a) higher failure rates through older assets resulting in more likely loss of supply[300] and the risk of diminished service quality generally;

[297] GEMA third party submission response, dated 29 October 2020 and published by the CMA on 4 November 2020, Paragraphs 63 to 69 **{CGL1/C/33}**.
[298] PR19 Cost of Capital Working Paper, Paragraph 21 **{CGL1/C/36}**.
[299] PR19 Cost of Capital Working Paper, Paragraph 48 **{CGL1/C/36}**.
[300] Frontier Economics discusses and analyses this area in some detail in the FE Report prepared for the ENA in response to GEMA's Draft Determinations **{CGL1/C/31}**. In Annex A of this report, Frontier Economics looks to quantify the value of one aspect of the societal cost of reduction in network reliability by considering the value of lost load (**VoLL**) and noting that applying conventional VoLL figures leads to the value of very brief interruptions in electricity supply quicky eclipsing the reduced costs achieved through small adjustments to the point estimate. Frontier Economics also state in the same Annex that, "*we note that a similar concept could be applied to gas, but limit the analysis here to electricity for simplicity*."

(b) the loss of investment in climate change resilience / climate change related transition, with the associated wider societal benefits from such investment;

(c) a general reduction in innovation and a resulting loss of the benefits to consumers from the improved service levels and efficiencies arising from such innovation; and

(d) as explored in Professor Dobbs' model,[301] certain investments are 'now or never' in the sense that not only would they not be delivered during a price control period where the returns position was unfavourable but that such deferral would inherently lead to such investments (and the associated service improvements) never being delivered.

4.117 The risks of underinvestment are particularly acute in the energy sector, both because of the scale of new investment that is likely to be required for Net Zero and because of the damaging effects of network failures. In this context, it is also relevant that the CMA in its PR19 Cost of Capital Working Paper notes that Ofwat (and its advisor Brian Williamson) "*stress the difference between the risks associated with lack of investment in the water sector and other sectors like the energy sector, pointing to a lack of similar societal risks arising from extreme adverse events, like those associated with* '*blackouts*' *and other extreme events in the energy sector*" (a point derived from Commerce Commission New Zealand, (2014), "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services", Paragraph 5.63).[302]

4.118 Further, the CMA notes in its PR19 Provisional Findings that "*the current context of a sharp reduction in the cost of equity at the same time as a growth in investment points to a need to proactively address the risks associated with setting the cost of capital too low*". The context of a sharp reduction in the cost of capital (given the proposed fall in allowed cost of equity compared to RIIO-1) and the growth in required investment is of very direct relevance to the energy context.

4.119 As explained in Sub-Section 9.3 of the KPMG Report, GEMA appears to consider that aiming up is unnecessary because of the design of the price control. GEMA stated that the design of the RIIO-2 price control "*includes several features, such as UMs, to protect network companies and consumers from uncertainty regarding investment during the RIIO-2 period to deliver, for example, net zero. This flexibility weakens the argument that allowed returns should materially exceed the cost of capital*".[303]

4.120 GEMA appears to expand slightly on this logic in its brief comments in its Final Determinations on the FE Report, stating "*It is not true that companies have no incentive to invest at all or that this is a logical conclusion from the trade-off we identified. On the contrary, licence obligations, outcome incentives and minimum standards provide incentives, as well as the totex incentive mechanism*".[304]

4.121 As set out in Paragraph 9.3.10 of the KPMG Report, this line of thinking is incorrect: where the allowed rate of return does not equal the true cost of capital, licence obligations and other mechanisms may preserve investment in the short term (and should not be relied upon to reflect inefficient market outcomes in the first place), but do not ultimately protect from the negative consequences of incentivising an exit of capital or an inability to attract new capital to finance investment.

[301] "Modeling Welfare Loss Asymmetries Arising from Uncertainty in the Regulatory Cost of Finance" **{CGL1/C/11}**.
[302] PR19 Cost of Capital Working Paper, Paragraph 44 **{CGL1/C/36}**.
[303] FDs, Finance Annex, Paragraph 3.183 **{CGL1/A/22}**.
[304] FDs, Finance Annex, Appendix 2, Consultancy Report 9 **{CGL1/A/22}**.

4.122 Considerations of legitimacy and political risk also appear to have influenced GEMA's decision. In dismissing arguments for aiming-up at the stage of the SSMD, GEMA made the following statement:

> "*Finally, it would be remiss to ignore the risks of consistent and deliberate over-remuneration. Such risks, including political risk and increased legitimacy risk, could in fact out-weigh the benefit of aiming up, to which Frontier refer*."[305]

The importance of legitimacy when GEMA was formulating its policy for RIIO-2 is set out in the Witness Statement of David Moon,[306] which also makes clear the importance placed on this by Cadent. Nonetheless, it is not appropriate for GEMA to base policies on its perception of political risks. GEMA is an independent regulator with statutory duties that require it to carry out its functions in the manner it considers is best calculated to further the Principal Objective, namely the interests of current and future consumers, and therefore it was wrong for GEMA to dismiss the benefits to consumers of aiming up on the basis of political risk.

4.123 KPMG performs extensive quantitative analysis of the extent of aiming up appropriate in respect of aiming up for consumer welfare. This can be found at Paragraphs 9.4.1 to 9.4.9 of the KPMG Report. In brief summary, this analysis comprises:

(a) An assessment of the level of uncertainty in the CAPM-derived cost of equity by way of modelling the Cost of Equity as a random variable and determining the distribution of the Cost of Equity using a Monte Carlo simulation (assuming raw equity betas are drawn from normal distribution and RFR and TMR are prudently assumed to be known with certainty). KPMG finds that assuming a degree of aiming up, based on regulatory precedent,[307] of between the 67th and 75th percentiles, on the basis of the results of the implied Cost of Equity distribution an appropriate uplift to the CAPM-implied cost of equity of 25 basis points is supported. This analysis can be found in full at Paragraphs 9.4.1 to 9.4.5 of the KPMG Report.

(b) Review and rebuttal of the Monte Carlo analysis provided by GEMA in the GEMA PR19 Response,[308] on the basis that GEMA misapplies theoretical results of large-samples. This is set out in Paragraphs 9.4.6 to 9.4.8 of the KPMG Report.

(c) Consideration of market evidence from BlackRock in respect of asset return expectations and uncertainty. This is set out at Paragraph 9.4.9 of the KPMG Report.

Principle of Aiming up for Asymmetry

4.124 As discussed above, the calculation of risk (i.e. beta) in reaching the CAPM-implied cost of equity does not take into account any asymmetry towards unfavourable scenarios in the cash flow risk; i.e. the CAPM provides the level of return on an asset that is considered to be a "fair bet". GEMA appear to accept that allowed returns in a price control should take into account asymmetric risk, stating to the CMA in GEMA's response to the PR19 Cost of Capital Working Paper:

> "*We believe that the WACC allowance should take account of asymmetric risk and should be based on an "in the round" assessment of features of price control package (qualitative*

[305] SSMD, Finance Annex, Paragraph 3.277 **{CGL1/A/6}**.
[306] 1st Moon, Section A(iv)
[307] KPMG Report, Paragraph 9.4.4.
[308] GEMA PR19 Response, Paragraphs 63 to 69 **{CGL1/C/33}**.

and quantitative) to identify any asymmetries in expected outcomes, whether they be skewed to the upside or downside."[309]

4.125 The CMA also reached a similar conclusion in the SONI Determination, stating that, "*The application of asymmetric risk to such a large proportion of SONI's costs without a corresponding return would be inconsistent with the expectations of investors that, on average, returns would be expected to be consistent with the cost of capital*".[310] This is also consistent with the CMA's position in the PR19 Provisional Findings,[311] to adjust the cost of equity allowance to take account of asymmetric risk. The CMA's recommendation regarding asymmetry in the PR19 Cost of Capital Working Paper is as follows:

> "*We recommend that the overall degree of structural asymmetry in the ODIs, and otherwise in the determination, should be reflected in the choice of point estimate of the cost of capital*".[312]

Aiming up for asymmetric risk arising from structural factors

4.126 GEMA appeared to accept that gas sector stranding risk may present asymmetric risk. However, it does not provide any cost of equity adjustment to account for this, seemingly on the basis of recoverability via change in depreciation policy at each price control review and a general dismissal of there being compelling evidence for a need for higher returns on capital to reflect this risk. [313]

4.127 GEMA has not made any serious attempts to assess the need for higher returns on capital to reflect the asymmetric risk arising from structural factors, with the scope of work for GEMA's consultants, CEPA, being limited to estimating beta, i.e. systematic risk.[314]

4.128 The Net Zero agenda in fact represents a significant paradigm shift for GDNs. One of the consequences of this is the asymmetric risk uniquely posed to gas networks in the context of uncertainty of long term usage of the gas network. The KPMG Report provides detailed analysis of this in Section 7,[315] with relative risk analysis at Appendix 3. Further, the Witness Statements of Stephen Hurrell and David Moon provide further context on the implications of Net Zero for Cadent.[316]

4.129 The KPMG Report explains that accelerating depreciation as put forward by GEMA as a solution does not stand up to scrutiny given that, upon analysis, the potential effect this would have on customer bills would not allow for full recoverability.[317] For example, if the gas network assets did have a 16-year asset life, the impact on customer bills would not be sustainable or practicable.

4.130 The KPMG Report goes on, at Paragraphs 9.4.10 to 9.4.19, to provide analysis to quantify expected downside risk in cashflows arising from this structural asymmetry and the resulting associated need to aim up against the CAPM-implied mid-point. Given the inherent uncertainty in this area, this is necessarily based on stylised analysis of the evolution of UK gas networks over the medium term, against a plausible set of outcomes and with reference to National Grid's

[309] GEMA PR19 Response, Paragraph 61 **{CGL1/C/33}**.
[310] SONI Determination, Paragraph 12.102 **{CGL1/C/21}**.
[311] PR19 Provisional Findings, Paragraph 9.672 **{CGL1/C/32}**.
[312] PR19 Cost of Capital Working Paper, Paragraph 86 **{CGL1/C/36}**.
[313] FDs, Finance Annex, Paragraphs 3.76, 3.79, and 3.80 **{CGL1/A/22}**.
[314] KPMG Report, Paragraph 7.4.17
[315] See in particular Paragraphs 7.4.17 to 7.4.33 of the KPMG Report.
[316] 1st Hurrell ¶¶ 35 to 41 and 1st Moon ¶¶ 21-30.
[317] KPMG Report, Paragraphs 7.4.31 to 7.4.33 and Paragraphs 9.4.14 to 9.4.15.

"Future Energy Scenarios" reporting, but it is clear that the effect is significant and has to be reflected in the cost of equity estimates.

Aiming up for asymmetry in expected returns in the GD2 framework

4.131 GEMA appears to reject aiming up to account for asymmetry in the GD2 package on the basis that asymmetric downside is not a feature of the proposed GD2 price control (rather than making an argument that the allowed cost of equity should simply not take into account asymmetry). While somewhat unclear, GEMA's brief rationale for rejecting aiming up for asymmetry in the package at Paragraphs 3.179 and 3.180 of the Final Determinations' Finance Annex also gives this impression.

4.132 Cadent has consistently made representations to GEMA that there is no overall balance of risk and return in GEMA's RIIO-GD2 package due to asymmetry, and that its package does not provide the best incentives to companies in the interests of consumers. However, Cadent also recognises that asymmetry can be appropriate in certain circumstances. Therefore, Cadent has not sought to challenge the asymmetry in the package in and of itself, but where there is asymmetry, it is wrong not to take account of it in the cost of equity. This was highlighted by the CMA in the PR19 Provisional Findings.[318]

4.133 KPMG sets out in Paragraph 7.4.37 of the KPMG Report and more fully in Section 5 of the Outperformance Wedge Report that GD2 is in fact demonstrably asymmetric by design. The main reasons for this comprise:

(a) significantly tightened cost allowances, in particular by virtue of the 85th percentile benchmark and ongoing productivity assumptions in combination with the removal of historical sources of outperformance;

(b) negative asymmetry in the ODIs, with the maximum penalties around double the size of the maximum rewards;

(c) negative asymmetry in the PCDs;

(d) the material risk presented by re-openers given the need to incur cost before seeking a re-opener; and

(e) the structural asymmetry created by the RAM.

4.134 The Witness Statements of David Moon and Stephen Hurrell provide further explanation of the nature of this asymmetry and its consequences.[319]

Real Options

4.135 As explained in the KPMG Report at Paragraphs 7.4.15 to 7.4.16 and 7.4.71 to 7.4.82, in light of the uncertainty arising from Net Zero, investors attach a premium to investing in the present and hence forgoing the choice regarding when to invest in a transition to Net Zero, instead of adopting a "wait and see" approach until the uncertainty resolves. As explained in the KPMG Report, this principle is underpinned by "real option" theory because investors are effectively asked to give up the real option they have, and further supports the need to aim-up.

[318] PR19 Provisional Findings, Paragraph 7.239 **{CGL1/C/32}**.
[319] 1st Moon ¶38 and Part D; 1st Hurrell, Part B.

Financeability cross-checks support aiming up

4.136 In its FDs, GEMA appears to reach the following three key conclusions in respect of financeability checks in the context of choosing whether to aim up for RIIO 2:

(a) GEMA's three step process for setting its allowed cost of equity, "*which explicitly considers market evidence at each stage*", demonstrates the notional efficient company is equity financeable under RIIO-2 and the financeability assessment is not a reliable check on whether the allowed return (or components of it) is reasonable;[320]

(b) as a point of principle, aiming up is not an appropriate remedy to financeability constraints and there is no read across from the financeability test to setting the allowed cost of equity – instead other measures (such as a reduction in notional gearing, adjustments to capitalisation rates and/or depreciation rates) are appropriate;[321] and

(c) even if the principle in paragraph (b) above did not apply, in the context of RIIO-2 aiming up is not required to deal with any apparent financeability constraints.[322]

4.137 Each of these lines of argument is in error.

4.138 **First**, KPMG set out that there is no basis for GEMA to dismiss financeability as a cross-check on the assumption that it has measured the cost of equity correctly by definition. An estimate based on the CAPM does not eliminate parameter uncertainty and, in practice, measuring the cost of equity is subject to significant uncertainty. GEMA's removal of the financeability cross-check on the allowed return is inappropriate and increases the probability that the cost of capital is estimated with error.[323] Further, it fails to take into account that returns need to be set on a basis that is consistent with the risk implied by the regulatory framework and what investors in the company can earn on investments of comparable cashflow risk.[324]

4.139 **Second**, as to GEMA's suggestion that aiming up is in principle not an appropriate remedy to financeability concerns, as explained in the KPMG Equity Financeability Report, an efficient market outcome would be expected to reflect fully the pricing of risks.[325]

4.140 This approach would be consistent with the CMA's recent decisional practice in PR19, where it stated that:

> "*We continue to be of the view that financeability provides a relevant cross-check on the choice of the cost of equity. The use of credit ratios at least provides a check on whether the cost of equity appears to be of a level which is broadly consistent with the high-quality credit ratings required by Ofwat and implied in the cost of debt*".[326]

4.141 **Third**, it is clear that the FDs do create financeability constraints for the notional company, even on GEMA's own financeability analysis. KPMG concludes that GEMA found problems under its financeability analysis and, in order to avoid this conclusion, GEMA has (a) changed multiple assumptions about the notional financial structure and appears to have tailored the results of the analysis to support the key parameters tested and (b) relied on cash flow profile implications of

[320] FDs, Finance Annex, Paragraph 3.185 and Paragraph 5.12 **{CGL1/A/22}**.
[321] FDs, Finance Annex, Paragraph 5.21 **{CGL1/A/22}**.
[322] FDs, Finance Annex, Paragraph 5.21 **{CGL1/A/22}**.
[323] KPMG Equity Financeability Report, Paragraphs 1.1.31 to 1.1.36.
[324] KPMG Equity Financeability Report, Paragraph 1.1.17 to 1.1.18 and Section 7.
[325] KPMG Equity Financeability Report, Section 8.
[326] PR19 Cost of Capital Working Paper, Paragraph 113 **{CGL1/C/36}**.

some elements of the FD, like the switch to CPIH, to "solve" financeability problems it identified.[327]

4.142 Instead, as set out in detail in the KPMG Equity Financeability Report, even absent the outperformance wedge adjustment, which is discussed separately below, the 4.55% cost of equity allowance that GEMA derives through aiming straight in its CAPM-implied cost of equity range fails a robust financeability analysis used as a cross-check that is commensurate with the Finance Duty because:

(a) taking into account asymmetry in the GD2 regulatory determination, the notional company cannot reasonably expect, on an *ex ante* basis, on average to earn its required return on equity;

(b) it does not provide the return necessary for the notional company to achieve levels of financial ratios required to retain access to capital; and

(c) it does not provide adequate financial resources to ensure the notional company is resilient to plausible downside shocks (such as RIIO-GD2 totex challenges and incentive downsides and volatility due to greater indexation).[328]

4.143 The specification, assessment, and results of each of these financeability criteria is set out in detail in Sections 5, 6 and 7 of the KPMG Equity Financeability Report. The financeability challenges presented to Cadent by the proposed GD2 settlement are also discussed in the Witness Statement of Stephen Hurrell.[329]

4.144 In contrast to GEMA's suggestion that financeability cross-checks do not provide a reliable cross-check on allowed return, Cadent agrees with the conclusion the CMA has reached in PR19 that financeability on a notional company structure is a key cross-check on cost of equity calibration. This is discussed in more detail in Sub-Section 6.1 of the KPMG Equity Financeability Report.

NATS and Bristol Water CMA Decisions

4.145 In deciding not to aim up, GEMA seeks to contest the CMA's PR19 Provisional Findings, which conclude that, broadly speaking, aiming up represents consistency with regulatory orthodoxy. Cadent agrees with the CMA's position that in fact aiming up is strongly supported by the main body of relevant regulatory precedent. By way of examples, Cadent would note:

(a) the positioning of the WACC point estimate in UK regulatory decisions since 2004 as surveyed in the UKRN Study, Section 8.2; and

(b) as cited in Paragraph 9.4.4 of the KPMG Report, Oxera's 2004 findings that between 2008 and 2014 UK regulators on average have aimed up to the 73rd percentile.

4.146 This notwithstanding, Cadent notes that GEMA seeks to support aiming straight in particular by reference to the CMA/CC decisions in the 2020 NATS Price Determinations ("**NATS**") and the Bristol Water Determination.

4.147 However, there are clear reasons to disapply the rationale for not aiming up in NATS and Bristol Water Determination in the context of RIIO-2.

[327] KPMG Equity Financeability Report, Sub-Section 6.4; summarised in KPMG Report, Paragraphs 9.3.32 to 9.3.38.
[328] KPMG Equity Financeability Report, Section 7; summarised in KPMG Report, Paragraphs 9.3.39 to 9.3.45.
[329] 1st Hurrell, Sections C and D.

