BEFORE THE COMPETITION AND MARKETS AUTHORITY

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

B E T W E E N :

(1) CADENT GAS LIMITED
(2) NORTHERN GAS NETWORKS LIMITED
(3) SCOTLAND GAS NETWORKS PLC
(4) SOUTHERN GAS NETWORKS PLC
(5) WALES & WEST UTILITIES LIMITED

Appellants

- and –

THE GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

RIIO-3 PRICE CONTROLS
RESPONSE TO APPEALS

A. INTRODUCTION

A1. Overview

1. This is the response (the "Response") of the Gas and Electricity Markets Authority ("**GEMA**") to the appeals brought by the Appellants under section 23B of the Gas Act 1986 (the "**GA86**") (the **"Appeals"**) against the decision of GEMA to proceed with certain modifications to the Appellants' gas distribution licences (**"Licence Modifications"**).[1] The Response is filed pursuant to paragraph 3(3)-(4) of Schedule 4A GA86 and rule 9.1 of the Competition and Market Authority's (the "**CMA's**") Energy Licence Modification Appeals Rules[2] (the "**Rules**"). The Response is in thirteen parts:

   1.1. Section A: Introduction

   1.2. Section B: Grounds of Appeal

   1.3. Section C: Legal Framework

   1.4. Sections D to I: Ongoing Efficiency ("Ground A")

   1.5. Sections J to L: Totex Model Allowances ("Ground B")

   1.6. Section M: Conclusion

2. The Licence Modifications (together with modifications made to the licences of the electricity transmission and gas transmission companies, none of which has brought appeals), made by notice dated 3 February 2026, give effect to GEMA's price control determinations under its latest price control regime, known as "RIIO-3".

3. The Appellants are the GB gas distribution network operators (known as "**GDNs**").[3]

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[1] "Modification of the Special Conditions, Standard Licence Conditions and Standard Special Conditions of the Gas Transporter Licence held by the licensees listed Above (3 February 2026)" exhibited by SGN with reference SGN1_002.

[2] The Rules (CMA70) are found at: https://assets.publishing.service.gov.uk/media/635945ded3bf7f0bcd254c84/Energy_Rules.pdf See also the "Energy Licence Modification Appeals Guide for Participants" (CMA71): https://www.gov.uk/government/publications/energy-licence-modification-appeals-guide-for-participants-cma71

[3] Four entities (referred to as the "GDNs") own, operate and maintain the eight gas distribution network regions in GB: (1) Cadent: East of England (EoE), North London (Lon), North West (NW) and West Midlands (WM), (2) NGN, (3) SGN: Scotland (Sc) and South East England (So); and (4) WWU. See further: First Witness Statement of Steven McMahon (SM1) at paras 19-20.

Namely:

3.1. Cadent Gas Limited ("**Cadent**"),

3.2. Northern Gas Networks Limited ("**NGN**"),

3.3. Southern Gas Networks plc ("Southern") and Scotland Gas Networks plc ("Scotland") (together, "**SGN**"),[4] and

3.4. Wales and West Utilities Limited ("**WWU**").

4. In broad terms, RIIO-3 is an *ex ante*, regulatory asset value-based regime that establishes the outputs which network companies must deliver and the revenues they are permitted to receive for delivering services to customers. The RIIO-3 framework (Revenue = incentives + innovation + outputs) ensures that network companies, which are natural monopolies, are incentivised to meet performance standards, pursue innovation, and pass on only efficiently-incurred costs to consumers. RIIO-3 regulates the prices for the electricity and gas transmission and gas distribution sectors for a five-year period from 1 April 2026 to 31 March 2031.[5]

5. RIIO-3 and the Licence Modifications giving effect to it have been in development since September 2022, when Ofgem first invited views from stakeholders, including the Appellants, as to the framework which should be implemented to replace RIIO-2. The Licence Modifications ultimately adopted reflect the end result of years of consultation and engagement with the Appellants and other stakeholders. That collaborative process has spanned: (i) consultation on the methodology to be adopted by GEMA in making Sector Specific Methodology Decision (the "SSMD"),[6] made in July 2024; (ii) the submission of RIIO-3 Business Plans by the relevant network companies, including the Appellants, in December 2024; (iii) the publication of Draft Determinations by GEMA in

4 Scotland and Southern are both part of the SGN group of companies: https://www.sgn.co.uk/legal-information They submitted a single Business Plan for RIIO-3: https://sgn.co.uk/sites/default/files/media-entities/documents/2024-12/SGN-GD3-BP-00-SGN-RIIO-GD3-Business-Plan-Final.pdf

5 SM1 Section 1 [SM1 / 4-6]

6 "RIIO-3 Sector Specific Methodology Decision – Overview Document (18 July 2024)" §§1.6-1.8 **[SGN_NoA.14]**

July 2025;[7] (iv) a further period of consultation and engagement from 26 August 2025 onwards; and (v) the eventual Final Determinations made by GEMA on 4 December 2025.[8]

6. In its ultimate decision-making, GEMA was required to make regulatory judgements and assessments based on extensive data, expert analysis, consultation responses and submissions made by GDNs and other stakeholders during engagement with them, and its own assessment of the regulatory objectives and how those objectives should be balanced. That expert, multi-factorial assessment aptly describes GEMA's assessment of Ongoing Efficiency ("**OE**"), which admits of no single right answer. GEMA is confident that the process it has followed and the Licence Modifications which that process has resulted in are well-founded, consistent with its statutory duties and objectives, and will ultimately further GEMA's principal objective of protecting the interests of existing and future consumers.[9]

7. By their Appeals, the Appellants seek to re-run arguments which have been the subject of careful and detailed consideration by GEMA during the staged consultative process culminating in the Final Determinations and Licence Modifications. The complaints raised are chiefly disagreements about granular decisions made by GEMA in its exercise of expert regulatory judgement and discretion.