4.148 **First**, in NATS:

(a) the CMA concluded that the NATS settlement was symmetrical (which, as set out above, does not hold in the context of RIIO-2 and therefore this basis for not aiming up does not apply);

(b) the structural asymmetries faced by GDNs and discussed above did not apply;

(c) the CMA took the view that there were specific factors in NATS's ownership structure that mitigated risks to investment (which again do not apply to RIIO-2); and

(d) finally, while as set out above the case for aiming up is far from limited to this context, in NATS the CMA noted that, "*If there were positive externalities and longer-term benefits to consumers from identifying and investing in new capital projects, then we agreed that there could be a case for a long term premium on the cost of capital.*" In the context of the gas and energy sector more generally, it is evident that such positive externalities/positive benefits to consumers can be expected to arise from investing in new capital projects – most obviously in terms of achieving Net Zero and the wider environmental benefits associated with this.[330]

4.149 **Second**, in the Bristol Water Determination, the context is different in that the CMA notes that, while it used the midpoint of its ranges, it made upward adjustments in certain areas (including, for example, an equity beta uplift) against observable market evidence in order to give assurance that it arrived as a reasonable WACC for the Bristol Water Determination.[331] The CMA states this immediately after noting that the CMA is aware of the customer welfare arguments for aiming up and immediately before noting it performed financeability assessments to check its setting of the point estimate. In contrast, in RIIO-GD2 as discussed in detail above GEMA's setting of its CAPM ranges/parameters (and the proposed approaches to correcting these) does not make such an adjustment, the Bristol Water Determination in fact supports the argument that in a RIIO-2 context aiming up for the consumer welfare is in fact required.

Use of alternative cross-checks in respect of aiming up

4.150 As set out in Ground 2A, at step 2 of its process for setting the allowed cost of equity, GEMA cross-checks against OFTOs, MARs, infrastructure fund discount rates, investment manager forecasts, and M&M.

4.151 On the basis of these cross-checks GEMA concludes that its step 1 CAPM derived allowed cost of equity range should move downwards from 3.85% to 5.24% to 3.8% to 5.0%.[332] However, in a change from its DDs position GEMA elects to set a Step 2 point estimate in the middle of the CAPM-implied cost of equity range stating that:

> "*Stakeholders made representations to us that our market cross-checks were not as strong as we believed and that using a lower value was not a justified use of regulatory discretion. For FDs, we have decided to narrow the range, (from 3.85%-5.24% to 3.8%-5.0%), using more discretion to adjust the high end than the low end, as per our rationale in paragraphs 3.113 to 3.118 above. The range 3.8%-5.0% has a mid-point of 4.4%. However, we have decided to assess the cost of equity at 4.55% which is 0.15% higher than the mid-point we could draw from Step 2.*"[333]

[330] Frontier Economics discusses and analyses this area in the FE Report, Page 28 **{CGL1/C/31}**.
[331] Bristol Water Determination, Paragraphs 10.191 and 10.192 **{CGL1/G/16}**.
[332] FDs, Finance Annex, Paragraph 3.121 **{CGL1/A/22}**.
[333] FDs, Finance Annex, Paragraph 3.121 **{CGL1/A/22}**.

4.152 However, despite this tacit acknowledgement that it sees validity in the relevant stakeholders' representations that these cross-checks are not valid means of arriving at a point estimate, GEMA's use of these cross-checks:

(a) suggests it sees them as more valid than the alternative cross-checks that may be used; and

(b) is used by GEMA to argue that setting its point estimate in the middle of its CAPM-implied cost of equity range in some ways represents aiming up: "*Our final view in these FDs is arguably consistent with a degree of aiming up. The Step 2 cross-checks suggest that the expected return is lower than the CAPM-implied value from Step 1. Based on Step 2 evidence, we tighten the range to 3.8% to 5.0% implying a mid-point of 4.4% however we select a value of 4.55%.*"[334]

4.153 Given that GEMA rejects the rationale and need for aiming up, as set out above, the fact that GEMA then argues in this way that it is aiming up seems logically inconsistent.

4.154 Putting this to one side, as set out in Paragraphs 4.97 to 4.104 in Ground 2A:

(a) the cross-checks GEMA uses are not appropriate for supporting or validating a range in the context of RIIO-GD2. As such they do not represent a sound basis for GEMA arguing that its step 2 point estimate is aiming up; and

(b) alternative valid cross-checks[335] in respect of a CAPM-range (more comparable fund IRRs and ARP-DRP) in the context of RIIO-GD2 support a higher cost of equity point estimate.

4.155 In addition, as set out in this Ground 2B above, financeability represents an important cross-check for the allowed cost of equity.

Proposed degree of aiming up

4.156 GEMA was wrong to fail to aim up against the mid-point of the CAPM-implied range to maximise consumer welfare, given the asymmetric risks of setting the cost of equity too low as a result of the inherent and unavoidable uncertainty in the underlying CAPM parameters ("**Aiming up for Uncertainty**"). KPMG quantify the level of aiming-up required to account for this at 0.25%, based on the mid-point of its estimates for aiming-up for the 67th and the 75th percentile.[336]

4.157 This aiming-up from the mid-point is further supported by the asymmetry in the GD2 package and foregone value of real options set out above.

4.158 The expected losses arising from GDN-specific structural demand risk arising from Net Zero support a further degree of aiming up of 0.15% ("**Aiming up for Structural Asymmetry**").[337]

4.159 This need for aiming up is also supported by cross-checks to ensure that the licensee is financeable based on a notional financial structure.

4.160 Based on extensive and robust analysis, KPMG concludes that an appropriate quantum of aiming up from the mid-point of the correct CAPM-implied allowed cost of equity range is as follows:

[334] FDs, Finance Annex, Paragraph 3.183 **{CGL1/A/22}**.
[335] KPMG Report, Sub-Section 11.4
[336] KPMG Report, Paragraph 9.4.5.
[337] KPMG Report, Paragraph 9.5.6.

Aiming-up for Uncertainty	0.25%[338]
Aiming-up for Structural Asymmetry	0.15%[339]

E. GROUNDS OF APPEAL TO WHICH THESE ERRORS GIVE RISE

4.161 GEMA has erred in assessing the cost of equity at a level that is too low and has made a series of distinct errors in relation to that. The result is that GEMA's Decision was wrong within the meaning of Section 23D(4) GA86. In particular, GEMA:

(a) failed properly to have regard to, and failed to give appropriate weight to, the interests of current and, in particular, future consumers and thereby its Principal Objective, including as a result of each of the other errors set out in (b) to (d) below and including:

(i) the errors made in setting each of the main CAPM parameters, relying on inappropriate cross-checks to validate its choices and failing to take into account more appropriate cross-checks that would have demonstrated its choices were invalid;

(ii) taking a selective approach to the available evidence in order to support a reduction in the cost of equity;

(iii) failing to aim-up within the CAPM-implied range to take account of the uncertainty inherent in estimating the CAPM parameters, the asymmetry in the risk exposure as a result of the regulatory mechanisms set by GEMA and sector structural risks and to reflect a robust financeability assessment;

(iv) failing to take into account or give sufficient weight to the potential impact of its decision on the cost of equity on investment and consumer welfare.

(b) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to, its Finance Duty, including for the reasons given in (a) above, in Section 6 and the KPMG Equity Financeability Report and, in particular, for failing to carry out a robust financeability assessment and ensure its assessed cost of equity was consistent with the requirements of financeability.

(c) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to, its Security of Supply Duty and its Sustainability Duty, including in failing to give proper consideration and weight to the effects of its Decision on investment and Net Zero.

(d) failed properly to have regard to, and failed to give appropriate weight to, its Best Practice Duty, including as a result of:

(i) taking a selective and unbalanced approach to evidence, failing to take account of certain evidence and failing to take a proportionate approach, to the evidence;

(ii) making disproportionate amendments to its methodology for calculating the CAPM parameters; and

[338] KPMG Report, Paragraph 9.4.5.
[339] KPMG Report, Paragraph 9.5.6.

(iii) ignoring relevant precedent including from the CMA itself;

(e) erred in law, including as a result of:

(i) taking into account irrelevant considerations (such as political risk when deciding not to aim-up) and failing to take into account relevant considerations (such as the impact of its policy on the long-term interests of consumers, as required by its Principal Objective);

(ii) failing in its duty of enquiry to take reasonable steps to gather the information needed to take an informed decision including in failing to commission any assessment of the extent of asymmetric risk arising from sector structural factors as explained in Paragraph 4.127 above; and

(iii) failing to consult fairly on its policy, including as a result of failing to consult in accordance with its own consultation policy, which requires GEMA to consult in accordance with four principles, which include that responses must be conscientiously taken into account.[340]

(f) committed a number of errors of fact in respect of the evidence as set out in Section 4.

(g) adopted modifications that fail to achieve, in whole or in part, the effect stated by GEMA by virtue of section 23(7)(b) GA86, including as a result of failing to provide accurate remuneration for equity investors, contrary to GEMA's explanation of the purpose and benefits of its cost of equity allowance.[341]

F. RELIEF SOUGHT

4.162 In respect of Ground 2 (cost of equity), subject to Paragraph 4.163, Cadent requests that the CMA quashes GEMA's Decision to assess the cost of equity at 4.55% and substitutes its own decision reflecting correction of the errors set out in Section 4: Sub-Sections C and D. Subject to Paragraph 4.163, the proposed methodology for doing so is summarised in Paragraphs 4.51, 4.70, 4.74, 4.96 and 4.160 and set out in the KPMG Report. This will involve correction of the relevant cost of equity values in the GD2 Price Control Financial Model[342] including the individual CAPM parameters (with consequent adjustment to the values based on them) and associated references and impacts in the GD2 Price Control Financial Handbook.

4.163 It is clear that GEMA materially erred in estimating the cost of equity. The right methodology for calculating the cost of equity is set out in Paragraph 4.162 above. As KPMG explains (KPMG Report, Paragraph 2.4.9), this suggests that an appropriate point estimate for the allowed cost of equity based on a balanced review of the academic literature, all relevant market evidence, and consistent with the relevant regulatory precedent, is 6.11% composed of the allowed cost of equity derived using CAPM and an uplift for uncertainty in estimation and asymmetric risks. Notwithstanding that, Cadent requests that the CMA allows a cost of equity that is 5.6%. This is because Cadent wishes to take a pragmatic view and this is the number that Cadent agreed as part of the customer engagement process during which Cadent tested the acceptability of the RIIO-GD2 Business Plan. Cadent's plan was tested with customers and stakeholders at 83% acceptability and therefore Cadent believes it is right to hold to this.

[340] The Gunning Principles, as explained in GEMA's consultation policy: https://www.ofgem.gov.uk/consultations/our-consultation-policy **{CGL1/C/37}**.
[341] As set out in the introduction to the FDs, Finance Annex **{CGL1/A/22}**.
[342] This will include changes in the "input" tab lines 165-169 and 177 and associated changes in each Cadent network tab **{CGL1/E/1}**.

4.164 While Cadent considers that the errors identified in this section can and should be rectified by the CMA, in the alternative, Cadent requests that the CMA remits 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.

SECTION 5: GROUND 3 (OUTPERFORMANCE WEDGE)

A. INTRODUCTION

5.1 For RIIO-2, GEMA introduced an additional, unprecedented and unjustified step to setting companies' cost of equity allowances, through which GEMA aims to take into account "*the degree of financial incentive (positive or negative) that investors might expect, in order to be consistent with the principle that the cost of equity, is, by definition, an expectation*".[343]

5.2 GEMA refers to this step as "expected versus allowed returns"; however, because GEMA has used this step to reduce the allowed cost of equity allowance to account for what it perceives to be an expectation of outperformance rather than underperformance implied by the regulatory design of the FDs, it has also widely been referred to as the 'outperformance wedge'.

5.3 GEMA's decision in respect of this "expected versus allowed returns" adjustment is set out in Paragraphs 3.122 to 3.186 of the FDs, Finance Annex.

5.4 GEMA decided in its FDs to make a deduction of 0.25% from its point estimate of 4.55% (which, as evidenced in Section 4, is inappropriately low) on the basis of GEMA concluding that "*investors should expect outperformance of at least 0.25%*".[344] This results in a final baseline allowed return of 4.30%[345] and, as set out in the Witness Statement of David Moon, is equivalent to assuming that Cadent can outperform its totex allowances by £100 million to generate outperformance of £50 million (after sharing of 50% with customers) and implies a further 2% efficiency challenge on top of the efficiency challenge already set out to achieve GEMA's view of the required equity return.[346]

5.5 At a late stage of the price review, GEMA also decided, at least for RIIO-2, to implement an "*ex-post adjustment mechanism*" to "*protect investors*"[347] so that each licensee will, if its outperformance is less than 0.25%, receive a top-up allowance, up to 0.25%:[348]

> "*However, given our approach is novel, we have supplemented* [*the outperformance wedge*] *by adding an ex post adjustment mechanisms on a licensee basis to mitigate the risk that investors fail to earn equity returns in line with costs*."[349]

5.6 KPMG sets out in detail the way in which GEMA's policy developed during the course of designing the RIIO-2 price control.[350]

5.7 In summary, the reasons why the unprecedented decision to include the outperformance wedge is fundamentally wrong are:

(a) GEMA failed to consider properly whether the outperformance it expects (and assumes that investors expect) and seeks to address through the outperformance wedge mechanism would in fact be outperformance that is undesirable, rather than potential outperformance that could be legitimately earned by achieving outcomes deliberately incentivised by the price control.

[343] SSMD, Finance Annex, Paragraph 3.153 **{CGL1/A/6}**.
[344] FDs, Finance Annex, Paragraph 3.147 **{CGL1/A/22}**.
[345] ibid.
[346] 1st Moon ¶ 121.
[347] FDs, Finance Annex, Paragraph 3.147 **{CGL1/A/22}**.
[348] ibid.
[349] FDs, Core Document, Paragraph 6.8 **{CGL1/A/20}**.
[350] KPMG Outperformance Wedge Report, Section 3.

(b) The outperformance wedge is a wrongly designed regulatory mechanism that distorts the incentive properties of the overall price control and has unintended, negative consequences.

(c) The outperformance wedge mechanism is not in any event an appropriate or targeted way of addressing potential undesirable outcomes. GEMA should instead have sought to calibrate individual price control components appropriately. In fact, it appears to have done so significantly to reduce the scope for any outperformance. GEMA put considerable focus throughout the price control and the preceding business plan process on minimising the scope for outperformance, calling into question the basic justification for the outperformance wedge.

(d) The outperformance wedge is not consistent with the principles of good regulation or best regulatory practice, and risks severely undermining regulatory confidence.

5.8 The ex-post adjustment mechanism only partially mitigates these issues; it does not resolve them and in fact introduces additional issues interfering further with the incentive properties of the entire framework. Even with a "true up" at the beginning of RIIO-3, the outperformance wedge distorts investment and efficiency incentives during the course of RIIO-2 and poses challenges in terms of cash flow management and financeability.

5.9 Cadent's request to the CMA to quash GEMA's decision to include the "outperformance wedge" is set out in Sub-Section D below.

B. GEMA'S ERRORS IN INTRODUCING THE OUTPERFORMANCE WEDGE

(1) GEMA failed to consider properly whether the outperformance it expects is undesirable and whether seeking to address it with an outperformance wedge is compatible with incentive-based regulation

5.10 GEMA failed to consider properly whether the outperformance it expects and seeks to address through the outperformance wedge mechanism would in fact be outperformance that is undesirable, rather than potential outperformance that could be legitimately earned by achieving outcomes deliberately incentivised by the price control.

5.11 As set out in detail in the KPMG Outperformance Wedge Report,[351] outperformance, in particular within-period outperformance, is integral to the principle of – and can be seen as a sign of successful – incentive-based price regulation. It does not imply that outperformance has arisen out of information asymmetry or was expected by the company in advance but not revealed to the regulator.[352] Incentive-based regulation is also integral to the RIIO model (the fundamental principle of which is to set *R*evenue using *I*ncentives to deliver *I*nnovation and *O*utputs).

5.12 Outperformance occurs in an incentive-based regulatory system when companies have underspent their cost allowances and have delivered their output targets. As a result, outperformance goes hand in hand with delivering benefits for consumers in the price control in which it occurs.[353] Outperformance also reveals powerful information to GEMA, which is used (and has been used for RIIO-2) to calibrate incentive mechanisms in the next price control period.[354]

[351] ibid., Section 4.2.
[352] ibid., Section 4.2.6.
[353] ibid., Sections 1.3.3 and 4.2.3.
[354] ibid., Sections 1.3.3 and 4.2.4.

5.13 Further, incentives carefully designed by the regulator are included in a price control based on the fundamental premise that the cost/benefit balance to consumers is positive, i.e. that the benefits consumers achieve from the actions undertaken by the companies outweigh the impact on bills of the costs required in order to incentivise companies to do them.[355] The benefit to consumers of incentives is also explained in the witness evidence of David Moon.[356]

5.14 KPMG overall conclude that outperformance brings benefits to consumers and is consistent with incentive-based regulation, but there is no reason to expect outperformance under a well-calibrated control.[357]

5.15 Therefore, before deciding to "correct" for outperformance, GEMA should have considered carefully whether it is appropriate to do so and whether doing so is consistent with the principles of economic regulation, including the incentives such regulation is intended to create.

5.16 KPMG also assess whether the outperformance wedge is compatible with the structure of the RIIO-GD2 price control and conclude that it is not.[358] In particular:

(a) Under a "building block" approach the reasonableness of each calibrated parameter can be assessed. This principle is undermined by the outperformance wedge as it is not clear where the regulator expects there to be outperformance and whether that is consistent with the approach used to calibrate that part of the price control. This results in a loss of precision and robustness in the price control parameters, as well as undesirable incentive impacts (as set out below).

(b) It undermines and complicates the role of financeability analysis, creating the risk that the financeability analysis does not properly reflect the risks and assumptions in the building blocks of the price control.[359]

(c) It introduces unnecessary and potentially detrimental incentives on network companies' management teams.[360]

(2) The outperformance wedge distorts incentives and has negative consequences

5.17 The outperformance wedge is a wrongly designed regulatory mechanism that distorts the incentive properties of the overall price control and is likely to have unintended, negative consequences. There is no clear evidence that GEMA has considered these, despite GEMA, at the SSMD stage, agreeing with Frontier Economics *"that any potential for negative effects should be considered*".[361]

(A) Impact on investment

5.18 The outperformance wedge results in an allowed cost of equity which is, even in GEMA's view, below the required cost of equity. As set out in the KPMG Outperformance Wedge Report[362], while the ex-post adjustment ensures that on average a company's return on equity is not below GEMA's (otherwise too low) estimate of the cost of equity, the marginal return on an additional investment could be below even GEMA's estimate of the required return for companies expecting

[355] ibid., Section 4.2.2.
[356] 1st Moon ¶ 37.
[357] KPMG Outperformance Wedge Report, Section 4.2.7.
[358] ibid., Section 4.3.
[359] ibid., Sections 4.3.16-18.
[360] ibid., Section 4.3.12.
[361] SSMD, Finance Annex, Appendix 2, Page 140 **{CGL1/A/6}**.
[362] KPMG Outperformance Wedge Report, Sections 1.3.8 and 4.4.6-4.4.26.

to outperform. The impact of this for those companies is particularly marked in the case of investment under reopeners, as their ex-post nature means that there is no scope for outperformance and therefore also no scope to earn the required return on equity on these investments.[363] As set out by KPMG and in Section 4 (at Paragraph 4.111 onwards) of this Notice, the negative impact of reduced investment on consumers is well-established and is particularly damaging in the context of the energy transition and Net Zero. This impact does not appear to have been properly considered by GEMA, as GEMA just assume that investment takes place,[364] stating in the impact assessment accompanying the FDs that, "*As investment in the networks to achieve Net Zero would arise both under our Final Determinations proposals and under the counterfactual, we consider that there would be no change in greenhouse gases*".[365] The flaws in GEMA's reasoning are set out in Section 4 (Paragraphs 4.119 to 4.121).

(B) Impact on Incentives: Deadband

5.19 The impact of the combination of the outperformance wedge and the ex-post adjustment mechanism is to create a "deadband" performance range. By removing the benefit of any outperformance up to 25 bps, this creates perverse incentives for companies that expect to perform within this deadband. For companies that fall within this deadband of between 0 and 25 bps below the level (of outperformance) assumed by the wedge, incremental expenditure does not affect outturn returns. The deadband instead effectively creates a cost pass-through regime. As set out in the KPMG Outperformance Wedge Report, this materially reduces efficiency and quality of service incentives and may also encourage inefficient expenditure.[366]

(C) Impact on Incentives: Ratchet effect

5.20 The outperformance wedge introduces a clear, ongoing risk of "clawback" through the "ratchet effect". As set out by Frontier Economics, GEMA's policy "*unambiguously forms a link between outperformance in one period and a negative downward adjustment to allowed returns in future reviews. The creation of this link could now not be clearer, following the publication of the Draft Determinations, in which Ofgem relies on (amongst other things) an analysis of outperformance in RIIO-1 to validate the quantum of the proposed wedge it will apply at RIIO-2*".[367]

5.21 GEMA's policy effectively introduces a mechanism that will discourage outperformance because such outperformance would simply be 'clawed back' in the next price control period through the application of an outperformance wedge. This is very different from the usual way in which efficiencies incentivised in one price control period are captured for consumers in the next period as part of the calibration of the relevant part of the price control. The wedge will mean that the outperformance in the first price control is recovered for consumers in the next and will be clawed back without proper regard to the reason for outperformance or whether it has already been taken into account as part of the next price control, undermining the principle of incentive based regulation.

5.22 KPMG's assessment is that linking the scope of future outperformance based on actual company performance is unlikely to be in consumers' interests.[368]

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[363] ibid., Sections 1.3 and 4.4.21-22.
[364] ibid., Section 3.7.15.
[365] Impact assessment accompanying FDs, Paragraph 5.21: RIIO-2 Final Determinations – Impact Assessment Annex (ofgem.gov.uk) **{CGL1/A/18}**.
[366] KPMG Outperformance Wedge Report, Sections 4.4.32-40.
[367] FE Report, Page 36 **{CGL1/C/31}**.
[368] KPMG Outperformance Wedge Report, Sections 4.4.41-45.

5.23 KPMG note that Frontier Economics has previously estimated that in a reasonably cautious scenario where 10% of the expected productivity gains in the energy sector are removed by the adjustment for anticipated outperformance, the annual loss in cost savings due to compromised productivity gains would outweigh the gain (from the 25 basis points) by 2026/7. Under other scenarios with further productivity losses, the catch-up point would be much sooner.[369] KPMG also note that GEMA has not undertaken an impact assessment of the potential longer-term loss of efficiency gains from the implementation of the outperformance wedge.[370]

5.24 GEMA has responded to this evidence by simply claiming that arguments regarding the impact on incentives are inconsistent with its assumption that expected outperformance of 25 basis points reflects information asymmetry, not effort: "*If we assume that 0.25% is primarily earned through information advantages, it would not be consistent to also assume that material effort is also needed*".[371]

5.25 As GEMA has no proper basis for its view that outperformance of 0.25% will be earned through information advantages, any inconsistency between the arguments put forward and GEMA's assumption does not seem relevant. But it also misses the point: even if 0.25% is earned through information advantages, that does not affect the issue of whether the policy of applying an outperformance wedge will affect incentives on companies to make the effort to outperform the settlement beyond the assumed "no effort" level of outperformance. The disincentive to do so is created by both the deduction up front in this control period as well as the prospect of that outperformance being clawed-back in the future as it would impact the size of the outperformance wedge applied by GEMA in the next price control.

(D) Impact on Regulatory Risk

5.26 KPMG set out how investors do not expect cost or return certainty, but they do seek predictability and consistency in approach/methodology, for decisions to be well evidenced and justified, and for regulatory discretion to be minimised.[372] The importance of regulatory credibility was also recognised by GEMA in the RIIO handbook, which sets out the principles of the RIIO regulatory model:

> "*Network company decisions will be influenced by their perceptions of the credibility of the regulatory framework. The RIIO model is designed to provide certainty and transparency about how the framework will work in the future*".[373]

5.27 There are several ways in which the outperformance wedge is likely to affect regulatory confidence.

5.28 **First**, the outperformance wedge interferes with the way in which allowed returns are set, which is fundamental to the UK regulatory model. Any change to this process affects the predictability and stability of regulation. It is instructive that Moody's have made the following comments about the outperformance wedge:

> "*Previously, Ofgem had set cost-of-capital allowances on a standalone basis, independent of past performance. The change represents a departure from established regulatory*

[369] ibid., Section 4.4.43.
[370] ibid., Section 4.4.45.
[371] FDs, Finance Annex, Paragraph 3.174 **{CGL1/A/22}**.
[372] KPMG Outperformance Wedge Report, Section 4.4.46.
[373] Handbook for implementing the RIIO Model, 4 October 2010, Paragraph 5.6 **{CGL1/C/10}**.

practice, adherence to which has supported widespread confidence in the stability and predictability of the regime. As such, it is credit negative."[374] [Emphasis added.]

5.29 **Second**, the poorly supported nature of this significant new mechanism in terms of evidence and justification undermines confidence in the regulatory regime more generally. This issue was highlighted in the FE report, with Frontier Economics stating that, *"there will now be a number within the price control that represents Ofgem's subjective judgement of the extent to which it has failed to set other aspects of the price control appropriately. The validation of this number would be almost impossible, leading to confusion over not only the basis of the 25 bps deduction, but moreover which aspects of the price control Ofgem considers it got wrong"*.[375] This issue is compounded by the approach that GEMA has taken to matters it considers to be within the scope of its regulatory discretion, as set out below. KPMG emphasise that regulatory risk is increased by the lack of a well-evidenced methodology for the calibration of the outperformance wedge and the increase in the role of regulatory discretion.[376]

5.30 **Third**, whilst the outperformance wedge is explained as an adjustment for prospective outperformance, it may be perceived as being a retrospective 'claw-back' of outperformance in prior settlement periods and of past investment, in violation of the established regulatory presumption against retrospectivity. The principles for economic regulation adopted in 2011 state that "*the framework of economic regulation 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*".[377] The outperformance wedge specifically reduces investors' return on past investment in the form of the RAV. This is also contrary to the principles set out by GEMA in the RIIO handbook: "*As part of [the RIIO model being designed to provide certainty and transparency about how the framework will work in the future], we will seek to avoid any retrospective/ex-post adjustments to the package agreed in final proposals and licence modifications as this could undermine regulatory commitment"*.[378]

5.31 It is worth noting in this context that, as set out in the KPMG Outperformance Wedge Report,[379] the regulatory community does not support this regulatory innovation. First Economics interviewed 32 ex-regulators from across the UK's regulated sectors regarding their views on such a mechanism. Out of the 32 respondents, only 2 agreed with the concept of applying a lump-sum deduction from allowed revenues to capture otherwise overlooked scope for the regulatory firm to outperform. 12 disagreed with such an approach, and 13 strongly disagreed.[380]

5.32 The negative impact of the outperformance on regulatory confidence is highlighted by David Moon, who explains in his evidence that the outperformance wedge is an issue that is consistently raised and discussed in his conversations with ratings agencies and investors.[381]

(E) Impact on Financeability

5.33 Despite the introduction of an ex-post adjustment mechanism, there is still a cash flow deficiency during the control period, which has implications for the notional company's financeability. This

[374] KPMG Equity Financeability Report, Paragraph 6.4.59.
[375] FE Report, Page 34 **{CGL1/C/31}**.
[376] KPMG Outperformance Wedge Report, Section 4.4.48.
[377] Department for Business, Innovation and Skills, 'Principles for Economic Regulation' (publishing.service.gov.uk), page 5 **{CGL1/C/12}**.
[378] Handbook for implementing the RIIO Model, 4 October 2010, Paragraph 5.6 **{CGL1/C/10}**.
[379] KPMG Outperformance Wedge Report, Sections 3.7.20.
[380] Earwaker J and Fincham F, (2020) "Information asymmetry and the calibration of controls" **{CGL1/C/30}**.
[381] 1st Moon ¶ 125.

could pose financeability challenges for the company, even though it is meeting all the expenditure and output targets set by the regulator.[382]

(3) The outperformance wedge is not targeted at undesirable outcomes and GEMA has already used other tools to reduce the scope for outperformance

5.34 The outperformance wedge mechanism is not in any event an appropriate or targeted way of addressing potential undesirable outcomes. GEMA should have instead sought to calibrate individual price control components appropriately. In fact, it appears to have done so significantly to reduce the scope for any outperformance. GEMA has put considerable focus throughout the price control and the preceding business plan process on minimising the scope for outperformance, calling into question the basic justification for the outperformance wedge.

5.35 At the Draft Determinations stage, GEMA stated that they had considered the following policy alternatives to the wedge:

(a) Set neutral cost and performance targets;

(b) Lower incentive strengths;

(c) Asymmetric incentives or incentive strengths; and

(d) Competed, fixed or zero pot for incentives.[383]

5.36 GEMA then dismissed each one as removing the need for the outperformance wedge: alternative (a) primarily on the basis that "*information asymmetry inherently means that a) is improbable*"; alternative (b) on the basis that it would only partially address the impact of totex based information asymmetry unless a pass-through approach was adopted; alternative (c) on the basis that it "*may only work partially, and would be more indirect than our preferred option as it would seek to use another mechanism to address what is, in our view, a baseline issue*"; and alternative (d) on the basis that it would have a "*greater impact on company behaviour than our preferred option*".[384]

5.37 In fact, however, in addition to implementing policies (a) to (c) above, for RIIO-GD2 GEMA implemented a plethora of policies that are designed to reduce the scope for outperformance:

(a) KPMG provides an assessment of the tools available to regulators to set well-calibrated price controls.[385] KPMG discuss three main routes that regulators can use to do so: comparative benchmarking or tailored efficiency challenges; the level of stretch within the package; and the evolution of approach over price controls. KPMG demonstrates how GEMA has used these tools to calibrate RIIO-GD2.

(b) KPMG cast doubt on whether a meaningful degree of information asymmetry between companies and regulators actually exists.[386] KPMG provides a number of reasons why the Business Plan Incentive is likely to have been an effective incentive for licensees to reveal information and this is confirmed in the witness evidence of David Moon.[387]

(c) The KPMG Outperformance Wedge Report also demonstrates the asymmetric skew in the design of the RIIO-2 framework,[388] which is supported by the Witness Statements

[382] KPMG Outperformance Wedge Report, Section 4.4.39.
[383] DDs, Finance Annex, Paragraph 3.140 **{CGL1/A/12}**.
[384] ibid. Paragraphs 3.141 to 3.144.
[385] KPMG Outperformance Wedge Report, Section 4.5.
[386] KPMG Outperformance Wedge Report, Section 5.2.
[387] 1st Moon ¶ ¶ 38(H) and 121
[388] KPMG Outperformance Wedge Report, Section 5.

of David Moon[389] and Stephen Hurrell[390] and which further reduces any expectation of outperformance.

(d) At the DD stage, Economic Insight assessed the changes that GEMA had made as part of its broader regulatory framework since previous reviews. The EI Report estimated that the changes at RIIO-2 had an impact of between -1.38% to -2.50% RoRE, compared to RIIO-1.[391]

(e) Again at the DD stage, Frontier Economics found that there was "*no reason to suppose that factors beyond network control will continue to be observed in RIIO-2 because they are either not relevant for RIIO-2 or have been mitigated directly by relevant proposed indexation mechanisms and Ofgem's measures to limit outperformance…This already provides a clear reason why the calibration of RIIO-2 will, ex ante, be far more symmetric*".[392]

5.38 GEMA has a wide range of tools and policy alternatives at its disposal to set well-calibrated price controls and it used them to overhaul the RIIO-2 price control framework. This calls into question the basic justification of the outperformance wedge. There is a fundamental inconsistency in introducing the wedge at the same time as overhauling the design of the framework. In this context, it is notable that in the PR19 Provisional Findings the CMA was "*not persuaded it is consistent for Ofwat to both set 25 new and increasingly stretching targets for PCs in PR19 and also to assume that companies will outperform against those targets*".[393]

5.39 Calibrating the price control at source in a transparent manner is a better policy alternative to the outperformance wedge. Ensuring that a price control is appropriately calibrated, and that returns are 'legitimate', requires careful consideration and finetuning of incentives, not simply cutting returns in an arbitrary manner. This accords with Frontier's conclusion:

> "*We continue to believe that the legitimacy of the sector rests firmly on the ability of the regulator to calibrate well its price controls, striking a balance between ensuring the essential investment needed in the sector and the ongoing incentives for companies to drive efficiency gains and deliver value and quality service for customers. We do not believe unjustified blanket deductions from the cost of equity is the most effective way to ensure legitimacy*."[394]

5.40 In this context, the outperformance wedge is neither necessary nor appropriate.

(4) The outperformance wedge is not consistent with the principles of good regulation or best regulatory practice, and risks severely undermining regulatory confidence.

5.41 Section 4(AA)(5A) requires that, in carrying out its functions under Part I GA86, 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 principles appearing to him or, as the case may be, it to represent the best regulatory practice,

[389] 1st Moon ¶¶ 38-41 and 117-120.
[390] 1st Hurrell ¶ 30
[391] KPMG Outperformance Wedge Report, Section 3.7, referring to the EI Report.
[392] FE Report, Section 6.1 **{CGL1/C/31}**.
[393] PR19 Cost of Capital Working Paper, Paragraph 81 b **{CGL1/C/36}**.
[394] FE Report, Page 26 **{CGL1/C/31}**.

(the "**Best Practice Duty**").

5.42 The principles specified in Section 4AA(5A)(a) GA86 and listed above were defined by the Better Regulation Task Force ("BRTF") in a document titled "Principles of Good Regulation",[395] as follows:

(a) Transparent: Regulators should be open, and keep regulations simple and user-friendly;

(b) Accountable: Regulators must be able to justify decisions, and be subject to public scrutiny. This includes the requirement that regulators should clearly explain how and why final decisions have been reached;

(c) Proportionate: Regulators should only intervene when necessary. Remedies should be appropriate to the risk posed, and costs identified and minimised. Indeed, the BRTF specified that regulators should not "use a sledgehammer to crack a nut";

(d) Consistent: Government rules and standards must be joined up and implemented fairly. This includes the requirement that regulation should be predictable in order to give stability and certainty to those being regulated; and

(e) Targeted: Regulation should be focused on the problem, and minimise side effects. This includes avoiding a "scatter gun" approach.

5.43 The principles specified in Section 4AA(5A)(b) GA86 are more general in nature, i.e. they include principles that appear to GEMA to represent regulatory best practice

5.44 The outperformance wedge is not consistent with GEMA's Best Practice Duty because it fails to comply with the "Principles of Good Regulation" and best regulatory practice more generally, as set out below.

(A) The Principles of Good Regulation

5.45 The outperformance wedge is not consistent with the Principles of Good Regulation for the following reasons:

(a) Transparency: The outperformance wedge significantly complicates the calibration of the price control and therefore is inconsistent with the principles of transparent and simple regulation.

(b) Accountability: GEMA has adopted the policy without sufficient justification or evidence and there is no explicit methodology to calculate the size of the adjustment with the circumstances of RIIO-2. As explained from Paragraph 5.50 onwards, GEMA has adopted an approach to the application of its regulatory discretion that is not consistent with this principle.

(c) Proportionality: As set out from Paragraph 5.10 onwards, GEMA has failed to establish that any intervention is necessary. As set out from Paragraph 5.34 onwards, the remedy is not appropriate, with well-established alternatives available and implemented by GEMA. As set out from Paragraph 5.17 onwards, the costs have not been identified but are likely to be large.

(d) Consistency: It is not clear how the mechanism is joined up with the rest of the price control for the reasons given in Paragraphs 5.10 to 5.16 above. It also represents a very

[395] Better Regulation Task Force, Principles of Good Regulation (2003) **{CGL1/C/5}**.

significant break from a well-established regulatory approach and undermines the requirement that regulation must be predictable.

(e) Targeting: This principle is that regulation should be focused on the problem and minimise side effects. The mechanism is not targeted because it seeks to address a perceived issue with ODI and Totex performance through an adjustment to the cost of equity and it duplicates remedies that it has already introduced to deal with those issues. It seems likely to introduce exactly the kind of unintended, negative side effects (as set out in Paragraphs 5.17 to 5.33 above) that this principle is designed to avoid.

5.46 KPMG assess whether the outperformance wedge is consistent with the principles of good regulation and conclude that it does not perform well against any of them.[396]

5.47 The CMA recently considered another novel regulatory mechanism, the Gearing Outperformance Sharing Mechanism or GOSM. In its PR19 Provisional Findings, the CMA expressed concerns about the mechanism on similar grounds to those set out above:

> "*We are 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*".[397] [Emphasis added.]
>
> "*If Ofwat consider their existing regulatory tools to be insufficient to address this issue, we would encourage it to consider alternative remedies targeted more directly at specific financial resilience issues, and also to undertake a full assessment of the benefits and costs of the different options for intervention*."[398] [Emphasis added.]