8. GEMA's position, in summary, is that the decisions which are the target of the appeal grounds addressed in this Response cannot be said to be wrong on any of the grounds identified at s. 23D(4) GA86. The appeal grounds are without merit and should be dismissed.

A2. Summary of Grounds of Appeal

9. There are two distinct grounds of appeal which in overview are as follows:

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7 The Draft Determinations relevant to these submissions are (i) the "Draft Determinations – Overview" ("**Overview DDs**") **[SGN_NoA.12]** and the "Draft Determinations – GD Annex" ("**GD Draft Determinations**") **[SGN_NoA.13]**.

8 The Final Determinations relevant to these submissions are (i) the "Final Determinations – Overview" ("Overview FDs") **[SGN_NoA.9]** and the "Final Determinations – GD Annex" ("GD Final Determinations") **[SGN_NoA.10]**.

9 Section 4AA(1) GA86.

9.1. **Ground A (joined appeals):** The first ground of appeal, advanced by each of the Appellants, concerns GEMA's decision to set OE at a rate of 1% per annum. OE is a regulatory tool which reduces GDNs' approved totex allowances by a certain percentage, determined ex ante, each year to reflect productivity improvements which GEMA considers that even the most efficient networks can achieve. The OE figure is ascertained by GEMA weighing a variety of quantitative and qualitative factors, involving not a mathematical assessment but an exercise of regulatory judgement. GEMA adopted a figure of 1.0%, which was consistent with independent expert advice it received and with regulatory precedent. The GDNs had each suggested that a figure of 0.5% be adopted, although the other network companies proposed higher and lower figures than this (spanning from 0.7% to 0.1%), and the consultant's report from which the GDNs' Business Plans' OE estimates were each derived proposed a range from 0.2% to 0.8%. Ultimately, GEMA's decision is plainly justifiable in light of the evidence before it and as an exercise of its expert regulatory judgement.

9.2. **Ground B (SGN only):** The second ground, advanced only by SGN, contends that SGN's approved baseline total expenditure under RIIO-3 (its "totex") allowance underfunds it, for two distinct reasons.

9.2.1. The first is that GEMA normalised all of the GDNs' modelling assumptions in respect of the banding diameter (only) of certain forecast repair work costs to ensure that a robust and consistent approach to modelling those costs was adopted across the industry. That decision was plainly open to GEMA, particularly given historical modelling uncertainties and discrepancies which it had identified. SGN itself had proposed implementation of a normalisation approach. The consequence of that normalisation is to award SGN greater totex than if GEMA had not so intervened. SGN's appeal (i) seeks an adjustment to the normalisation approach that would advantage it financially yet further, notwithstanding the proportionate and targeted way in which GEMA implemented its normalisation; and (ii) appears in material part to be an attempt to rectify its own erroneous business plan reporting, which of course demonstrates no error in *GEMA's* approach.

9.2.2. The second alleged reason is that SGN submits that its proposed approach to calculating the Composite Scale Variable ("**CSV**") driver for the totex model, which was considered in detail by GEMA when making its decision, is superior to the approach ultimately favoured by GEMA. But GEMA was entitled to weigh the advantages and disadvantages of the distinct approaches; it reached a reasoned decision as to why its approach was preferable notwithstanding the existence of alternatives. GEMA's approach in doing so was not wrong.

A3. GEMA's evidence

10. GEMA relies on the following evidence in support of its Response to the Appeals:

10.1. The first witness statement of Mr Steven McMahon, Director of Networks for Ofgem, of 23 April 2026 ("**McMahon 1"**), which explains the approach which GEMA has taken in setting the RIIO-GD3 price control for GDNs (McMahon 1 §10).

10.2. The second witness statement of Mr McMahon of 23 April 2026 ("**McMahon 2"**), in respect of Ongoing Efficiency.

10.3. An expert report by Grant Thornton, entitled "Report on Ongoing Efficiency issues raised by RIIO-3 Appeals" dated 23 April 2026 ("**GT Appeal Report"**), together with the first witness statement of Joel Strange, Partner at Grant Thornton, of the same date introducing the GT Appeal Report.

10.4. The first witness statement of Mr Callum Mayfield, Head of Future Price Control Frameworks and Data Strategy in the Department of Network Price Controls for Ofgem, of 22 April 2026 ("**Mayfield 1**"), in respect of Ofgem's cost modelling approach in RIIO-GD3.

10.5. The first witness statement of Mr Victor Tuffen, Head of the Gas & Mechanical Team in the Engineering and Technology Directorate for Ofgem ("**Tuffen 1**"), of 22 April 2026 in respect of the engineering context relevant to Tier 1 repex.

11. In accordance with Rule 8.2 of the CMA's Rules, GEMA has identified matters to which it was unable to have regard in reaching its decision and has explained whether these are

matters to which it would have been entitled to have regard, had it had the opportunity of doing so.[10]

B. THE GROUNDS OF APPEAL

12. The Appellants have filed four separate Notices of Appeal, referred to herein as "**Cadent Notice**"[11], "**NGN Notice"**,[12] "**SGN Notice**",[13] and "**WWU Notice**".[14]

13. The grounds of appeal ("Grounds") advanced by the Appellants are as follows.

14. **Ground A (joined appeals)**: As to Ongoing Efficiency, each of the Appellants contends that GEMA's decision to set a 1% OE parameter was wrong within the meaning of section 23D(4) GA86. The Appellants have advanced related and overlapping Grounds.[15] These can be grouped together and (in broad summary) are as follows:

    14.1. **Ground A1:** that the 1% OE parameter is incompatible with or misinterprets (i) wider UK economy productivity growth data since 2008 and (ii) independent forecasts of UK economy-wide productivity improvements.[16]

    14.2. **Ground A2:** that GEMA erred in assuming that regulated network companies are insulated from wider productivity slowdowns in the UK economy.[17]

    14.3. **Ground A3:** that GEMA erred in its approach to its decision that the lowest plausible estimate of OE was 0.7%.[18]

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[10] McMahon 1 §38 and Annex 1.

[11] The Notice of Appeal filed by the First Appellant: "Cadent - RIIO-3 Notice of Appeal - 03-03-2026 - CONFIDENTIAL VERSION (3 March 2026)" exhibited by Cadent.

[12] The Notice of Appeal filed by the Second Appellant: "260303_NGN_RIIO-3_Notice of Appeal (CONFIDENTIAL)(3218620498.1) (3 March 2026)" exhibited by NGN.

[13] The Notice of Appeal filed by the Third and Fourth Appellants (together "**SGN Notice**"): "03032026_SGN_RIIO-GD3_Notice of Appeal_CONFIDENTIAL (3 March 2026)" exhibited by SGN.

[14] The Notice of Appeal filed by the Fifth Appellant. This references "WWU - GD3 Notice of Appeal - Non-Confidential - 3 March 2026 (3 March 2026)" exhibited by WWU.

[15] In summary: (i) Cadent has advanced five "sub-grounds" (Cadent Notice §63); (ii) NGN relies on four alleged errors (NGN Notice §42); (iii) SGN relies on five alleged errors (SGN Notice §363); and (iv) WWU has advanced three grounds in support of its challenge (WWU Notice §§9.2-9.4).

[16] Cadent Notice §§63(b) and (c); NGN Notice §42(a); SGN Notice §363(i); WWU Notice §9.3.

[17] Cadent Notice §63(d); NGN Notice §42(b); SGN Notice §363(ii); WWU Notice §9.2.

[18] Cadent Notice §63(a); NGN Notice §42(c); SGN Notice §363(iii), WWU Notice §5.41-3

14.4. **Ground A4:** that GEMA's reliance on qualitative factors in support of setting a 1% OE parameter was not reasonably open to it.[19]

14.5. **Ground A5:** that GEMA erred by setting OE at a level intended to "*stretch and incentivise companies*", which is variously said to have been unnecessary, disproportionate and conceptually flawed.[20]

15. **Ground B (SGN only):** Totex Model Allowances. SGN alleges that its totex has been determined by GEMA wrongly and with the result that it is underfunded for RIIO-3. SGN makes two complaints:[21]

15.1. **Ground B(1A):** that GEMA's approach to determining SGN's costs associated with Tier 1 Mains repex workloads, including by "overwriting" SGN's repex forecast, was adopted without any reasonable basis and was not appropriate.

15.2. **Ground B(1B):** that GEMA's approach to individual cost drivers in setting a combined cost driver (the CSV) was inconsistent with operational realities and failed to reflect differences between the GDNs' cost structures.

C. THE LEGAL FRAMEWORK

16. This section sets out the legal framework and relevant principles in an appeal to the CMA against a licence modification decision by GEMA as follows:

16.1. GEMA's statutory duties;

16.2. The statutory grounds of appeal; and

16.3. The standard of review to be applied by the CMA and the scope of GEMA's regulatory discretion.

C1. GEMA's statutory duties

17. Parliament is not prescriptive as to how GEMA should carry out its function of setting a price control. Instead, Parliament has given GEMA significant latitude through

19 Cadent Notice §63(e); NGN Notice §42(d); SGN Notice §363(iv); WWU Notice §9.4.

20 SGN Notice §363(v); WWU Notice §§6.4-6.15.

21 SGN Notice §140.

specifying a principal objective and other duties identified at a high level, thus requiring GEMA to exercise regulatory judgement in balancing competing interests and duties that have the potential to sit in tension with one another.[22]

18. Section 4AA GA86 establishes GEMA's principal objective as follows:

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

19. This is further clarified in s.4AA(1A), which states:

> "*Those interests of existing and future consumers are their interests taken as a whole, including – (b) their interests in the security of the supply of gas to them; and (c) their interests in the fulfilment by the Authority, when carrying out its designated regulatory functions, of the designated regulatory objectives.*"

20. Section 4AA(1B) imposes a duty on GEMA in respect of the principal objective:

> "*[GEMA] shall carry out [its] functions under this Part 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.*"

21. Particular regard must be had to the interests of certain specified groups of consumers: s. 4AA(3).

22. Further duties are imposed by s.4AA(2), which identify specific requirements to which GEMA must "have regard" when performing relevant duties:

> "*In performing the duties under subsections (1B) and (1C), … the Authority shall have regard to:*
>
> *(a) the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;*

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[22] E.g. *CMA RIIO-2 Decision* §14.147: "GEMA highlighted that there could be a tension between its duty to have regard to financeability and its duty to promote efficiency and economy on the part of licensees – and that this tension would be apparent if GEMA adopted an approach to the allowed return on debt which offered no or minimal incentive to licensees to manage their debt portfolios efficiently. We agreed with this assessment. …"

(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 [and other relevant legislation]; and

(c) the need to contribute to the achievement of sustainable development."