5.48 There is a clear read-across to GEMA's introduction of the outperformance wedge:

(a) The wedge constitutes a significant break from a well-established regulatory approach and punishes companies for previously sanctioned outperformance without offering sufficient evidence or clarity of justification.

(b) GEMA has not properly considered the effectiveness of alternative remedies (which it has in fact introduced) targeted more directly at the specific perceived issue and has failed to undertake a full assessment of the benefits and costs of the different options for intervention.

(B) Claw-back

5.49 The claw-back nature of the outperformance wedge is explained in Paragraph 5.30 above. This violates the principles for economic regulation and the principles set out by GEMA itself in the RIIO handbook.[399] Therefore, the outperformance wedge is not consistent with the principles that appear to GEMA to represent best regulatory practice.

[396] KPMG Outperformance Wedge Report, Section 4.6.
[397] PR19 Provisional Findings, Paragraph 9.628 **{CGL1/C/32}**.
[398] ibid., Paragraph 9.630.
[399] Handbook for implementing the RIIO Model, 4 October 2010, Paragraph 5.6 **{CGL1/C/10}**.

(C) Inappropriate approach to matters of regulatory discretion

5.50 In introducing the outperformance wedge, GEMA has relied heavily on its regulatory discretion, notably in terms of the evidence base to support its expectation of outperformance and in the way it calibrated the wedge.

5.51 The inadequate evidence base for the outperformance wedge adjustment is discussed in the KPMG Outperformance Wedge Report.[400] GEMA itself appears to have progressively lost confidence in the mechanism. Since the SSMC stage, GEMA has reduced the quantification of the wedge without any clear rationale and has found it necessary to introduce the ex-post adjustment mechanism in order to "*protect investors*" [401] from its own mechanism.

5.52 Using such broad evidence to justify making a specific adjustment on the basis of regulatory discretion is wrong. There is a clear parallel here to a previous decision of the CMA on an energy licence modification appeal:

(a) In the NPG Determination, the CMA considered GEMA's decision to make a further adjustment to allowed costs, following its general benchmarking exercise, to reflect its judgement of the likely impact of smart grid solutions on costs over the ED1 price control period.

(b) The CMA was not persuaded that "*GEMA's assessment of external evidence, or its quantitative assessment of DNO business plans presented at Final Determinations, provided material support for its view that there was a likely SGB shortfall that justified an adjustment*."[402]

(c) The CMA accepted, in a general sense, that "*GEMA was able to draw on a wide range of evidence and its regulatory judgement in reaching the decisions that informed its RIIO-ED1 Final Determinations. However, in the context of this ground of NPg's appeal, we have considered carefully what was presented to us as that wider evidence base including the approach which GEMA adopted at Final Determinations to estimate embedded and potential SGBs. In our view, for the reasons set out above, neither the evidence nor the reasons put forward by GEMA, at the time or subsequently, support GEMA's decision to make a specific SGB adjustment. In the absence of evidential support for the judgement, GEMA's discretion cannot, in our view, be treated as sufficient to justify the adjustment to NPg's totex that it made*."[403] [Emphasis added]

(d) The CMA recognised GEMA's intentions in its approach to SGBs, and the importance of smart grid solutions, but it stated clearly 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 as described in Section 3 above*."[404] [Emphasis added]

5.53 GEMA has also seemingly taken the position that the selection of a point estimate within the cost of equity range is simply a matter of regulatory discretion.

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[400] KPMG Outperformance Wedge Report, Section 6.
[401] FDs, Finance Annex, Paragraph 3.147 **{CGL1/A/22}**.
[402] NPG Determination, Paragraph 4.119 **{CGL1/C/18}**.
[403] ibid., Paragraph 4.140
[404] ibid., Paragraph 4.142.

5.54 At the SSMC stage, GEMA explained that there were potentially two options for implementing a consistent distinction between allowed returns and expected returns:

> "*a) Set the AR by explicitly forecasting the (out- or under-) performance that investors might expect, for example based on the degree of (out- or under-) performance that has materialised historically (on the basis that this will set investor expectations) and/or that is expected in RIIO-2 based on the final framework set at determination.*
>
> *b) Set the AR by applying regulatory discretion, taking into account the relative likelihood of out- or under-performance, within the bounds of the cost of equity generally, as modified in Step 2 (as a result of cross-checks of the CAPM-implied range as per Step 1).*"[405]

5.55 GEMA chose option (b), stating that, "*We propose to set the AR, in line with option b), by remaining within the bounds of the cost of equity evidence generally…. This approach would avoid placing too much weight on historical data and would reflect the difficulties in precisely estimating expected outperformance in the light of the ongoing changes to the RIIO-2 incentives framework*".[406]

5.56 GEMA continued as follows: "*Using this methodology, even if we are wrong to assume that investor expectations are positive, or if outturn outperformance does not materialise, the allowed returns would still be within the expected return range as supported by the CAPM in step 1 and reinforced by the cross-checks in step 2.*"[407]

5.57 Implicit within GEMA's reasoning are two related ideas:

(a) That the selection of a point estimate is simply a matter of "regulatory discretion", provided that the point estimate falls within the cost of equity range.

(b) That decisions on a point estimate within the cost of equity range do not need to be based on robust evidence or justification, as even if GEMA's estimate turned out to be based on wrong assumptions, it would still fall within an overall acceptable range.

5.58 These ideas are misconceived:

(a) It is fundamental to the regulatory regime and to investor confidence that regulatory discretion is not applied in an arbitrary manner, but in accordance with principles of regulatory best practice. 'Regulatory discretion' should not be relied on to avoid the principles of transparency and accountability and to avoid the need for evidence-based decision making.

(b) The cost of equity range produced, even using an appropriate CAPM methodology and set of cross-checks, is wide and subject to considerable uncertainty and therefore the impact of the selection of point estimate is extremely significant. Therefore, there is no justification for GEMA considering that the difficulties involved with estimating expected outperformance are somehow overcome by its decision to be bounded by its cost of equity range or that any error it makes in respect of investor expectations would not matter in these circumstances.

5.59 Therefore, GEMA's approach to applying the outperformance wedge only within the bounds of the cost of equity range does not cure the weak justification or evidence base for the policy.

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[405] SSMC, Finance Annex, Paragraph 3.155 **{CGL1/A/4}**.
[406] ibid., Paragraph 3.162.
[407] ibid., Paragraph 3.167.

Rather, GEMA's approach to matters of regulatory discretion here, as in other areas of its cost of equity methodology, is wrong and inconsistent with best regulatory practice.

(D) Failure to consider the impact of the policy which an inappropriate reliance on the UKRN Study should not disguise

5.60 As set out in the KPMG Outperformance Wedge Report, GEMA has failed to properly consult or consider the implications of its decision to introduce an outperformance wedge. It appears that part of the reason for that failure may be because GEMA has mistakenly relied on the UKRN Study to support its policy and has seen its policy as simply implementing that Study's recommendations.

5.61 GEMA has always been clear that the UKRN Study provides the basis for the introduction of the outperformance wedge and that it has acted on its advice. For example, at the SSMC stage, GEMA made the following statement:

> "*The UKRN Report argues*[46] [408] *that the AR should be set by taking into account the degree of financial incentive (positive or negative) that investors might expect, in order to be consistent with the principle that the cost of equity, is, by definition, an expectation. The UKRN Report also recommended that the regulator collect data on outperformance and explicitly forecast a value for the wedge.*
>
> *We have assessed the issues raised by the UKRN Study against our experience of setting, and reviewing, price controls. We find that the distinction is important and we are persuaded to act upon the UKRN Study advice. We therefore propose it would be beneficial to make a distinction between AR and ER as part of our cost of equity methodology.*"[409] [Emphasis added.]

5.62 In its Draft Determinations, GEMA states as follows:

> "*In line with good regulatory practice, our view is that our approach to Step 3 reflects a transparent implementation of the UKRN Study, as set out in the RIIO-2 consultations since March 2018*".[410] [Emphasis added.]

5.63 The following points should however be noted in respect of the UKRN Study:

(a) The authors agreed that expected returns should be estimated, but it was not one of the recommendations of the report to adjust the allowed return for expected outperformance.

(b) The subgroup (MPW) that did recommend that the "informational wedge" be taken into account when setting allowed returns did so on the basis that the sum of the "informational" wedge and the "regulatory" wedge should be equal to the desired value of "aiming up", i.e. in the UKRN Study MPW did not endorse an adjustment with the effect that the cost of equity allowance was set below the midpoint of the CAPM-derived range (as GEMA has done).[411]

(c) MPW's recommendation was also subject to the express caveat that the authors had not considered the regulatory system in the round, and that an appropriate expected return

[408] Cadent has not been able to identify the precise part of the UKRN Study **{CGL1/C/22}** to which GEMA's footnote 46 ("*See page 14 and section 5 (page 64 onwards) of the UKRN Study*") is intended to refer.
[409] SSMC, Finance Annex, Paragraph 3.153-3.154 **{CGL1/A/4}**.
[410] DDs, Finance Annex, Paragraph 3.150 **{CGL1/A/12}**.
[411] UKRN Study, Section 1.6, Pages 15-16 **{CGL1/C/22}**. It is noted that on page 74, MPW do contemplate that it is in principle logically possible that this might result in the regulatory wedge being equal to or less than zero, but this is not an endorsement.

needed to balance "*the need to incentivise firms towards efficiency, versus ensuring greatest benefits (returned) to consumers*".[412]

(d) The only author (Burns) to consider whether making such an adjustment would be in the interests of consumers (i.e. the question before GEMA and the CMA) came to the conclusion that such an adjustment would be detrimental to consumers.[413]

5.64 Therefore, it is not correct that GEMA's policy is a "*transparent implementation of the UKRN Study*" or that GEMA can be seen simply "*to act upon the UKRN Study advice"*. GEMA failed to have due regard to the limitations and caveats in the UKRN Study, including those parts summarised in Paragraph 5.63.

5.65 The misplaced reliance on the UKRN Study is of particular concern because it appears to be why GEMA did not itself feel it necessary to carry out an assessment of the long-term impact on consumers of the introduction of the outperformance wedge. We note that GEMA produced draft impact assessments at the SSMD and DD stages and a final impact assessment at FDs.[414] However, these do not include an assessment of the long-term impact on consumers of the introduction of the outperformance wedge, perhaps because of GEMA's unsubstantiated assumption that there would be no impact from a substantial reduction in the allowed cost of equity on companies' incentives to innovate, invest and seek to improve performance. This is remarkable given the significance of the policy, which no other regulator (including those involved in commissioning the UKRN Study and the CMA) has sought to introduce. This again shows that the introduction of the outperformance wedge it is not consistent with best regulatory practice.

(E) Failure to consult properly or engage with the evidence

5.66 KPMG detail in Section 3 of the Outperformance Wedge Report the evolution of GEMA's policy in respect of the outperformance wedge. It shows a consistent theme of GEMA failing to engage properly with the evidence presented to it and a failure to carry out its own assessment of the policy. This approach does not meet the requirements of regulatory best practice, or GEMA's own consultation policy, which requires GEMA to consult in accordance with four principles, which include that responses must be conscientiously taken into account.[415]

5.67 KPMG concludes that, in response to reasonable submissions setting out the negative economic consequences of the outperformance wedge, GEMA did not provide coherent responses to these points.[416] Again, this shows that the introduction of the outperformance wedge is not consistent with regulatory best practice.

(F) Focus on irrelevant factors

5.68 A key part of GEMA's rationale for introducing the outperformance wedge appears to have been to respond to perceptions of excess returns in the past. For example, when seeking to justify the outperformance wedge in the SSMD, GEMA states that "*it would be remiss to ignore the risks of*

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[412] ibid., Section 1.4, Page 13.
[413] ibid., Section 9.3, Page 88.
[414] RIIO-2 Final Determinations – Impact Assessment Annex (ofgem.gov.uk) **{CGL1/A/18}**; RIIO-2 Network Price Controls Draft Determinations Impact Assessment (ofgem.gov.uk) **{CGL1/A/15}**; and riio-2_network_price_controls_draft_impact_assessment_0.pdf (ofgem.gov.uk) **{CGL1/A/7}**.
[415] The Gunning Principles, as explained in Ofgem's consultation policy: https://www.ofgem.gov.uk/consultations/our-consultation-policy **{CGL1/C/37}**.
[416] KPMG Outperformance Wedge Report, Section 3.8.1.

consistent and deliberate over-remuneration. Such risks, including political risk and increased legitimacy risk, could in fact out-weigh the benefit of aiming up".[417]

5.69 The importance of legitimacy when GEMA was formulating its policy for RIIO-2 is set out in David Moon's Witness Statement[418], which also makes clear the importance placed on this by Cadent.

5.70 Nonetheless, it is not appropriate for GEMA to base policies on its perception of political risks. GEMA is an independent regulator with statutory duties that requires it to carry out its functions in the manner it considers is best calculated to further the Principal Objective, namely the interests of current and future consumers, and in accordance with best regulatory practice.

C. GROUNDS OF APPEAL TO WHICH THESE ERRORS GIVE RISE

5.71 As explained in Sub-Section B above, GEMA erred in including the outperformance wedge. The result is that GEMA's Decision was wrong within the meaning of Section 23D(4) GA86. In particular, GEMA:

(a) failed properly to have regard to, and failed to give appropriate weight to, the interests of current and, in particular, future consumers, including as a result of each of the other errors set out in (b) to (e) below and as a result of introducing a mechanism that distorts incentives carefully designed elsewhere in the price control and that ultimately risks disabling investment to the detriment of consumers (as set out in Paragraphs 5.17 to 5.33 above).

(b) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to, its Finance Duty including by setting the cost of equity allowance below even GEMA's assessment of the required cost of equity; failing to properly take into account the impact of doing so; and failing to take into account the impact on financeability.

(c) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to, its Security of Supply Duty and its Sustainability Duty, in failing to give proper consideration to the long-term effects of under-remuneration on security of supply and Net Zero.

(d) failed properly to have regard to, and failed to give appropriate (i.e. sufficient) weight to its Efficiency and Economy Duty, in failing to give proper consideration to the impact of the outperformance wedge on efficiency incentives.

(e) failed properly to have regard to, and failed to give appropriate weight to, its Best Practice Duty for the reasons given in Paragraphs 5.41 5.44 to 5.70 above.

(f) committed a number of errors of fact in respect of the evidence, as set out in this Section 5.

(g) adopted modifications that fail to achieve, in whole or in part, the effect stated by GEMA by virtue of section 23(7)(b) GA86, including as a result of failing to provide accurate remuneration for equity investors, contrary to GEMA's explanation of the purpose and benefits of its cost of equity allowance.[419]

(h) erred in law, including as a result of

[417] SSMD, Finance Annex, Paragraph 3.277 **{CGL1/A/6}**.
[418] 1st Moon ¶¶ 33 to 41.
[419] As set out in the introduction to the FDs, Finance Annex **{CGL1/A/22}**.

(i) taking into account irrelevant considerations (such as political risk, as explained in Paragraphs 5.68 to 5.70 above) and failing to take into account relevant considerations (such as the impact of its policy on the long-term interests of consumers, as required by its Principal Objective, as set out in Paragraphs 5.10 to 5.33 above);

(ii) failing in its duty of enquiry to take reasonable steps to gather the information needed to take an informed decision, as set out in Paragraphs 5.66 to 5.67 above; and

(iii) failing to consult fairly on its policy, including as a result of failing to consult in accordance with its own consultation policy, which requires GEMA to consult in accordance with four principles, which include that responses must be conscientiously taken into account, as set out in Paragraphs 5.66 to 5.67 above.[420]

D. RELIEF SOUGHT

5.72 The CMA should quash GEMA's decision to introduce the outperformance wedge and modify the Decision so that the "*expected outperformance*" values in the input tab (rows 170 and 179) and the tab for each Cadent network (row 198) in the GD2 Price Control Financial Model are set to zero (with consequent adjustment to the values based on them) with associated changes to Special Condition 2.3 of the Licence and the GD2 Price Control Financial Handbook.

[420] The Gunning Principles, as explained in Ofgem's consultation policy: https://www.ofgem.gov.uk/consultations/our-consultation-policy **{CGL1/C/37}**.

SECTION 6: IMPACTS AND CONSEQUENCES OF ADJUSTMENTS

A. INTRODUCTION: THE FDS INCENTIVISE A RISK AVERSE AND SHORT-TERM APPROACH TO INVESTMENT TO THE DETRIMENT OF CONSUMERS

6.1 GEMA's errors identified in this Notice will have direct consequences for Cadent and its customers if not corrected. They give rise to significant financial pressures that will impact on Cadent's ability to attract new capital, at a time when this is critical to deliver Net Zero, and negatively affect its incentives to deliver improvements in performance. Cadent put forward an ambitious and stretching Business Plan for RIIO-2. However, the Final Determinations provide a baseline totex allowance that falls significantly short of Cadent's efficient costs (see Section 3 above). In addition, GEMA has assessed the cost of equity at a level that is materially below an appropriate, evidence-based estimate of the required return on equity (see Section 4 above). It is for these reasons that Cadent appeals the specific errors identified in this Notice. Even correcting for these errors, the RIIO-2 price control will imply a significant efficiency challenge, a significant drop in returns and deliver reductions in the gas distribution element of bills of more than 10% for Cadent's customers.

6.2 The direct consequence of these errors (collectively and individually) is that Cadent (based on the price control's notional capital structure) cannot expect to achieve its required return on equity during RIIO-2. This has a number of further knock-on effects. It calls into question Cadent's ability to adequately remunerate its equity investors, and in the long-run its ability to attract equity finance; in combination for example with the increased use of regulatory mechanisms that rely on a degree of pre-financing, it will lead to liquidity challenges over the course of the price control and put pressure on the notional company's credit metrics; and it reduces Cadent's resilience to downside shocks.

6.3 Each of these challenges is further aggravated by the introduction of the 'outperformance wedge' (see Section 5 above), which means that Cadent will not even be able to earn the assessed cost of equity during the course of RIIO-2. This will put further pressure on the business's liquidity position and the notional company's credit metrics, despite an ex-post true-up mechanism, and distorts investment and efficiency incentives across the entire price control.

6.4 A robust analysis of the financeability of the FDs would have revealed GEMA's errors, but GEMA has failed to conduct such an analysis.

6.5 A report prepared by Cadent's expert witness KPMG for the purposes of this appeal[421] that examines the equity financeability of the FDs shows that on a mean expected basis and assuming the price control's notional capital structure, Cadent can expect to fall short of its required return on equity by more than 230 bps[422]. Further analysis demonstrates that this shortfall in the return on equity results in financial ratios for the notional company that are unlikely to be able to support GEMA's target investment grade credit rating, and that, even if achieved, such a rating would not imply adequate financial resources for the notional company to withstand plausible downside shocks.