It is the duty to have regard to the matter in s.4AA(2)(b) which is, somewhat inaptly, referred to as the "financing duty". That is "*not a duty slavishly to follow and … the statutory wording does not impose an obligation of result*": CMA RIIO-2 Decision §14.80, and see also R (Wales & West Utilities) v Competition and Markets Authority [2026] EWHC 99 (Admin) ("**WWU**") §§80, 168.

23. Pursuant to s.4AA(5), subject to subsections (1B) and (2) and to GEMA's duty to carry out functions in a manner best calculated to further delivery of policy outcomes under s.132(2) of the Energy Act 2013, GEMA must carry out its respective functions in a manner which it considers is best calculated:

"*(a) to promote efficiency and economy on the part of [licensees] and the efficient use of gas conveyed through pipes;*

(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."

24. Finally, as regards the exercise by GEMA of its statutory functions, s.4AA(5A) provides:

"*In carrying out their respective functions under this Part in accordance with the preceding provisions of this section the Secretary of State and the Authority must each 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."

C2. Statutory grounds of appeal

25. The potential grounds of appeal against licence modification decisions are set out in s.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" (emphasis added). Those grounds are as follows:

25.1. "*that GEMA failed properly to have regard to any matter mentioned in subsection (2) [i.e., GEMA's relevant statutory duties]*";

25.2. "*that GEMA failed to give the appropriate weight to any matter mentioned in subsection (2)*";

25.3. "*that the decision was based, wholly or partly, on an error of fact*";

25.4. "*that the modifications fail to achieve, in whole or in part, the effect stated by GEMA by virtue of section 23(7)(b)*"; or

25.5. "*that the decision was wrong in law*".

26. Thus, the test is whether the CMA is satisfied that GEMA's decision was wrong on one or more of the statutory grounds, and not whether it was merely "*wrong*": WWU §§138-141, 155. It is not the CMA's role to "*conduct its own investigation and make its own determination as if it were the primary decision-maker*"; rather, it must consider the merits of GEMA's decision "*through the prism of the specific errors alleged by the appellants*", that is to say "*to consider whether GEMA made a decision that was 'wrong' on one of the prescribed statutory grounds*".

27. Finally, s. 23D(5) provides that "*[t]o the extent that the CMA does not allow the appeal, it must confirm the decision appealed against*."

C3. Standard of review

28. In its recent WWU judgment, the High Court has clarified the test to be applied by the CMA when determining energy price control appeals.

29. The Court made the following findings in respect of the grounds of appeal in s.23D(4)(a) and (b):

29.1. These grounds of appeal (namely, decision is wrong because of a failure properly to have regard to, and/or failure to give appropriate weight to, GEMA's statutory duties) require the CMA to scrutinise GEMA's approach to matters that involve

an element of judgement or evaluation: §145. One of the matters to which GEMA and the CMA must have regard is GEMA's principal objective. GEMA must carry out its functions in the manner which it "*considers is best calculated to further the principal objective*", which involves an element of judgement or evaluation: §147.

29.2. What the "have regard to" duties in s.4AA require will depend on the facts and circumstances and involve an element of judgement by GEMA. Other duties within section 4AA also involve judgement or evaluation by GEMA: §148.

29.3. Accordingly, the appeal grounds set out at section 23D(4)(a) and (b) involve the CMA concluding whether GEMA went "wrong" on matters of evaluation or judgement. Whilst that does not mean that the question for the CMA is whether GEMA has made an irrational evaluation, and the CMA is to make its own assessment as to what is "proper" regard and "appropriate" weight; equally the CMA is <u>not</u> to stand in GEMA's shoes and make the decision afresh: "*[p]rice control decisions, such as those involved in the appeals that were considered in this case, take time to determine and will involve a great degree of analysis. In the circumstances, the statutory scheme requires that some deference needs to be shown by the CMA to GEMA's evaluation or judgment*": §§149, 151 and 153.

29.4. To the extent that a reasonable alternative is proposed by an appellant, the CMA should, in considering whether GEMA went wrong on one of the statutory grounds, assess whether that alternative is materially better, in that it offers "*something more*" than GEMA's approach: §158. The CMA may be required to uphold GEMA's approach even if the CMA itself *"would have preferred one of the other approaches"*: §159.

30. It is important to appreciate the proper scope for consideration of whether an alternative approach is "*materially better*". By its dicta at §158 the Court did not create a new standalone ground of appeal against price control decisions allowing appeals whenever the CMA considers that an appellant has identified some materially better approach to calculating price control allowances. Rather, the alternative must relate to one of the statutory grounds of appeal in s.23D(4). Thus, a materially better approach proposed by an appellant must disclose that GEMA has failed to give appropriate weight to one or more of its relevant duties (or somehow has failed properly to have regard to the duty or

duties in question) in order for it to lead to the relevant ground succeeding.[23] This important insight is repeatedly overlooked by the Appellants in the present appeals. For example, WWU Notice §5.56 asserts that "*materially better decisions are clearly available*". NGN Notice §98 states that the "*"materially better" alternative approach would be to recognise the errors identified in this Notice of Appeal"* (and thus appears to have misunderstood the purpose of the threshold). SGN Notice §88 and §127 incorrectly states that "*all that is required for the CMA to find that GEMA was "wrong" is …: "The alternative approach is 'materially better' than GEMA's approach*".