6.6 GEMA concludes that no such financeability challenges exist, but it does so on the basis of a set of artificial and unrealistic adjustments, including a cost-free reduction in notional gearing and

[421] See KPMG Equity Financeability Report

[422] Relative to a required return of 5.6% as assumed in Cadent's Business Plan. The shortfall relative to the required return es timated by KPMG is even greater at approximately 280bps.

reduced dividend pay-outs, and an assumption that companies will be able to outperform the regulatory settlement.

6.7 The financeability challenges resulting from GEMA's errors are not abstract but real concerns. The under-provision for efficient costs, the allowed return on equity being set too low, the asymmetric risk profile of the price control, and its reliance on pre-financing will pose immediate liquidity challenges for Cadent and put pressure on credit metrics.

6.8 GEMA assumes that these challenges can be addressed by reducing pay-outs to investors. Its financeability analysis assumes a dividend yield of 3%, which on a net basis reduces to only marginally above zero when taking into account inflows from issuing new equity. This does not match investors' expectations and is not sustainable in a sector whose traditionally low cost of equity is underpinned by an assumption of stability and steady returns, including from price control to price control. Given the scale of its investment programme, Cadent relies on its ability to attract and retain investment on an ongoing basis. It is not in the interests of consumers for Cadent's business to face challenges in raising necessary financing, experience capital rationing or, eventually, to become non-financeable on terms compatible with the price control's assumptions.

6.9 The financial pressures that result from the FDs incentivise a risk averse and short-term approach to investment. This is further re-enforced by the 'outperformance-wedge', which removes any incentive to outperform unless outperformance can be expected to be significant. Rather than rewarding innovation and long-term improvement, investments that do not contribute towards meeting short term operational and financeability constraints will become difficult to justify under RIIO-2, to the detriment of customers.

B. CADENT CANNOT EXPECT TO EARN ITS REQUIRED RETURN ON EQUITY DURING RIIO-2

6.10 GEMA is under a duty to secure that licence holders are able to finance their regulated activities. A necessary requirement for a price control determination to be considered financeable is that an efficient regulated company with the assumed capital structure should reasonably be able to expect to earn its required return.

6.11 In practice, this requires a price control to be set such that across a range of plausible scenarios:

(a) An efficient company can expect, on average, to meet its business plan commitments and recover its costs, including an appropriate return on investment; and

(b) there is no significant asymmetry in a company's expected financial performance, meaning that downside risks are balanced by commensurate upside opportunities; or that, where such asymmetry exists, it is appropriately priced into the allowed cost of equity or reflected through headroom in the costs settlement.[423]

6.12 The Final Determinations fail in both respects.

6.13 As a result of the errors set out in Section 4 of this Notice of Appeal, GEMA has set a cost of equity allowance that falls materially short of an appropriate, evidence-based estimate of the required return on equity. As explained there, GEMA:

[423] See KPMG Equity Financeability Report, Section 4.2.

(a) has taken a selective and unbalanced approach to the available market evidence, which has led it to underestimate each of three key CAPM parameters, RfR, TMR and beta; and

(b) has failed to account appropriately (or at all) for:

(i) the asymmetric risks of setting the cost of equity too low as a result of the inherent and unavoidable uncertainty in the underlying CAPM parameters;

(ii) asymmetric downside risk exposure resulting from (i) GDN-specific structural demand risk arising from Net Zero, and (ii) the downside skew in the price control's risk profile, which results from the extensive use of regulatory mechanisms that are asymmetric by design, and from the reliance on *inter alia* re-openers that are subject to ex-post regulatory review (which historically has on average resulted in a cost shortfalls).

6.14 Cadent's expert witness KPMG estimates a return of 6.11% is required. Cadent, in its own assessment underscoring its Business Plan assumed that a return of at least 5.6% was required. GEMA's allowance of 4.55% (before adjustment for the 'outperformance wedge'), falls significantly short of either.

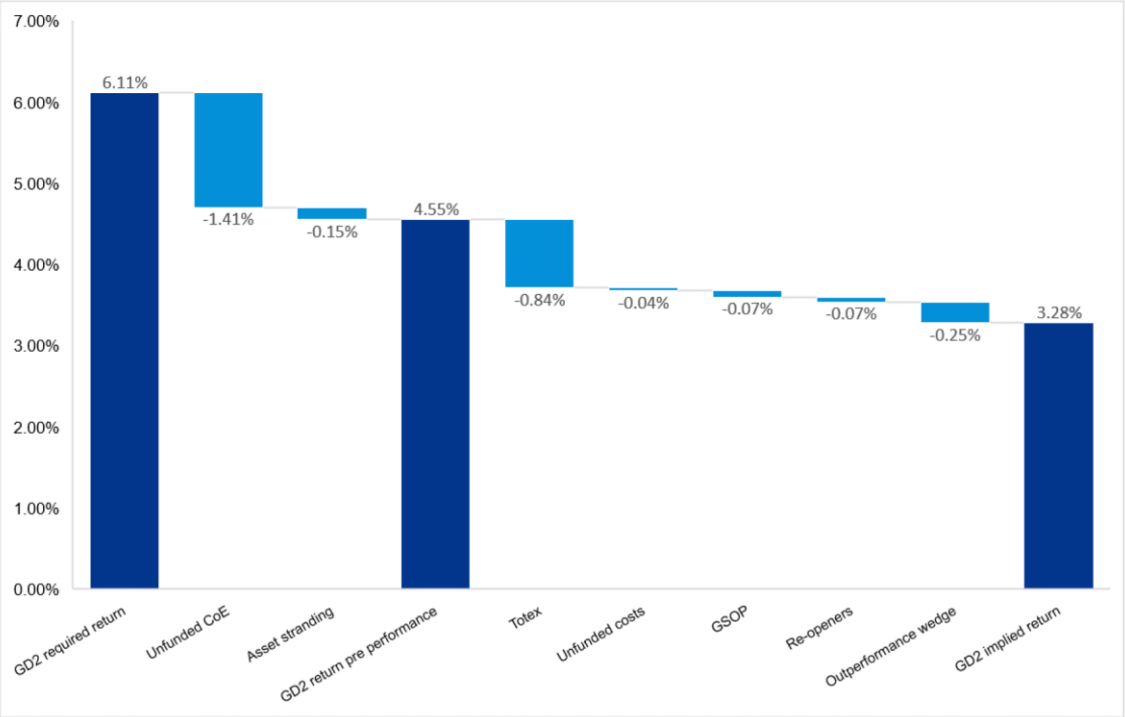
6.15 Cadent's baseline totex allowance has been set £334 million below the efficient level of costs implied by its Business Plan.[424] This is the result of the errors set out in Section 3 (in aggregate £222 million) and unachievable efficiency assumptions that are based on an unprecedented 85th percentile benchmark which relies on a single top-down econometric model. This shortfall in allowance for efficiently incurred costs equates to another 84bps reduction in the expected return to equity.

6.16 The application of the outperformance wedge, discussed in Section 5 of this Notice of Appeal, has the effect that Cadent, based on a notional capital structure, cannot even expect to earn the assessed cost of equity during the course of RIIO-2, and represents a further shortfall of 25bps on the expected return. It also contributes further to the negative skew in the risk profile, which is not reflected in GEMA's estimate of the cost of equity, given that outperformance between 0 bps and 25 bps cannot be achieved.

6.17 In combination, Cadent's expert witness KPMG estimates that Cadent's expected return, on the basis of a notional capital structure, on regulated equity during RIIO-2 will be as low as 3.28%, 283bps short of its estimate of the required return, and still around 230bps short of Cadent's assumption of 5.6% underlying its Business Plan.

This is summarised in Figure 1 of the KPMG Report, which is reproduced below.

[424] The £334 million is explained at Paragraph 3.18 of this Notice.



C. THE SHORTFALL IN EXPECTED RETURNS MEANS THE FDS ARE NOT FINANCEABLE FOR THE NOTIONAL COMPANY

6.18 The significant shortfall in expected versus required returns on equity has further consequences for the financeability of the FDs.

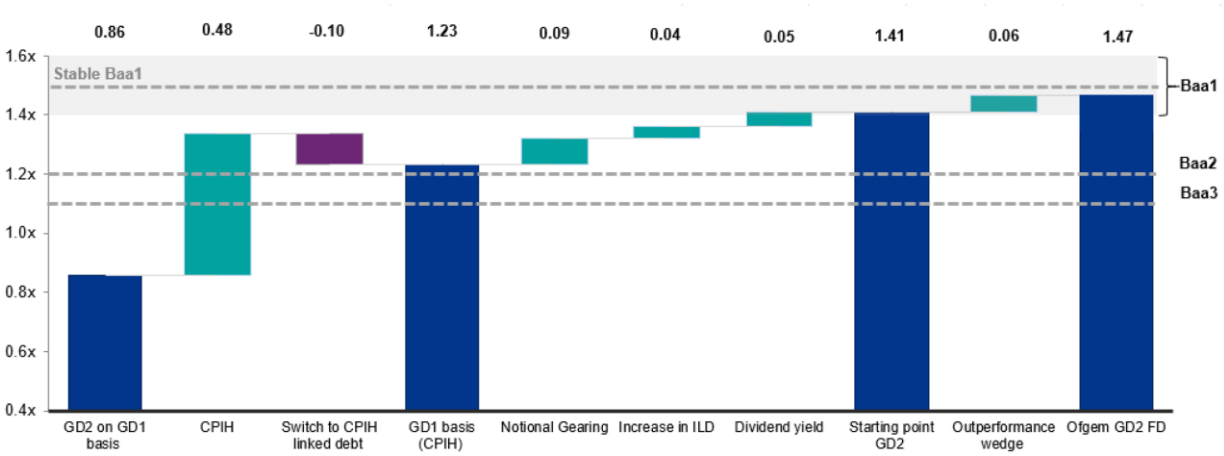
6.19 The price control is based on the assumption of a notional level of gearing and the maintenance of a stable investment grade credit rating. For the overall settlement to be financeable, the notional company must therefore also be able to secure the required levels of financial ratios to support such a rating. In addition, in order for a stable investment grade rating to be achievable on an in the round assessment, the notional company must have adequate financial resources to ensure financial resilience and manage business risk.

6.20 A thorough financeability analysis conducted by KPMG shows that neither of these requirements is met:

(a) On a historically comparable basis[425] to RIIO-GD1, the notional company would achieve a sub-investment grade rating. It is only through the full transition to CPIH for RIIO-2, which leads to a material improvement in the notional company's financial position, that financial metrics move into investment grade territory at all and become consistent with a weak Baa2/BBB rating. In addition, even with this effect, a number of further, unrealistic assumptions (see the following sub-section) are required for notional credit metrics to improve to Baa1/BBB+ level, albeit still falling short of a (target) Baa1/BBB+ rating with stable outlook.

Figure 2 of the KPMG Report, which is reproduced below, illustrates this by reference to the notional company's adjusted cash interest coverage ratio (AICR), a key metric considered by ratings agencies.

[425] This assumes no transition to CPIH, 65% gearing, 25% index linked debt, 5% dividend yield, no assumed out- or under-performance in line with the specification of the notional company at GD1.



(b) Moreover, KPMG finds that plausible downside scenarios would lead to financial difficulty and/or distress for Cadent under a historically comparable notional financial structure including the impact of the CPIH transition, including breaching investment grade threshold. The combination of increased and asymmetric risk, an underestimated cost of equity and expected underperformance lead to a fundamental mismatch between the company's exposure to downside risk and the financial resources available to it to be able to manage those risks and ensure resilience.

6.21 This is consistent with rating agencies' initial assessments of the Final Determinations. Moody's comments that:

> "*… we consider that the determination is materially tougher than for the RIIO-1 controls and we expect credit quality to weaken in RIIO-2.*"[426]

S&P similarly observes that:

> "*… our preliminary assessment of the FD indicates that some networks will need to take additional measures to support their credit metrics if they are to maintain the current ratings. These might need to go beyond a temporary dividend cut to mitigate the lower regulated revenues.*"[427]

D. GEMA'S OWN FINANCEABILITY ANALYSIS WAS FLAWED AND FAILED TO IDENTIFY THE CHALLENGES POSED BY THE FDS

6.22 GEMA's own financeability analysis is flawed and therefore failed to pick up the significant financeability challenges caused by the Final Determinations.

6.23 In order to justify its conclusion "*that all notional licensees can be considered comfortable investment grade in the round*",[428] GEMA had to rely on a series of artificial and unrealistic assumptions. This approach to financeability reverses the appropriate way of setting allowed returns and using financeability as a cross-check. Instead of assuming a reasonable and achievable notional financial structure first, setting the allowed return, and then using financeability as a

[426] KPMG Equity Financeability Report, Paragraph 7.3.29.
[427] KPMG Equity Financeability Report, Paragraph 7.3.34.
[428] FDs, Finance Annex, Paragraph 5.24 **{CGL1/A/22}**.

cross-check on the allowed return, the regulator seems to have changed its initial assumptions about the notional financial structure in order to justify its allowed return.[429] In particular:

(a) GEMA assumes that notional gearing can be reduced by 5% from the start of the price control period in order to reflect the higher risk exposure inherent in RIIO-2, without however incurring any associated, unfunded refinancing, break or transaction costs, which in reality would be significant. Moreover, the proposed changes introduce a material wedge between the assumed notional financial structure and the actual financing structure adopted by individual GDNs as well as the notional financing structure in previous controls;

(b) GEMA assumes likewise that the proportion of index linked debt can be increased without any material cost from 25% to 30% at the outset of RIIO-2, which is unrealistic in light of companies' current capital structures and the still nascent market for CPIH linked debt;

(c) GEMA assumes that dividend yields can be reduced to 3%, 200 bps lower than during RIIO-1 and at least 100 bps below market benchmarks, which is not sustainable against expectations of investors which turn to utilities as a reliable source of income; and

(d) GEMA assumes that companies will be able to outperform the regulatory settlement by 25bps so as to neutralise the reduction in allowed returns through the 'outperformance wedge', where it is in fact not realistic to expect outperformance under RIIO-2.

6.24 In addition, whilst GEMA stress-tests its assumption, it does so on a more limited basis (up to a maximum of a 1% shortfall in returns), carries out almost no analysis of the price control's asymmetry, and ignores entirely the potential impact of Covid-19 on network operating costs and financial markets (for example through low inflation in the near term, which would lead to cash flow constraints given a mismatch between actual inflation and the calculation of real allowances based on long term inflation forecasts).

6.25 In summary, had GEMA conducted a robust financeability analysis, it would have identified the issues resulting from its errors and would have been able to recalibrate the price control, but it failed to do so.

E. THE FINANCEABILITY CHALLENGES CREATED BY THE FDS UNDERMINE FUTURE INVESTMENT IN THE SECTOR

6.26 The financeability issues created by a shortfall of funded costs and an underestimation of the required return on equity are not abstract concerns. As explained in the witness evidence of Stephen Hurrell, Cadent's Chief Financial Officer, Cadent's ability to raise financing readily and at reasonable cost is key in enabling the delivery of services and improvements expected by customers and to continue sustainable capital investment, in particular in the context of the transition to Net Zero.[430]

6.27 The FDs would pose significant challenges for Cadent's corporate financial management, given the tightness of allowances and the significant downside risks to the costs settlement and the removal of almost all upside mechanisms.

6.28 Cadent does not agree with GEMA's assumption that financeability concerns can be addressed through reduced pay-outs to investors. While reducing dividend payments would retain more

[429] KPMG Equity Financeability Report, section 6.4.
[430] 1st Hurrell, Sections C and D.

capital within the business, this is not sustainable in the long term as it conflicts with the expectations of investors. Cadent's investors have a long-term investment horizon and commitment to the business, which is enabled in part by an expectation of stable dividend yields over time. This is characteristic more broadly of investors in regulated utilities given that investments in utilities are often driven by the availability of dividends and their role as 'income' stocks.[431]

6.29 GEMA's financeability analysis assumes a dividend yield of 3%, which is almost entirely funded by the proceeds from raising new equity. On a net basis, this equates to cash returns to equity of close to zero. As Mr Hurrell explains, investors are clear that the traditionally low cost of equity in the energy sector is underpinned by an assumption of stability and steady cash returns. Deferring these returns for any significant period of time against the prospect of eventual growth in the RAV does not match with investor motivations for investing in the sector and will ultimately require a higher cost of equity given the inherent riskiness of deferred returns.

6.30 In addition, it is important for Cadent's financial management that equity returns are adequate to provide financial resources and headroom for debt financing both in terms of available cash flows, but also more broadly by supporting credit metrics that are compatible with its rating and providing the required level of resilience to potential shocks. This is critical, as Cadent will need to raise around £2 billion, or 20% of total capital employed in the business over the RIIO-2 period.[432]

6.31 As Mr Hurrell explains in more detail, there are structural pressures on cash flows inherent in a business that requires continuous capital expenditures to replace and renew long-lived assets and is exposed to a mismatch in timing between regulated returns and actual expenditure. Low allowed returns coupled with the application of the in-period 25bps downwards adjustment of the 'outperformance wedge' and a 6.5% totex shortfall will have an additional negative impact on Cadent's liquidity position.

6.32 Equally, modelling of downside risk is critical for lenders as it is typically used (in conjunction with other assumptions), to inform the base case financial ratios or headroom required to for example inform target gearing.[433] However, KPMG's analysis shows that plausible, realistic downside scenarios would lead to financial difficulty and/or financial distress for Cadent under the notional financial structure given the very limited financial headroom available in the base case based on the Final Determinations.

6.33 These pressures combined ultimately risk undermining Cadent's credit quality, and the way credit agencies and investors view its credit. Given the size of its debt portfolio and upcoming funding needs, any deterioration of Cadent's credit rating or outlook would have long term negative consequences for Cadent's customers, in particular at a time when significant new capital will need to be deployed in order to fund Net Zero. Investors will require higher returns where credit quality declines and where there are related concerns about the predictability and stability of the regulatory environment.

[431] 1st Hurrell ¶ 68–72.
[432] 1st Hurrell ¶ 77.
[433] 1st Hurrell ¶ 90.

F. INVESTMENT CONSTRAINED BY SHORT-TERM CASHFLOW CONSIDERATIONS RATHER THAN FOCUSED ON LONG-TERM CONSUMER INTERESTS

6.34 It is not in the interests of consumers for Cadent's business to face challenges in raising necessary financing, experience capital rationing or, ultimately, to become non-financeable at rates compatible with the price control.