31. As noted at §29.3 above, the Court recognised that some deference ought to be shown by the CMA to GEMA's evaluation or judgement. The extent to which deference will be due will depend on the circumstances. Where GEMA's decision is based on predictive assessments which are highly dependent on the appraisal of a wide variety of complex technical matters by an expert regulator, which has been assigned this task by Parliament, then the CMA ought to accord a greater rather than lesser margin of appreciation: see e.g. R (Wyatt) v Fareham BC [2022] EWCA Civ 983 at §9(5). A case in point is where "*predictions for the future [are] incapable of any exact measurement*": R (London and Continental Stations and Property Ltd) v Rail Regulator [2003] EWHC 2607 (Admin) at §34. As is explained below, these judicial dicta apply with full force to the appraisal by GEMA of OE, and to the assessment of competing and complex technical matters when selecting an approach for the purpose of calculating approved baseline totex. In the language of s.24D(4), it will be harder for an appellant to demonstrate that GEMA has failed properly to have regard, or to give appropriate weight, to particular specified matters where the assessment of those matters themselves turn on complex and multifactorial predictive assessments. See similarly the CMA RIIO-2 Decision[24] §3.79, referring to R (DG Telecoms) v Cellcom [1999] ECC 314 at §26, and recognising the need for "*appropriate restraint when reviewing issues which entail the exercise of GEMA's judgement, which may include GEMA's predictions for the future*".

32. Where it is said that a decision is wrong on the ground of an error of fact under s.23D(4)(c), the CMA will apply the "*well-known test in E v Secretary of State for the Home*

[23] See also *CMA RIIO-2 Decision* §3.36: "*As regards potential alternative approaches, our starting point should not be to determine whether there is an alternative approach and then decide whether it is better. Rather, we should only determine whether there is an error in the approach chosen by GEMA, as alleged by the appellant.*"
[24] Final Determination: Volume 2B, RIIO-2 Appeals: Final_Determination_Vol.2B.pdf

Department" [2004] EWCA Civ 49, [2004] QB 1044 that: (i) there must have been a "*mistake as to existing fact*"; (ii) "*the fact or evidence must have been "established", in the sense that it was uncontentious and objectively verifiable*"; (iii) the appellant or his advisers must not have been responsible for the mistake; and (iv) "*the mistake must have played a material (not necessarily decisive) part in the tribunal's reasoning*": WWU §142.

D. GROUND A: ONGOING EFFICIENCY - OVERVIEW

33. Before addressing the individual Grounds relied on by the Appellants, it is important to appreciate the role of Ongoing Efficiency ("OE") in the price control process:

    33.1. OE reflects "*the level of productivity improvements that GEMA expects the entire sector to be capable of achieving over the price control, based on evidence*". It applies regardless of a company's current efficiency level: it represents "*the level of annual efficiency gains that even the most efficient company should be able to deliver*" (McMahon 2, §15(ii)). The 'tools' which GEMA uses as part of its price control process, of which its OE decision is one, are "*designed to replicate competitive pressure in a regulated environment*": the OE challenge "*aims to incentivise the same kind of discipline that is imposed by competitive markets*" (McMahon 2, §§14, 17).

    33.2. The CMA has previously found in the CMA RIIO-2 Decision at §7.801 that, given GEMA's "*principal objective is to protect the interests of existing and future consumers, and GEMA should carry out its functions in the manner which it considers is best calculated to promote efficiency and economy on the part of those licensed*", it is "*appropriate for GEMA to set a stretching, but achievable OE challenge*". That is what GEMA has sought to do in respect of RIIO-3: McMahon 2, §13.

    33.3. In this context, GEMA has decided to set the OE challenge at 1% per annum to the totex allowance of all licensees (McMahon 2, §12).

    33.4. GEMA's decision-making, in respect of the level at which to set the OE challenge, involved a "*complex assessment*" based on "*substantial data, comprehensive expert analysis, extensive consultation over two years, and the careful balancing of regulatory objectives*": GEMA is confident that the outcome coheres with its principal objective of protecting the interests of existing and future consumers, as well as its wider statutory duties (McMahon 2, §11).

33.5. As Mr McMahon further explains, there is "*no direct way of measuring the size of ongoing* [OE] *improvements*" as the level of future productivity improvements is "*inherently unknowable*". As a result, GEMA's decision-making in setting the OE challenge "*is not simply a mathematical exercise*" but involves a complex, predictive assessment. To reach its ultimate decision to set the challenge at 1%, GEMA relied on both quantitative and qualitative considerations. This is a clear instance of GEMA exercising regulatory judgement (McMahon 2, §19).

E. GROUND A1

E1. Introduction

34. By Ground A1 the Appellants contend that the 1% OE parameter is incompatible with and/or does not take proper account of (i) the UK's productivity growth figures since 2008 and (ii) independent forecasts of UK productivity improvements.