6.35 The significant reduction in allowed returns and imbalance between risk and rewards undermines the attractiveness of investment in the gas sector. This could ultimately lead to the withdrawal or re-deployment of capital by investors. Critically, it will undermine investor appetite to invest the significant capital required to fund the transition to Net Zero. However, as Mr Hurrell explains, under financial constraints, a company is in practice incentivised to take a risk averse approach which may result in sub optimal investment decisions. Rather than rewarding innovation, improvement and a long-term mindset, Cadent's focus would need to be squarely on meeting short term operational and financeability constraints due to the material cost gap, fall in allowed returns and complexity of the regulatory framework.[434]

6.36 Discretionary investments that Cadent undertakes to build a better network for the future will become difficult to accommodate where payback periods stretch beyond RIIO-2. This is likely to lead to investments being deferred sub-optimally to a point in time when they will be more costly to undertake increasing the whole life cost of infrastructure to Cadent's customers. In the context of essential services this also risks a deteriorating assets base at the expense of future consumers.

G. OUTPERFORMANCE WEDGE

6.37 The novel regulatory mechanism of the 'outperformance wedge' amplifies many of the pressures and undesirable consequences identified above. It has the effect that Cadent, based on a notional capital structure, cannot even earn GEMA's view of the required cost of equity during the course of RIIO-2. Even if this shortfall is eventually made up through an ex-post top-up mechanism at the outset of RIIO-3, this adds to the financeability challenges Cadent will face during RIIO-2. The 25bps reduction equates to a £100 million reduction in Totex allowance, or a further 2% efficiency challenge. It compares to a maximum reward under ODIs of 31 bps.

6.38 In addition, as set out in Section 5 of this Notice and the KPMG Outperformance Wedge Report, the mechanism has a number of undesirable properties. In particular, by removing the benefit of any outperformance up to 25bps, it creates perverse incentives for companies that expect only marginal outperformance – which if any outperformance were to be expected in RIIO-2 would be the most realistic scenario. This incentive 'deadband' reinforces the risk averse approach to investment already encouraged as a result of the financial constraints imposed by the FDs, and distorts investment and efficiency incentives across the entire price control.

6.39 The introduction of a novel mechanism such as the 'outperformance wedge' is also likely to further heighten investor concerns about reduced returns and assumed dividend yields in the current price control period. The mechanism raises the spectre that, in addition to deferring pay-outs to compensate for current downside risks, future upside potential is at risk of a clawback.

[434] 1st Hurrell ¶ 98.

H. CONCLUSION

6.40 GEMA's errors identified in this Notice of Appeal lead to significant financeability constraints which have real life consequences for licensees including Cadent that are not in the interests of consumers. Cadent is a critical infrastructure company delivering an essential service to millions of customers, many of them vulnerable customers. GEMA's Decision does not permit Cadent to properly and efficiently deliver these services in customers' long-term interests. The lack of a sufficient allowance to deliver the services efficiently and the underestimate of the required return to attract long term investment, will drive a focus on short term financeability and decision making rather than optimising services and investment required for future consumers. This will undermine progress and ultimately drive higher costs in the long term for the transition to Net Zero. The remedies set out in this Notice will leave Cadent with a significant efficiency challenge on an already ambitious and stretching Business Plan for RIIO-2, whilst continuing to drive efficient financing with a significant reduction in equity returns. This will protect consumers' interests by delivering double digit real bill reductions for Cadent's customers in real terms and enabling Cadent to deliver the services and improvements it has committed to its customers and enabling it to better support the transition to Net Zero.

SECTION 7: STATEMENT OF TRUTH

Cadent believes that the facts stated in this Notice are true.

Signature of Authorised Representative	**[REDACTED]** ……
Name of Authorised Representative	**DAVID NICHOLAS MOON** ……
Date	**3 MARCH 2021** ……

for and on behalf of Cadent Gas Limited

APPENDIX 1: CHRONOLOGY

The below chronology sets out the key events and steps leading up to the Decision:

Date	Event / Step
12 July 2017	GEMA published an open letter on the RIIO-2 Framework.
7 March 2018	GEMA published its RIIO-2 Framework Consultation.
30 July 2018	GEMA published its RIIO-2 Framework Decision.
18 December 2018	GEMA published its Sector Specific Methodology Consultation.
24 May 2019	GEMA published its Sector Specific Methodology Decision.
1 July 2019	Cadent submitted its draft 2021-2026 RIIO-2 Business Plan to GEMA.
1 October 2019	Cadent submitted its second draft 2021-2026 RIIO-2 Business Plan to GEMA.
9 December 2019	Cadent submitted its Final 2021-2026 RIIO-2 Business Plan to GEMA.
9 July 2020	GEMA published its Draft Determinations.
4 September 2020	Cadent submitted its response to Draft Determinations and revised certain aspects of its Business Plan (including Submitted Costs) in response to GEMA's queries.
8 December 2020	GEMA published its Final Determinations.
17 December 2020	GEMA published its statutory consultation on the modifications to Cadent's licence conditions pursuant to Section 23(2) GA86.
3 February 2021	GEMA concluded the Errata Process.
3 February 2021	GEMA re-published the Final Determinations (as revised to reflect the outcome of the Errata Process) and published its Decision.
TBC	GEMA to consult on the correction of errors in the disaggregation of the totex allowance into PCDs, revenue drivers and Network Asset Risk Measures.

APPENDIX 2: GLOSSARY

Term	Meaning
Allowed Revenue	As defined in Paragraph 3.3 and footnote 26.
Best Practice Duty	As defined in Paragraph A4.14.
BoE	Bank of England.
BoE Millennium Dataset (CPI)	As defined in Paragraph 4.53.
BEIS	Department for Business, Energy and Industrial Strategy.
BGT Determination	The final determination of the CMA published on 29 September 2015 in the appeal by British Gas Trading Limited against GEMA's price control decision for electricity distribution network operators.
Bristol Water Determination	The final determination of the CMA, dated 6 October 2015 and published 21 October 2015 in the reference to the CMA of Ofwat's PR14 price control determination in respect of Bristol Water plc.
Business Plan	The information submitted by each GDN to GEMA setting out the activities that it intends to undertake in RIIO-GD2 and the associated costs and outputs. Cadent submitted its final Business Plan on 9 December 2019, and revised certain information (including Submitted Costs) on 4 September 2020.
Business Plan Data Templates (or BPDTS)	The Business Plan template documents that set out each GDN's detailed Submitted Costs.
Cadent	Cadent Gas Limited.
capital expenditure (or capex)	Capital expenditure on investment in long-term distribution assets, such as gas pipelines.
CAPM	Capital Asset Pricing Model.
CAWG	The RIIO-2 Cost Assessment Working Group.
Catch-up Challenge Adjustment	As defined in Paragraph 3.13.
CC	The Competition Commission, the predecessor to the CMA.
CEPA	As defined in Paragraph 3.16.
CMA	Competition and Markets Authority.
CPI	The Consumer Prices Index.
CPI-H	The Consumer Prices Index including owner occupiers' housing costs.
CSV	Composite scale variable.
DECC	Department of Energy & Climate Change.

Term	Meaning
Decision	GEMA's decision of 3 February 2021 to proceed with modifications to the Licence in respect of Cadent's price control over the period 1 April 2021 to 31 March 2026.
DGM	Dividend Growth Model.
DMS	Dimson March and Staunton.
Draft Determinations (or DDs)	GEMA's RIIO-2 Draft Determinations for Transmission, Gas Distribution and Electricity System Operator of 9 July 2020.
EA89	Electricity Act 1989.
Econometric Modelling	As defined in Paragraph 3.9.
Efficiency and Economy Duty	As defined in Paragraph A4.13.
Efficiency Benchmarking	As defined in Paragraph 3.13.
EI Report	The report prepared by Economic Insight commissioned by Cadent in response to GEMA's DDs.
Embedded OE	As defined in Paragraph 3.140.
Emergency CSV	As defined in Paragraph 3.66.
EO92	Electricity (Northern Ireland) Order 1992.
East of England (or EoE) GDN	The Gas Distribution Network located in the East of England region which is owned and operated by Cadent.
E.ON Determination	The decision and order of the Competition Commission published on 10 July 2007 in the appeal by E.ON UK Plc against a decision by GEMA in relation to proposed changes to arrangements for the offtake of gas from the national transmission system.
Errata Process	The process through which GEMA sought to correct certain errors in its Final Determinations.
EU KLEMS	An industry level, growth and productivity research project originally financed by the European Commission, which involves an analysis of capital (K), labour (L), energy (E), materials (M) and service (S) inputs, as further described in Paragraph 3.107 and footnote 124.
Finance Duty	As defined in Paragraph A4.11.
Final Determinations (or FDs)	GEMA's RIIO-2 Final Determinations for Transmission and Gas Distribution companies and the Electricity System Operator of 8 December 2020 (as revised and republished on 3 February 2021 to reflect the outcome of the Errata Process).

Term	Meaning
Firmus Determination	The final determination of the CMA published on 28 June 2017 in the appeal by Firmus Energy (Distribution) Limited against a decision by the Northern Ireland Authority for Utility Regulation to modify the conditions of its gas conveyance licence.
FE Report	The report prepared by Frontier Economics, titled 'Further Analysis of Ofgem's Proposal to Adjust Baseline Allowed Returns: A report prepared for the ENA' and dated September 2020.
GA86	Gas Act 1986.
Gas Distribution Network or GDN	Either (1) a gas distribution network operator; or (2) a regional gas distribution network in GB, as the context requires.
GB	Great Britain.
GD	Gas distribution.
GD2 Price Control Financial Handbook	Has the meaning given to the term in the Licence, as modified by the Decision.
GD2 Price Control Financial Model	Has the meaning given to the term in the Licence, as modified by the Decision.
GEMA	Gas and Electricity Markets Authority.
GO96	Gas (Northern Ireland) Order 1996.
GO or Gross Output	Gross Output.
ILGs	Index-linked gilts.
Innovation Uplift	As defined in Paragraph 3.107.
KPMG Equity Financeability Report	The expert report prepared by KPMG in respect of financeability.
KPMG Report	The expert report prepared by KPMG in respect of the cost of equity allowance, including the adjustment for expected outperformance.
KPMG Outperformance Wedge Report	The expert report prepared by KPMG in respect of the outperformance wedge.
Licence	The gas transporter licence held by Cadent under Section 7(2) GA86.
Local Transmission System (or LTS)	The major distribution pipelines that transport gas downstream of the National Transmission System (NTS) (which is not owned or operated by Cadent) at the higher pressure tiers.
Lower Bound	As defined in Paragraph 3.107.
LTS Rechargeable Diversions Costs	As defined in Paragraph 3.26.

Term	Meaning
London GDN	The Gas Distribution Network located in the North London region which is owned and operated by Cadent.
LP	Labour Productivity.
M&M	Modigliani Miller.
MARs	Market to asset ratios.
MOBs	Multiple occupancy buildings.
Modelled Costs	As defined in Paragraph 3.12.
NERA	The economic consultants known as National Economic Research Associates.
NERA Report	The expert report prepared by NERA in respect of the cost assessment aspects of this appeal.
Net Zero	As defined in Paragraph 2.6.
NG	National Grid plc.
NGG	National Grid Gas plc.
NIE Determination	The final determination of the Competition Commission published on 15 April 2014 in the reference to the Competition Commission of the Northern Ireland Authority for Utility Regulation's price control final determination in respect of Northern Ireland Electricity Limited.
Non-Regressed Costs	As defined in Paragraph 3.7(b).
North West GDN	The Gas Distribution Network located in the North West region which is owned and operated by Cadent.
NPG Determination	The final determination of the CMA published on 29 September 2015 in the appeal by Northern Powergrid (Northeast) Limited and Northern Powergrid (Yorkshire) plc against GEMA's price control decision for electricity distribution network operators.
OBR	Office for Budget Responsibility.
OFTO	Offshore transmission owner.
Ongoing Efficiency	As defined in Paragraph 3.15.
Ongoing Efficiency Target	As defined in Paragraph 3.16.
ONS	Office for National Statistics.
operating expenditure (or opex)	The costs of the day-to-day operation of the network such as staff costs, repairs and maintenance expenditures and overheads.
Outputs	The outputs set by GEMA as part of RIIO-GD2.
Principal Objective	As defined in Paragraph A4.8.
PR14	Ofwat's 2014 Price Review.

Term	Meaning
PR19	Ofwat's 2019 Price Review.
PR19 Cost of Capital Working Paper	The CMA's PR19 determination paper entitled, "Choosing a point estimate for the Cost of Capital – Working Paper", published 8 January 2021.
PR19 Provisional Findings	The provisional determinations of the CMA published on 29 September 2020 in relation to the Anglian Water, Bristol Water, Northumbrian Water and Yorkshire Water price controls for 2020-2025 following a reference from Ofwat on request of each company.
Public Reported Escaped (or PREs)	Calls made by the public to the Gas Emergency Call Centre in the event of a suspected gas leak or other gas-related emergency.
Real Price Effects (or RPEs)	As defined in Paragraph 3.105.
Rechargeable Works	As defined in Paragraph 3.23.
Regional Factors Methodology	As defined in Paragraph 3.49.
Regional Labour Cost Adjustment	As defined in Paragraph 3.50.
Regressed Costs	As defined in Paragraph 3.7(a).
Regulatory Asset Value (RAV)	The value ascribed by GEMA to the capital employed in the licensee's regulated business.
repex	The Health and Safety Executive enforced gas mains replacement programme.
RFR	As defined in Paragraph 4.17(a).
RIIO	The "*Revenues* = *Incentives* + *Innovation* + *Outputs*" regulatory price control framework developed by GEMA.
RIIO-1	The first generation of RIIO price control reviews, relating respectively to the GB gas transmission, gas distribution, electricity transmission and electricity distribution sectors.
RIIO-2	The second generation of RIIO price control reviews, relating respectively to the GB gas transmission, gas distribution, electricity transmission and electricity distribution sectors.
RIIO-2 Framework Consultation	GEMA's RIIO-2 framework consultation of 7 March 2018.
RIIO-2 Framework Decision	GEMA's RIIO-2 framework decision of 30 July 2018.
RIIO-ED1 (or ED1)	The RIIO-1 price control review for electricity distribution network operators for the period 1 April 2015 to 31 March 2023
RIIO-ED2	The RIIO-2 price control review for electricity distribution network operators for the period 1 April 2023 to 31 March 2028.

Term	Meaning
RIIO-GD1 (or GD1)	The RIIO-1 price control review for GDNs for the period 1 April 2013 to 31 March 2021.
RIIO-GD2 (or GD2)	The RIIO-2 price control review for GDNs for the period 1 April 2021 to 31 March 2026.
RPI	Retail Prices Index.
Rules	The Energy Licence Modification Appeals: Competition and Markets Authority Rules (CMA70, October 2017).
Sector Specific Methodology Consultation (or SSMC)	GEMA's RIIO-2 sector specific methodology consultation of 18 December 2018.
Sector Specific Methodology Decision (or SSMD)	GEMA's RIIO-2 Sector Specific Methodology Decision of 24 May 2019.
Security of Supply Duty	As defined in Paragraph A4.11.
SONI Determination	The final determination of the CMA published on 13 November 2017 in relation to the appeal by SONI Limited against a price control decision by the Northern Ireland Authority for Utility Regulation in respect of SONI Limited's transmission system operation business in the period of October 2015 to September 2020.
Specific Claims	As defined in Paragraph 3.55.
Submitted Costs	The forecast costs submitted by GDNs in their Business Plans.
Sustainability Duty	As defined in Paragraph A4.11.
TIM	Totex Incentive Mechanism.
Technically Assessed Costs	As defined in Paragraph 3.7(c).
TFP	Total Factor Productivity.
TMR	As defined in Paragraph 4.17(b).
UKPN	UK Power Networks.
UKRN	UK Regulators Network.
UKRN Study	The report, "Estimating the cost of capital for implementation of price controls by UK Regulators: An update on Mason, Miles and Wright (2003)", commissioned by certain members of the UKRN and dated March 2018.
Upper Bound	As defined in Paragraph 3.107.

Term	Meaning
Urbanity Productivity Adjustment	As defined in Paragraph 3.53.
Urbanity Reinstatement Adjustment	As defined in Paragraph 3.54.
VA	Value Added.
Vulnerability Duty	As defined in Paragraph A4.12.
West Midlands GDN	The Gas Distribution Network located in the West Midlands region which is owned and operated by Cadent.

APPENDIX 3: SUMMARY OF PRICE CONTROL BUILDING BLOCKS

A. BASELINE REVENUE BUILDING BLOCKS

A3.1 Baseline revenue (also known as "base revenue") refers to upfront funding allowed by GEMA. For the purposes of this appeal, the relevant building blocks for baseline revenue are as follows:

(a) ***Baseline totex allowance:*** this is an upfront allowance that makes provision for the opex, capex and repex costs incurred by GDNs in respect of their networks.[435] However, the amount of upfront funding provided is limited to expenditure required to be incurred in order to deliver a baseline level of service to customers[436] (i.e. costs required to deliver the Outputs (explained below)). Further details regarding how the baseline totex allowance is determined (through cost assessment) is set out in Section 3.

(b) ***Common & bespoke ODIs, PCDs, LOs:*** together these constitute the "**Outputs**" for the RIIO-2 price control and, at their simplest, specify the consumer-facing outcomes that the company is expected to achieve in exchange for revenue allowances (i.e. including the baseline totex allowance) over the price control period.[437]

(i) *Licence Obligations (LOs):* these are pure licence obligations that specify consumer-facing outcomes (limited to the minimum standards that networks must achieve),[438] which the company must deliver in exchange for revenue allowances over the price control period.[439] Licence obligations are not *directly* linked with specific baseline funding but the efficient costs required to deliver them are assumed to be funded by the totality of the price control settlement (i.e. including by the baseline totex allowance).[440]

(ii) *Price Control Deliverables (PCDs):* these 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).[441] In essence, PCDs capture those outputs that are directly funded through the price control (including through the baseline totex allowance)[442] 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.[443]

PCDs can include: (1) large one-off capital projects – to be delivered to a stated specification, budget or timing, (2) commitments or assumptions associated with a baseline level of funding – e.g. kilometres of pipe replacement, or (3) other input activities to be delivered to a stated standard – e.g. activities related to changes in government policy.[444]

(iii) *Output Deliver Incentives (ODIs):* these are intended to apply where service quality improvements beyond the minimum standard are in the interests of

[435] FDs, GD Annex, Paragraph 3.4 **{CGL1/A/23}**.
[436] SSMD, Core Document, Paragraph 4.33 **{CGL1/A/5}**.
[437] RIIO-2 Framework Consultation, Paragraph 6.6 **{CGL1/A/2}**.
[438] FDs, Core Document, Paragraph 4.3 **{CGL1/A/20}**.
[439] SSMD, Core Document, Paragraph 4.21 **{CGL1/A/5}**.
[440] RIIO-2 Framework Decision, Paragraph 5.5 and RIIO-2 Framework Consultation, Paragraph 6.14 **{CGL1/A/2}**.
[441] FDs, Core Document, Paragraph 4.3 **{CGL1/A/20}**.
[442] SSMD, Core Document, Paragraph 4.29 **{CGL1/A/5}**.
[443] SSMD, Core Document, Paragraph 4.23 **{CGL1/A/5}**.
[444] SSMD, Core Document, Paragraph 4.25 **{CGL1/A/5}**.

consumers.[445] ODIs can be either reputational or financial. Reputational ODIs do not have an impact on revenues (i.e. require networks to report whether they have achieved the higher standard), while financial ODIs can result in rewards/penalties.[446] Further, ODIs can be either "bespoke" in that they are proposed by the companies in their Business Plans, or "common" meaning that they apply equally to all network companies (or a subset, e.g. GDNs).