35. The specific arguments advanced by the Appellants under Ground A1 are respectively:

35.1. Cadent's "Sub-Ground 2" and "Sub-Ground 3", at Cadent Notice §§80-90;

35.2. NGN's "Error 1", at NGN Notice §§142-170;

35.3. SGN's "Error 1", at SGN Notice §§382-402; and

35.4. WWU's "Ground 2", at WWU Notice §§5.1-5.56.

E2. GEMA's approach

36. In its Overview DDs, GEMA explained its proposal to set an OE target of 1%. That proposal reflected an in the round assessment of quantitative analysis and qualitative considerations: Overview DDs §8.25. The former was carried out with input from Grant Thornton, who provided a report ("**the First GT Report**") proposing an OE range, which was published along with GEMA's Draft Determinations.

37. The analysis conducted by Grant Thornton was the initial building block of GEMA's approach: it "*undertook a quantitative growth accounting analysis to determine a broad range of 0.1%-1.3%, based on historically observed productivity growth, derived from EU KLEMS*", a harmonised industry-level dataset covering growth and productivity across the EU and other countries including the UK (Overview DDs §8.28). The methodological approach

adopted in the First GT Report is explained in detail in McMahon 2 §§74-79 (under the heading "Grant Thornton's First Report"). In outline:

37.1. Three different versions of EU KLEMS data, spanning 1970 to 2021, were used to inform the quantitative analysis.

37.2. Grant Thornton identified an initial range for OE using different productivity metrics,[25] three possible combinations of sectors, and different time periods.

37.3. Grant Thornton's initial range was a very broad one, of -1.0% to 4.2%. The breadth of that range was attributable to the wide-ranging historical data that had been analysed. More specifically, using the VA metric and a 2010-2019 specific time-period, coupled with a particular sectoral analysis, led to the lower-bound estimate of -1.0%; using the VA metric and a 1997-2007 time period coupled with a broader sectoral analysis led to the upper-bound figure of 4.2%.

37.4. That initial range was narrowed by making certain methodological choices, namely: (i) the adoption of the GO metric, which produced a more conservative range and was consistent with the application of OE to totex, because it relates to the total value of production; (ii) the selection of an appropriate range of comparator sectors, which were the sectors previously used by CEPA (GEMA's RIIO-2 advisers) in its modelling in relation to RIIO-2, with the addition of Manufacturing, Information and Communication, and Professional & Administrative Services; and (iii) the adoption of a full 1970-2021 time period (broken into three periods, 1970-1996, 1997-2007, and 2010-2019), but excluding outlier years from the dataset in 2008/9 and 2020/1 (which reflected the particular shocks of the Global Financial Crisis and the COVID-19 pandemic, respectively).

37.5. Those methodological choices had the effect that the plausible range derived by Grant Thornton was 0.1%-1.3% (the "GT Range"). Grant Thornton advised, however, that the GT Range remained relatively broad, that it was therefore prudent to consider other sources of evidence, and that it would be reasonable to

[25] Namely the "VA metric" and the "GO metric". As explained in the First GT Report §3.2, the VA metric reflects productivity of activities delivered in-house within a given sector. The GO metric reflects productivity of activities delivered in-house within a given sector as well as activities delivered by a sector's supply chain. The VA metric differs in that it does not consider the value of intermediate inputs (i.e. those supplied by the supply chain).

set the OE target at, at least, the most ambitious level proposed by the companies. See the summary at McMahon 2 §86.

37.6. Grant Thornton also presented the (then) latest productivity forecasts from the Bank of England ("**BoE**") and Office of Budget Responsibility ("**OBR**"). At the time of the First GT Report, the BoE "*forecast no TFP growth in 2025 with productivity improving slightly in 2026 (0.5%) and 2027 (0.3%)*", whilst according to the OBR "*average TFP growth over the first four years of the next control period will be 0.925%*" (First GT Report, p.26, §§2.3-4).

38. The analysis in the First GT Report was treated by GEMA as a "*sensible starting point from which to determine a potential range for OE*": Overview DDs §8.28. That starting point was then refined by narrowing the plausible range to 0.7%-1.3%, as described further below in relation to Ground A3.

39. The GDNs commissioned Economic Insight ("**EI**") to produce a response to the Overview DDs (the "**First EI Report**"). The transmission owners similarly commissioned further consultancy reports. In order to inform its Final Determinations, GEMA commissioned Grant Thornton to produce a second report (the **"Second GT Report**") addressing various arguments advanced by the network companies and their advisers. All of this material was carefully considered by GEMA in informing its decision for the purpose of Overview FDs.

40. In the Overview FDs:

40.1. GEMA amended its approach to the time period of analysis in light of arguments advanced by the GDNs that it was inappropriate to exclude 2008 and 2009 from the analysis: see Overview FDs §§8.27-31. GEMA accepted Grant Thornton's view that it remained appropriate to exclude 2020 and 2021 from the analysis due to the abnormal nature of the economic conditions in those years: Overview FDs §8.30.

40.2. Certain network companies had argued that, when analysing comparator sectors, a weighted approach should be used within the growth accounting analysis which would emphasise particular, supposedly more comparable sectors. However, GEMA considered that a simple average was more appropriate than attributing differentiated weights for different sectors. There were "*practical challenges with*

using activity-specific weights, including the subjective nature of activity-based mapping exercises and potential misalignment of definitions between companies and sectors" (Overview FDs §8.32). In addition, the use of weights "*opens up the likelihood of spurious accuracy*": Overview FDs §8.37. Given that network companies "*share common features with all comparator sectors*" and that "*businesses included within each sector and sub-sector are likely to share different degrees of overlap with the activities of energy network companies*", a simple average was deemed appropriate.