(c) ***Baseline Allowed Returns on capital:*** the allowed return on capital is determined by GEMA as equal to the result of the following formula:

A * E + D * (1 – A).

Where:

A = Notional Gearing

E = Allowed return on Debt

D = Allowed return on Equity[447]

The allowed return will change during RIIO-2 to reflect the combined effect of debt indexation and equity indexation mechanisms. The way in which the allowed return on equity has been calculated by GEMA forms Ground 2 of this appeal and, as a result, is further described in Section 4 of this Notice of Appeal.

(d) ***Innovation and use-it-or-lose-it ("UIOLI") allowances:***

(i) *Innovation:* Although networks are expected in RIIO-2 to fund more innovation as BAU using their totex allowance, Net-Zero UIOLI allowances and under the totex incentive mechanism, GEMA also provides additional specific innovation stimulus funding.[448] Such specific additional funding can be accessed through mechanism such as the Network Innovation Allowance (NIA) or the Strategic Innovation Fund (SIF), subject to the conditions and criteria for eligibility of projects.[449]

(ii) *UIOLI:* UIOLI allowances are provided in the baseline totex allowances for certain non-transferable qualifying activities where the need for expenditure has been identified, but there is uncertainty about volumes and costs. UIOLI provides licensees with allowances and flexibility in delivering qualifying activities, whilst protecting consumers by ensuring that unspent allowances are returned to consumers (similar to PCDs).[450]

B. PERFORMANCE ADJUSTMENT BUILDING BLOCKS

A3.2 A further set of "building blocks" are intended to adjust Allowed Revenue relative to the licensee's performance during (or in the case of the Business Plan Incentive, prior to the) price control period. For the purposes of this appeal, the relevant building blocks that adjust Allowed Revenue in the manner described are as follows:

[445] RIIO-2 Framework Decision, Paragraph 5.8 **{CGL1/A/3}**.
[446] SSMD, Core Document, Paragraphs 4.33 and 4.34 **{CGL1/A/5}**.
[447] FDs, Finance Annex, Table 13 **{CGL1/A/22}**.
[448] SSMD, Paragraph 10.16 **{CGL1/A/5}**.
[449] FDs, Core Document, Table 10 and Paragraphs 8.54 and 8.60 **{CGL1/A/20}**.
[450] FDs, Core Document, page 63 **{CGL1/A/20}**.

(a) ***Totex Incentive Mechanism (TIM):*** the TIM building block is intended to encourage network companies to improve efficiency in delivery of the Outputs and ensure that part of the benefit of those efficiencies is shared with consumers. It also provides some protection to companies from overspends, as the costs of overspends are also shared with consumers.[451] It operates as a percentage (50% in the case of Cadent)[452] that is applied to any over- or under-spend relative to expenditure allowed at the price control review. The resulting amount is either: (1) kept by the licensee in the case of underspend, or (2) funded by the licensee in the case of overspend, while any remaining savings/losses are passed through to consumers.[453] As such, it can either increase or decrease a licensee's Allowed Revenue relative to performance against the baseline totex allowance set by GEMA.

(b) ***Business Plan Incentive (BPI):*** The BPI building block was developed to encourage network companies to submit ambitious Business Plans that contain the information GEMA requires to set allowances. It comprises several "stages", some of which can result in a reward (i.e. an increase to baseline totex) in circumstances where GEMA assesses the Business Plan (against certain criteria) as providing additional value for money compared to BAU and also provides the information GEMA requires to set the price control[454] – Cadent was one of two GDNs that received a BPI reward at Final Determinations.[455] Conversely, Business Plans determined by GEMA as failing to meet its assessment criteria are subject to financial penalties.[456]

(c) ***Return adjustment mechanism:*** This is a mechanism implemented by GEMA to avoid companies earning materially higher or lower returns than expected by GEMA at the time of setting the price controls. It has been set so that returns 300 bps above or below the baseline allowed return on equity will be adjusted by 50% and returns 400 bps either side of the baseline will be adjusted by 90%.

C. OTHER ADJUSTMENT BUILDING BLOCKS

A3.3 Finally, RIIO-2 comprises additional "building blocks" which adjust Allowed Revenue during the price control but for factors other than the licensee's performance. For the purposes of this appeal, the most relevant building blocks under this heading are as follows:

(a) ***Uncertainty mechanisms (UMs):*** UMs allow GEMA to adjust a network company's allowances in response to changing developments during the price control period.[457] GEMA explains in the Final Determinations that there are five types of UMs:[458]

(i) *Volume drivers:* which adjust allowances in line with actual volumes where the volume of work required over the price control is uncertain (but where the cost of each unit is stable);

(ii) *Re-opener mechanisms:* which decide, within the price control period, whether changes in allowances are needed, e.g. to deliver a project or activity once there is more certainty on the needs case, and costs;

[451] FDs, Core Document, Paragraph 10.2 **{CGL1/A/20}**.
[452] ibid.
[453] RIIO-2 Framework Decision, Glossary, definition of "Incentive rate" **{CGL1/A/3}**.
[454] DDs, Core Document, Paragraph 10.26 **{CGL1/A/10}**.
[455] FDs, Core Document, Page 145 **{CGL1/A/20}**.
[456] DDs, Core Document, 10.26 **{CGL1/A/10}**.
[457] DDs, Core Document, Paragraph 7.3 **{CGL1/A/10}**.
[458] FDs, Core Document, Paragraph 7.2 **{CGL1/A/20}**.

(iii) *Pass-through mechanisms:* which adjust allowances for costs incurred by the network companies over which they have limited control, e.g. business rates;

(iv) *Indexation:* which provide network companies and consumers some protection against the risk that outturn prices are different to those that were forecasted when setting the price control, e.g. general price inflation or sector specific cost pressures; and

(v) *Use-it-or-lose-it allowances:* these are described above at Paragraph A3.1(d).

(b) ***Policy Indexation:*** this relates to "frontier shift" which comprises two separate elements: (i) real price effects, aimed at capturing variability in the changes in prices of GDN inputs compared to changes in inflation (as measured by the CPI-H index); and (ii) the Ongoing Efficiency Target, which aimed to assess the efficiency improvements achievable on an ongoing basis across the industry, e.g. as a result of changes in technology and working practices.

APPENDIX 4: LEGAL FRAMEWORK TO DETERMINE APPEAL

A. OVERVIEW

A4.1 In this Appendix, Cadent summarises the legal framework relevant to this appeal, which is brought under the GA86. In particular, it addresses:

(a) GEMA's principal objective, powers and duties under the GA86.

(b) The statutory right, and grounds, of appeal.

(c) The standard of review to be applied by the CMA in determining the appeal.

(d) The CMA's powers on disposal of the appeal.

A4.2 Although this is the first appeal under the GA86, the legal framework for licence modification appeals under that statute is practically identical to the regime that applies to the electricity sector under the Electricity Act 1989 ("**EA89**"), in the case of Great Britain, and the Electricity Order 1992 ("**EO92**"), in the case of Northern Ireland, as well as the Northern Irish regime for the gas sector under the Gas (Northern Ireland) Order 1996 ("**GO96**").

A4.3 The CMA has determined appeals under each of the EA89, EO92 and GO96 and, in the relevant final determinations, has provided helpful guidance on the operation of the statutory framework.

B. GEMA'S PRINCIPAL OBJECTIVE, POWERS AND DUTIES

A4.4 The powers and duties of GEMA in relation to gas supply in Great Britain are set out in Part I GA86.

Power to grant and modify licences

A4.5 GEMA's powers include a power to grant licences for activities relating to the supply of gas, and to make such licences subject to conditions which may be specific to a particular licence or as 'standard conditions' that apply to each licence of a certain type. GEMA may modify licence conditions from time to time pursuant to the procedure set out in Section 23 GA86.

A4.6 The RIIO-GD2 price control will be given effect by way of modifications to GDNs' licences, including Cadent's licence that is the subject of this appeal, which is a 'gas transporter licence' granted under Section 7(2) GA86.

The Principal Objective and further duties

A4.7 In exercising its functions under Part I GA86, which include the modification of licence conditions, GEMA is subject to a set of statutory objectives and duties, which are laid down in Section 4AA GA 86.

A4.8 In particular, Section 4AA(1) GA86 sets out the principal objective of GEMA (the "**Principal Objective**"):

> "*The principal objective of* […] *the Gas and Electricity Markets Authority (in this Act referred to as "the Authority") in carrying out* [its] *respective functions under this* [Part I] *is to protect the interests of existing and future consumers in relation to gas conveyed through pipes*" [emphasis added].

A4.9 Section 4AA(1A) GA86 clarifies that the "*interests of existing and future consumers are their interests taken as a whole, including—*

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

(b) their interests in the security of the supply of gas to them; […]"

A4.10 Section 4AA(1B) GA86 requires that GEMA:

"[…] *shall carry out* [its] *functions under this* [Part I] *in the 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*" [emphasis added].

A4.11 In performing that duty, Section 4AA(2) GA86 further requires GEMA to have regard to:

(a) the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met [the "**Security of Supply Duty**"]*;*

(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 I] […] [the "**Finance Duty**"]*; and*

(c) the need to contribute to the achievement of sustainable development [the "**Sustainability Duty**"].

A4.12 In addition, Section 4AA(3) GA86 provides that, in performing all of the above duties:

"[GEMA] *shall have regard to the interests of—*

(a) individuals who are disabled or chronically sick;

(b) individuals of pensionable age;

(c) individuals with low incomes; and

(d) individuals residing in rural areas;

but that is not to be taken as implying that regard may not be had to the interests of other descriptions of consumer" [the "**Vulnerability Duty**"].

A4.13 Subject to the above duties, other than the Vulnerability Duty, Section 4AA(5) GA86 further requires GEMA to "*carry out* [its] *functions under this* [Part I] *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 [the "**Efficiency and Economy Duty**"];

(b) to protect the public from dangers arising from the conveyance of gas through pipes or from the use of gas conveyed through pipes or the provision of a smart meter communication service; and

(c) to secure a diverse and viable long-term energy supply,

and shall have regard, in carrying out those functions, to the effect on the environment of activities connected with the conveyance of gas through pipes or the provision of a smart meter communication service."

A4.14 Finally, Section 4(AA)(5A) requires that, in carrying out its functions under Part I GA86, 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 principles appearing to him or, as the case may be, it to represent the best regulatory practice." [the "**Best Practice Duty**"]

A4.15 The principles specified in Section 4AA(5A)(a) GA86 and listed above were defined by the Better Regulation Task Force ("**BRTF**") in a document titled "Principles of Good Regulation", as follows:[459]

(a) ***Transparent*:** Regulators should be open, and keep regulations simple and user-friendly;

(b) ***Accountable*:** Regulators must be able to justify decisions, and be subject to public scrutiny. This includes the requirement that regulators should clearly explain how and why final decisions have been reached;

(c) ***Proportionate*:** Regulators should only intervene when necessary. Remedies should be appropriate to the risk posed, and costs identified and minimised. Indeed, the BRTF specified that regulators should not "use a sledgehammer to crack a nut";

(d) ***Consistent*:** Government rules and standards must be joined up and implemented fairly. This includes the requirement that regulation should be predictable in order to give stability and certainty to those being regulated; and

(e) ***Targeted:*** Regulation should be focused on the problem, and minimise side effects. This includes avoiding a "scatter gun" approach.[460]

A4.16 The CMA's (and before it the CC's) prior decisions in relation to energy price controls provide useful guidance on the interpretation and application of GEMA's statutory duties.

A4.17 In particular, it is important to note that the duties set out in Sections 4AA(2) and (3) GA86 are properly to be understood as a component part of the Principal Objective, which in practice is often to be assessed by reference to these further duties.

A4.18 The CC explained in the NIE Determination (in the context of substantially identical duties imposed on the Northern Ireland UR):

"[…] *we were required by Article 15(7) of the Electricity Order to have regard to the duties of* UR […] These *objectives include the need to secure that all reasonable demands for electricity are met, that licence holders are able to finance their activities, and the need to protect the interests of vulnerable consumer groups.*[461]

At least some of these additional objectives and considerations may, properly understood and in terms of their substance, be part and parcel of an overall objective to further the interests of the consumers."[462] [emphasis added]

[459] The BRTF's Principles of Good Regulation were explicitly referenced in the parliamentary debates that led to the introduction of section 4AA(5A) of the GA86. See HL Deb 2 March 2004, vol 658, col GC203. Available online at: http://www.publications.parliament.uk/pa/ld200304/ldhansrd/vo040302/text/40302-14.htm **{CGL1/C/6}**. Those principles are also referred to in BEIS's Better Regulation Framework (March 2020) document at Annex 2 available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/916918/better-regulation-guidance.pdf **{CGL1/C/27}**. Some of those principles also GEMA's website on the page titled "Our approach to regulation" available here: https://www.ofgem.gov.uk/about-us/how-we-work/our-approach-regulation?page=3#block-views-publications-and-updates-block **{CGL1/C/38}**.

[460] Better Regulation Task Force, Principles of Good Regulation (2003) **{CGL1/C/5}**.

[461] NIE Determination, Summary section, Paragraph 10 **{CGL1/C/14}**.

[462] NIE Determination, Summary section, Paragraph 11 **{CGL1/C/14}**.

A4.19 This is consistent with the Government's position expressed in the Green Paper that led to the introduction of the Principal Objective, which describes the substance of a number of the further duties as necessary aspects of the new "primary" or "consumer" duty:

> "*We therefore propose that the statutory duties should be amended so that there is a new primary duty on regulators to exercise their functions in the manner best calculated to protect the interests of consumers in the short and long-term, wherever possible through promoting competition. The duty should also make explicit the need to ensure the regulated companies have sufficient finance to guarantee supply. This will replace the existing primary duties… Given the essential nature of the goods and services supplied by these industries, it is important that the effect of the new consumer duty should not be to lead regulators to tighten price controls to the point that investment and the continuity of supply by the industry is put at risk. The duty should therefore make clear that the interests of consumers should include their interests in quality, range of services, continuity and availability of supply as well as price, and their medium and longer term interests as well as their immediate or short term interests. In particular, we propose that the duty should make explicit the need to ensure that the regulated companies have sufficient finance to carry out their functions.*"[463] [emphasis added]

A4.20 Similarly, the CMA has consistently made clear that, in particular, in considering the balance between the interests of existing and future consumers for the purposes of the Principal Objective, the Security of Supply Duty, Finance Duty and Sustainability Duty have an important role to play. The interests of consumers should not be interpreted narrowly as dictating a preference for the minimisation of costs and consumer bills, as:

> "*cost minimisation might* […] *not always be efficient, as lowering costs can sometimes lead to foregoing bigger benefits to consumers"*;[464]
>
> "*It is important to note that the requirement to secure that the Appellant is able to finance its licensed activities is not a subsidiary consideration to protecting the consumer interest. There is no trade off: The Utility Regulator must further the consumer interest and secure financeability*";[465] and
>
> "*the UR* [in this specific case] *has a responsibility to future customers not to be "saddled" with excessive bills caused by under-recoveries from previous customers.*"[466]

C. STATUTORY RIGHT, AND GROUNDS OF, APPEAL

Right of appeal

A4.21 Section 23B(1) GA86 provides that an appeal lies to the CMA against a decision by GEMA to proceed with the modification of a condition of a licence under Section 23.

A4.22 Pursuant to Section 23B(2) GA86, an appeal to the CMA may be brought by a "*relevant licence holder (within the meaning of section 23)*", among other persons. Cadent is a "*relevant licence holder*" as defined in Section 23(10)(b) GA86, being the holder of a particular licence the conditions of which are to be modified by the Decision.

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[463] See: https://webarchive.nationalarchives.gov.uk/19990427200257/http://www.dti.gov.uk:80/urt/fairdeal/part2.htm **{CGL1/C/2}**.
[464] SONI Determination, Paragraph 10.13 **{CGL1/C/21}**.
[465] SONI Determination, paragraph 10.24 **{CGL1/C/21}**.
[466] Firmus Determination, Paragraph 6.122 **{CGL1/C/19}**.

Permission to appeal

A4.23 Section 23B(3) GA86 provides that the permission of the CMA is required for the bringing of an appeal. Where that appeal is brought by a relevant licence holder, the CMA may refuse permission to appeal solely on one of the following grounds:

> *(i) that the appeal is brought for reasons that are trivial or vexatious;*
>
> *(ii) that the appeal has no reasonable prospect of success.*[467]

Legal test on appeal

A4.24 Once permission is granted, under Section 23D(4) GA86, the CMA "*may allow the appeal only to the extent that it is satisfied that the decision appealed against was wrong on one or more of the following grounds—*

> *(a) that the Authority failed properly to have regard to any matter mentioned in subsection (2)* [including the Principal Objective and GEMA's further duties set out above]*;*
>
> *(b) that the Authority failed to give the appropriate weight to any matter mentioned in= subsection (2);*
>
> *(c) that the decision was based, wholly or partly, on an error of fact;*
>
> *(d) that the modifications fail to achieve, in whole or in part, the effect stated by the Authority by virtue of section 23(7)(b);*
>
> *(e) that the decision was wrong in law"*

CMA duties and relevant matters in determining the appeal

A4.25 Under Section 23D(2) GA86, in determining the appeal the CMA must have regard, to the same extent as is required of GEMA, to the matters to which GEMA must have regard:

> "*(a) in the carrying out of its principal objective under section 4AA;* [and]
>
> *(b) in the performance of its duties under that section;* […]"

A4.26 Further, in determining the appeal the CMA:

> "*(a) may have regard to any matter to which the Authority was not able to have regard in relation to the decision which is the subject of the appeal; but*
>
> *(b) must not, in the exercise of that power, have regard to any matter to which the Authority would not have been entitled to have regard in reaching its decision had it had the opportunity of doing so.*"[468]

D. STANDARD OF REVIEW

Merits-based review

A4.27 The statutory grounds of appeal are broader in scope than the traditional grounds for judicial review and are concerned directly with the correctness of the decision appealed; including *inter alia* whether that decision gives the appropriate weight to the Principal Objective and GEMA's

[467] Section 23B(4)(d) GA86 **{CGL1/C/1}**.
[468] Section 23D(3) GA86 **{CGL1/C/1}**.

further duties and achieves its stated effect. In determining the appeal, the CMA is therefore required to consider the merits of GEMA's decision.

A4.28 Indeed, a merits-based standard of review was at the heart of the introduction of the statutory appeals process in Sections 23A–23G GA86 (and similar mechanisms in the EA89 and Northern Irish regulations). As Government explained at the time:

> "*It is the Government's intention that the proposed grounds for appeal for licence modification decisions also enable the appeal body to take account of the merits of the case* […]"[469]

A4.29 This approach was confirmed most recently by the CMA in the SONI Determination:

> "*The question for us to determine is whether the Price Control Decision was wrong on one or more of the statutory grounds and, in order to do that, we have taken the merits of the decision under appeal into account.*"[470] [emphasis added]

Regulatory discretion

A4.30 However, the CMA's role is not to substitute its judgement for that of GEMA simply because it would have taken a different view of a given matter. The statutory test requires Cadent to establish that the decision appealed against was wrong on one or more of the statutory grounds. In the SONI Determination, the CMA explained:

> "*As regards the exercise of discretion, we have taken into account that the CC and CMA have consistently applied the principle in regulatory appeals that the statutory test admits of circumstances in which we might reach a different view from the regulator, but in which it cannot be said that the regulator's decision was wrong on one of the statutory grounds. It is not the CMA's role to substitute our judgment for that of the regulator simply on the basis that we would have taken a different view of the matter, had we been the regulator.*"[471]

A4.31 In the later Firmus Determination, the CMA provided further guidance on the scope of regulatory discretion within energy appeals and the meaning of "wrong" by drawing on principles derived from cases brought before the Competition Appeal Tribunal under the Communications Act 2003, noting that:

> "[…]
>
> *(b) An appeal is against the decision, not the reasons for the decision. Therefore, it is not enough for the appellant to identify some error of reasoning; the appeal can only succeed if the decision cannot stand in the light of that error.*
>
> *(c) Where the appellant contends that the regulator ought to have adopted an alternative price control measure, it is for the appellant to deploy all the evidence and material it considers will support that alternative. It must show that its proposed alternative price control measure should be adopted.*
>
> *(d) Usually an appellant will succeed by demonstrating the flaws in the decision and the merits of an alternative solution. Also, the courts have not ruled out the possibility that there could be a case in which an appellant succeeds in so undermining the foundations of a decision that it cannot stand, without establishing what the alternative should be. In such*

[469] DECC, Government Response to 'Implementation of the EU Third Internal Energy Package: Government Response' consultation (January 2010), Paragraph 2.24 **{CGL1/C/8}**.
[470] SONI Determination, Paragraph 3.26 **{CGL1/C/21}**.
[471] SONI Determination, Paragraph 3.32 **{CGL1/C/21}**.

a case, if there is no other basis for maintaining the decision, the CMA would be at liberty to conclude that the decision was wrong but that it could not say what decision should be substituted. Disposal of the appeal without substituting an alternative decision is not unknown, but is expected to be rare.

(e) If the CMA is satisfied that the regulator's decision was correct, then the fact that the regulator's consultation process was deficient ought not to matter, unless that process was so deficient that the CMA cannot be assured that the regulator did indeed get it right.

(f) Where a decision of the regulator requires an exercise of judgment, the regulator will have a margin of appreciation. The CMA should apply appropriate restraint and should not interfere with the regulator's exercise of judgment unless satisfied that it was wrong.

(g) A regulator's assessment of the adequacy of the evidence and material before it will not be wrong unless it is outwith the range of reasonable conclusions.

(h) If the CMA concludes that the decision can be supported on a basis other than that on which the regulator relied, then the appellant will not have shown that the decision was wrong and will fail."[472] [emphasis added]

A4.32 In the same context of telecoms price controls, the CC considered what it meant for a decision to be wrong where it involved the exercise of regulatory judgment:

"*In a case where there are several alternative solutions to a regulatory problem with little to choose between them, we do not think it would be right for us to determine that Ofcom erred simply because it took a course other than the one that we would have taken. On the other hand, if, out of the alternative options, some clearly had more merit than others, it may more easily be said that Ofcom erred if it chose an inferior solution.*"[473]

A4.33 The position is more straightforward where the alleged error relates to conclusions of primary fact rather than evaluations of fact by GEMA. In the SONI Determination, the CMA explained that:

"[…] *there is an important difference between the CMA making up our own mind about the correctness or otherwise of any findings of primary fact, or inference from primary fact, made in the Price Control Decision, which is permissible, and the CMA substituting our judgment for that of the regulator simply on the basis that we would have taken a different view of the matter, had we been the regulator, which is not permissible*." [emphasis added][474]

A4.34 The CMA has also stressed that regulatory discretion has its bounds. For example, in the NPG Determination, it found that:

"*In the absence of evidential support for the judgement, GEMA's discretion cannot, in our view, be treated as sufficient to justify the adjustment to NPg's totex that it made.*[475]

[…] *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* […]."[476]

[472] Firmus Determination, Paragraph 3.20 **{CGL1/C/19}**.
[473] See *Carphone Warehouse Group plc v Office of Communications* (Case 1111/3/3/09) CC Determination at §1.32 **{CGL1/C/9}**.
[474] SONI Determination, Paragraph 3.36 **{CGL1/C/21}**.
[475] NPG Determination, Paragraph 4.140 **{CGL1/C/18}**.
[476] NPG Determination, Paragraph 4.142 **{CGL1/C/18}**.

E. CMA'S POWERS ON DISPOSAL OF THE APPEAL

Scope of the CMA's powers on allowing an appeal

A4.35 Under Section 23E(2) GA86, where the CMA allows a price control appeal to any extent, it may:

> "*(a) quash the decision (to the extent that the appeal is allowed);*
>
> *(b) remit the matter back to the Authority for reconsideration and determination in accordance with any directions given by the CMA;*
>
> *(c) substitute the CMA's decision for that of the Authority (to the extent that the appeal is allowed) and give any directions to the Authority or any other party to the appeal.*"

A4.36 In doing so, the CMA's power to quash, remit or modify the price control is strictly limited to the extent that the appeal is allowed, and therefore by implication also excludes any changes to aspects of the decision that had not been appealed.

A4.37 The CMA has explained that this also reflected in the procedural provisions of the GA86 and its own rules. The GA86 provides that an application for permission to appeal must be accompanied by all such information required by the Energy Licence Modification Appeals: Competition and Markets Authority Rules (CMA70, October 2017)[477] ("the **Rules**"). The Rules state that a person who wishes to apply for permission to appeal must state in his notice of appeal the grounds of appeal on which he relies and must include a statement of facts and reasons supporting each ground of appeal on which he is relying.[478]

A4.38 The CMA considered the same provisions in the context of the BGT appeal under the EA89 and concluded as follows:

> "*We consider that these provisions clearly envisage that we must determine the appeal* '*through the* '*prism*' *of the specific errors*' *alleged by the appellant.*
>
> *Thus, we are required to consider whether the Decision was wrong on one of the prescribed statutory grounds, by reference to the grounds set out in the appellant's Notice of Appeal. It is only if we find that this is the case, that we may allow the appeal*."[479]

A4.39 Similarly, it explained in the Firmus Determination:

> "*We would note also that an appeal in which the merits must be taken into account does not constitute a rerun of the original investigation or a de novo rehearing of all the evidence. The CMA must limit its consideration to the statutory grounds of appeal to the extent that such grounds are raised by the appellant. The Rules state that an appellant must state in the notice of appeal the grounds of appeal which are relied upon and must include a statement of facts and reasons supporting each ground of appeal. This underlines that the CMA's function is to consider whether the UR's decision was wrong on one or more of the statutory grounds raised by the appellant* [emphasis added].[480]

A4.40 This approach is distinct from an "in-the round" redetermination of the whole decision and from the idea that wrong decisions in one part of the price control might be considered to be "offset" by decisions in another. The CMA has consistently rejected such approaches.

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[477] GA86, Schedule 4A, paragraph 1(4) **{CGL1/C/1}**.
[478] The Rules, Paragraph 5 **{CGL1/C/20}**.
[479] BGT Determination, Paragraph 3.48 - 3.49 **{CGL1/C/17}**.
[480] Firmus Determination, Paragraph 3.21 **{CGL1/C/19}**.

A4.41 In 2015, the CMA stated that while it did "*not disagree that price control decisions may be taken and accepted on a global basis or reflect an* '*in the round*' *assessment*", and that some non-appealing licence holders had clearly accepted that bargain, it "*did not see why this is relevant, in itself, to the position of an individual* [*licensee*] *or other appealing party who did choose to appeal*".[481]

A4.42 In the SONI Determination the CMA made the following statements:

> "*We also note that the UR has identified areas of the price control mechanism where it considers that there is upside potential for SONI, including in respect of ex-ante allowances for opex and capex. However, we do not consider that these items are linked to the operation of the Dt and PCNP mechanisms: it is for the UR to set appropriate allowances and incentives in the price control based on evidence, and we have seen no evidence that there is a deliberate offsetting of risks between aspects of the price control in this case*.[482]
>
> *It would not be desirable if failings in the approach to the remuneration of one individual area could be seen to be remedied by countervailing failings in the approach to remuneration in another area on the grounds that the price control settlement, taken in-the round, was somehow seen as a* '*fair bet*'" [emphasis added].[483]

A4.43 Similarly, in the CMA's open letter to Ofgem in 2019, the CMA explained that "*the overall price control set by a regulator is the combination of individual decisions, and* [it does] *not accept that it can be beyond the CMA's powers to review these individual decisions, on the basis that they need to be considered "in the round" with decisions that are otherwise unconnected parts of the regulatory settlement*".[484]

Interlinkages

A4.44 However, whilst the CMA has generally been sceptical about interlinkages between different aspects of a price control, it has stated that—

> "*we accept that it may in some circumstances be necessary to take care that overturning one aspect of a complex regulatory decision does not have knock-on consequences for other, unappealed aspects of the Decision* […]" [485]

A4.45 In the case of true interlinkages an appellant should not be allowed to "cherry pick" just one specific, unfavourable component of a regulatory assessment where that is not in reality a separable element of a wider decision and can only logically be considered alongside other linked decisions.[486]

A4.46 The CMA has explained its approach in those circumstances in the SONI Determination:

> "*As in earlier determinations, we recognise the risk of knock-on effects from changing one aspect of a complex regulatory decision. The principle that the CMA adopted in those cases, and which we adopt here, is to consider on a case-by-case basis any evidence submitted to the CMA regarding links between the parts of the decision which are challenged and parts which are not.*"[487]

[481] BGT Determination, Paragraph 3.50 **{CGL1/C/17}**.
[482] SONI Determination, Paragraph 12.101 **{CGL1/C/21}**.
[483] SONI Determination, Paragraphs 7.237 and 7.238 **{CGL1/C/21}**.
[484] CMA Open Letter to GEMA, Paragraph 16 **{CGL1/C/24}**.
[485] BGT Determination, Paragraph 3.50 **{CGL1/C/17}**.
[486] CMA Open Letter to GEMA, Paragraph 16 **{CGL1/C/24}**.
[487] SONI Determination, Paragraph 13.3 **{CGL1/C/21}**.

A4.47 To date, the CMA has accepted in only one case, in the Firmus Determination, that modifying one parameter of a price control had an impact on other aspects of it that had not been appealed; in that case on the basis of a clear link between a number of assumptions, specifically the connection target which had been appealed and certain cost items which had not been appealed but were defined by reference to the connections target.[488]

A4.48 Cadent has therefore considered carefully whether there could be knock-on consequences or interlinkages in respect of the points appealed and has set out possible interlinkages in Appendix 5 as succinctly as possible. This is consistent with the position adopted by the CMA in its open letter to GEMA, in which the CMA stated that, where there are interlinkages described clearly by the regulator, it would encourage appellants to explain why the component under challenge is wrong having regard to the interlinked aspects of the decision.[489]

[488] Firmus Determination, Paragraph 8.28 **{CGL1/C/19}**.
[489] CMA Open Letter to GEMA, Paragraph 15 **{CGL1/C/24}**.

APPENDIX 5: INTERLINKAGES

A. INTRODUCTION

A5.1 Cadent has carefully considered each of the interlinkages set out by GEMA in Appendix 3 to the FDs Core Document that relate to the grounds of appeal; and provides an initial overview of its position on this issue below.

B. GROUND 1 (BASELINE TOTEX)

A5.2 GEMA's FDs suggest that there may be an interlinkage between the Ongoing Efficiency Target and its allowances for innovation funding in GD2. GEMA alleges that this interlinkage exists because its determination of the target involved applying the 0.2% Innovation Uplift to reflect the "*scope for ongoing efficiency improvements that can be attributed to innovation funding provided as part of the RIIO-1 price control framework*".[490] Consequently, it states that "*any easing of our ongoing efficiency challenge needs to be accompanied by a review of the value for money offered by innovation funding*".[491]

A5.3 Cadent's appeal in respect of the Ongoing Efficiency Target demonstrates that there is no evidence to support the link made between GD1 innovation funding and the scope for productivity improvements over GD2. Further, GEMA's statements appear to confound GD1 and GD2 innovation funding: the uplift was calculated by reference to GD1 innovation funding and there is no obvious reason why a reduction in the Ongoing Efficiency Target should impact GD2 innovation funding (which was not set by reference to the GD2 Ongoing Efficiency Target). Therefore, Cadent disputes and does not accept that there is any interlinkage as suggested by GEMA.

A5.4 Otherwise, Cadent submits that, as concerns this appeal, the implementation of the remedies set out above does not have any other knock-on impact on another part of the Decision.

A5.5 In this respect, it is useful to note GEMA's statement that it has "*undertaken an extensive and thorough cost assessment exercise to arrive at* [its] *best view (based on available information) of the costs of each licensee, operating efficiently, to meet its statutory obligations, operational business needs and the expectations of direct customers and wider stakeholders.*"[492]

A5.6 Given that the grounds of appeal and related remedies set out in Section 3 seek solely to ensure that GEMA's policy intent of setting totex allowances (i.e. costs) at an efficient level is correctly implemented (and there is no suggestion or request to the CMA to alter the policy intent for cost assessment or its operation within the wider framework), then it follows that the CMA achieving that aim through the correction of errors will not have a knock-on effect on any linked part(s) of the Decision.

A5.7 Put simply, setting baseline totex correctly by ensuring that the allowance reflects Cadent's efficient costs cannot, by definition, have an impact on any other part(s) of the Decision. GEMA's design of any linked part(s) of the RIIO-GD2 price control is calibrated on the assumption that baseline totex is set at an efficient level, which is precisely the aim that the appeal in Section 3 is seeking to achieve.

[490] FDs, Core Document, Paragraph A3.15 **{CGL1/A/20}**.
[491] ibid., Paragraph A13.16.
[492] FDs, Core Document, Paragraph 11.20 **{CGL1/A/20}**.

C. GROUND 2 (COST OF EQUITY)

A5.8 In respect of the cost of equity, GEMA makes the following statements:

> "*A3.3 The assessment of the risks to investors for the purposes of determining a reasonable allowance for the cost of equity depends on a number of elements of the RIIO-2 package, including expectations for output delivery, expenditure allowances, calibration of incentive targets, approaches to determining financial rewards/penalties, levels of expected performance and caps/collars.*
>
> *A3.4 Changes to these elements could affect the level of risk faced by companies, with a consequential impact on the assumptions that feed into our assessment of the cost of equity*."[493]

A5.9 The statement of principle in A3.3 that a reasonable allowance for the cost of equity can depend on a number of elements of the RIIO-2 package is accepted. In fact, the need to reflect asymmetry in the overall package is a part of Ground 2 of this appeal.

A5.10 The principle set out in A3.4 that changes to other elements of the price control could affect the cost of equity allowance is also accepted.

(a) In respect of unappealed aspects of the price control, this should not however be relevant in practice, unless a third party brings an appeal in respect of Cadent's price control.

(b) In respect of other elements of the price control that are being appealed by Cadent, for example, those contained in Ground 1 of the appeal, these relate to errors made by GEMA in implementing its intended policy and therefore should not affect GEMA's decision in respect of the appropriate cost of equity allowance.

A5.11 In respect of the cost of debt, GEMA makes the following statement:

> "*A3.9: In extremis, if the package as a whole (including equity allowances, notional gearing or the overall risk and return balance) were changed very materially, this could lead us to a different assessment of the credit quality of future notional efficient operator debt. This may then require a reassessment of the calibration of the debt allowance*."

A5.12 This relates to a situation where the credit quality of the future notional efficient operator debt deteriorates as a result of a reduced cost of equity allowance or increase in the overall risk in the package. Therefore, an increase in the cost of equity allowance and a reduction in the overall risk as a result of the correction of GEMA's errors (as set out in this Notice) would not lead to a reassessment of the calibration of the debt allowance.

D. GROUND 3 (OUTPERFORMANCE WEDGE)

A5.13 In respect of the cost of equity (Expected Returns versus Allowed Returns), GEMA makes the following statements:

> "*A3.5 Our decision for the cost of equity includes an adjustment to reflect differences between allowed returns and expected returns, based on our expectation of the scope for outperformance during RIIO-2.*
>
> *A3.6 Our estimate of the scope for outperformance is informed by historical evidence from energy and other price controls, but the scope for outperformance in RIIO-2 is also affected by our decision on outputs, expenditure allowances and Uncertainty Mechanisms.*

[493] FDs, Core Document, Appendix 3, Paragraphs A3.3 and A3.4 **{CGL1/A/20}**.

Any change to the level of outputs to be delivered, expenditure allowances provided or the calibration of Uncertainty Mechanisms may have an impact on the scope for outperformance in the RIIO-2 package".[494]

A5.14 As explained in Ground 3 of the appeal, GEMA has made an error in including a downwards adjustment for Expected Returns versus Allowed Returns. Therefore, any changes to the above cited elements of the price control should not affect whether or not it is valid for GEMA to apply the "outperformance wedge", irrespective of any impact those changes may have on the scope for out- or under-performance in RIIO-2. In any event:

(a) In respect of unappealed aspects of the price control, this should not however be relevant in practice, unless a third party brings an appeal in respect of Cadent's price control.

(b) In respect of other elements of the price control that are being appealed by Cadent, i.e. those contained in Grounds 1 and 2, these relate to errors made by GEMA in implementing its intended policy and therefore should not affect GEMA's decision in respect of the calibration of the outperformance wedge.

A5.15 There is however a clear "knock-on consequence" of Ground 3 of the appeal being allowed. The "ex-post adjustment mechanism" implemented by GEMA would no longer be necessary and therefore amendments may be appropriate to reflect this, for example, to special licence condition 2.3.

[494] FDs, Core Document, Appendix 3, Paragraphs A3.5 and A3.6 **{CGL1/A/20}**.