40.3. As regards forecasts of wider UK productivity growth (from the BoE and OBR), GEMA's approach gave qualitative consideration to these but did not "*tie the outcome directly to such forecasts*": Overview FDs §8.47. It was noted that such forecasts are inherently uncertain and liable to change, whilst the OE challenge is fixed *ex ante*. GEMA noted that there had been a downgrade in OBR's forecasting, but observed that this downgrade did not sit outside the range used by GEMA to set OE (0.7%-1.3%) and that there was no mechanistic need to change the OE target given this change.

E3. GEMA's response to the Appellants' arguments

(i) Historic productivity growth figures

41. Each of the Appellants mischaracterises GEMA's decision-making in relation to Ground A1, suggesting that GEMA disregarded evidence of sluggish post-GFC productivity in the wider economy. That is an untenable argument.

42. The quantitative analysis conducted by Grant Thornton of historical productivity trends, including over the period post-dating the GFC, expressly formed the initial building block of GEMA's assessment, and specific regard was paid to it: see Final Determinations §8.23 and §8.30 and McMahon 2 §155.

43. But any greater reliance on productivity data had real drawbacks, as recognised by GEMA. The First GT Report vividly explains those drawbacks at §2.3 in terms which have not been challenged by the Appellants, as follows:

> *"There are challenges in setting OE targets in the beginning of the price control. In particular:*

- *It is a **forward-looking exercise**, which involves forming a view on the extent to which future technological, managerial and process improvements may lead to productivity improvements. Whilst empirical evidence on past productivity changes can provide an indication, there is no a priori reason to expect future productivity changes to follow historic ones.*
- *Even measuring **historic productivity and efficiency** in the energy sector can be challenging. Efficiency could be measured in multiple ways (discussed below), each with its own merits and problems. It can also be challenging to measure the inputs and outputs of the energy networks, which are characterised by long asset lives and where investments can take time to yield benefits.*
- *Efficiency improvements are often **highly context specific**. Improvements are often specific to technical processes in the sector, and adoption of wider trends (e.g. digitalisation) varies. Therefore, forming a meaningful 'bottom-up' view on an OE target is challenging; and sector and/or economy-wide comparisons could be useful but are certainly not perfect. Wider macroeconomic trends may not translate directly into the energy sector due to the regulatory regime.*
- *The **wider macroeconomic debate sheds little light**. Much of the discussion around OE – especially for RIIO-3 – has centred on broader debates, especially around: the UK's so called 'productivity puzzle' and whether and how this applies to energy networks; and AI, robotics, automation, etc., and whether, how and to what extent these developments offer opportunities for energy networks to drive down costs. Although these debates are important, there is often no right or wrong answer: ideas can be put forward (arguing for more or less efficiency), but empirical evidence on these trends is very limited.*

For these reasons, forming a meaningful view on OE expectations should involve examining a range of different evidence, sources and arguments. It also means applying judgement to weigh up the different evidence and arguments and to balance the interests of consumers and the realities of running energy networks."

44. It is also notable that Grant Thornton observed that the 2010-2019 period reflected an "*unusually long and deep recession by recent historical standards*", whilst recent economic trends (such as the trend toward digitisation and the wave of investment in AI) suggested that the RIIO-3 regulatory period may more closely parallel the 1997-2007 period: the First GT Report, p.21. Grant Thornton therefore invited GEMA to consider how far the parallels between the 1997-2007 period and the RIIO-3 regulatory period meant that this would be the most appropriate comparator period, "*noting the parallels*

between the impact of information and communication technology over that period and potential productivity impact of AI technologies": the First GT Report, p.32. GEMA was entitled to conclude that the post-GFC period was a period characterised by unprecedented shocks, as further explained in McMahon 2 §§157-9.

45. In its arguments to the contrary, Cadent cites academic and economic evidence said to show that "*the slowdown in economic productivity following the GFC is not temporary but based on entrenched structural factors and has led to fundamentally different economic conditions, which will continue into RIIO-3*" (Cadent Notice §81). The same point is made in NGN Notice §§147-151, SGN Notice §§387-389 and WWU Notice §§5.21-45. This is said to demonstrate that GEMA should have attributed greater weight to post-GFC evidence, and is described by the Appellants as the "*structural break*" in the economy after 2008.

46. The allegation that there has been a "*structural break*" in productivity is addressed in section 2 of the GT Appeal Report. There, it is noted that:

    46.1. Productivity growth is generally prone to fluctuation, such that (for example) productivity growth was 0.05% in 2018 for all NACE activities (and 0.14% for the market economy, which excludes the public sector) but then 0.89% the following year (1.27% for the market economy). More particularly, the post-GFC period has been shaped by exceptional events such as the COVID-19 pandemic, the war in Ukraine, and Brexit, the effect of which is that it is at least "*unclear whether the RIIO-3 period will be characterised by such impactful events*" GT Appeal Report §2.8(b).

    46.2. There is no *a priori* reason to expect future productivity growth changes to follow past trends. GT Appeal Report §3.8(b) notes there is limited evidence to indicate that the most recent post-GFC period is necessarily more representative of future productivity trends than earlier periods. Moreover, as the OBR has accepted, productivity is a variable of particular uncertainty, and this variability is exacerbated by the variation across sectors: GT Appeal Report §2.8(a), (b). Even Frontier Economics, in their November 2024 report for NGET to inform its business plan submission (the "First FE Report"), acknowledged that some reversion towards pre GFC productivity was possible.

46.3. Investment has recovered strongly since the GFC, and there is evidence of a "*lag*" between investment recovery and the occurrence of productivity growth: GT Appeal Report §2.11(a).

46.4. There is some evidence that the recent economic environment may support the process of 'creative destruction', which would be expected to raise productivity: GT Appeal Report §2.11(b).

47. Thus, even if it were correct to say that there has been a "*structural break*" in productivity levels in the wider economy since the GFC, that fact does not in any way impugn GEMA's decision to select an OE parameter of 1%. To the contrary, it would have been irrational for GEMA to tether the OE parameter to historical productivity data relating to just one business cycle. This is *a fortiori* if (as is submitted below) it was open to GEMA to take into account qualitative factors which suggested that the Appellants were able to outperform the productivity levels witnessed recently in the wider economy.

48. It is also suggested at Cadent Notice §§85-7 that GEMA's quantitative approach "*departs from regulatory precedent*", and thus fails properly to have regard, or give appropriate weight, to its duty under s.4AA(5A), in light of the CMA's findings in the *RIIO-2 Appeals*. WWU Notice §§5.21 et seq similarly contend that GEMA's RIIO-3 methodology departed in an unjustified manner from its RIIO-2 methodology, which had the effect of excluding, disregarding or under-weighting post-GFC data. Cadent asserts that GEMA's approach differs from its (and CEPA's) approach at RIIO-2 and that, had CEPA's approach been adopted, the plausible OE range would have been between 0.1% and 0.5%. Those submissions are unmeritorious:

48.1. First, there is no inconsistency with the *RIIO-2 Appeals*, where the CMA found that: (i) "*the decision as to the choice of time period involved the exercise of regulatory judgement, where GEMA was required to select among various alternative solutions*" (at §7.99, and see §7.103); and (ii) it was open to GEMA to place "*less weight on the wider productivity slowdown in recent years*", and indeed this was "*consistent with the approach taken by the CMA in the CMA PR19 Redetermination*" (at §7.87). Regulatory best practice does not require slavish adherence to the methodological choices made by GEMA's advisers during a previous price control. In any event, whilst there are differences, the RIIO-3 methodology does not contradict that taken at RIIO-2: see McMahon 2 §§74-82; GT Appeal Report, section 7.

48.2. Second, Cadent misstates CEPA's methodology in its advice to GEMA at RIIO-2. CEPA did not calculate a "*reference range for the OE challenge over a longer averaging time period of between 1997 to 2016*". Both the NERA Appeals Report[26] §§70-71 (on which Cadent's assertion rests) and the Frontier Appeals Report[27] §§4.56-4.60 simply misunderstand what CEPA did. As the GT Appeal Report explains in section 7, CEPA did not set out to produce, through its KLEMS analysis, a hard range within which GEMA should choose its OE parameter. Instead, it produced a set of historical growth figures from the KLEMS data and went on to propose that certain qualitative factors could justify an OE figure higher than the level that might be taken purely from an assessment of the KLEMS data. Thus it is wrong to suggest that, had CEPA's methodology been adopted, the plausible OE range would have been capped at 0.5%.

48.3. Third, Grant Thornton's approach to the growth accounting data in its reports for GEMA was different from that of CEPA. There is however no legal requirement on GEMA or its advisers – whether under s.4AA(5A) or otherwise – to adhere slavishly to a particular approach to analysing the quantitative data. As the First GT Report §3.6 explained, there is no single, consensus methodology for undertaking growth accounting productivity analysis, and the outcome of this analysis is sensitive to the analytical choices on modelling parameters.[28] It was, to put it at its lowest, open to GEMA to accept Grant Thornton's approach and consider a plausible OE range based on distinct business cycles, rather than require its adviser to adopt some other methodology, whether that of CEPA at RIIO-2 or otherwise.

49. Further, and insofar as the Appellants (Cadent Notice §§82, 87; NGN Notice §§152-5; SGN Notice §§439-446; and WWU Notice §5.46(a)) make submissions concerning the upper bound of 1.3% and the evidence used to alight on this upper-bound figure:

[26] NERA, 'Expert Report on GEMA's Approach to Ongoing Efficiency at RIIO-GD3' dated 27 February 2026 ("**NERA Appeals Report**").
[27] Frontier Economics, 'Assessment of GEMA's Approach to Setting Ongoing Efficiency at RIIO-3' dated 2 March 2026 ("**Frontier Appeals Report**").
[28] See also McMahon 2 §17 and §92.

49.1. The selection of the 1.3% upper bound was analytically sound. In particular, it was plainly open to GEMA to consider strong periods of frontier performance when constructing the top end of any plausible range: see McMahon 2 §§163-165.

49.2. The Appellants are correct to note that the 1.3% upper bound in Grant Thornton's analysis is informed by the 1997–2007 period. However, they are wrong to suggest that this is flawed because it only captures the pre-GFC period. The First GT Report and the Second GT Report explain that this period was selected as it constitutes a complete business cycle, during which productivity growth followed a relatively stable trend. Using a full business cycle is standard practice in economic analysis when analysing longer-run productivity trends: McMahon 2 §164.

49.3. Moreover, as explored in response to Ground A2 below (and see further §§43-44 above), current weak economy-wide productivity should not cap the upper bound of the plausible range for regulated networks or of a forward looking forecast. Ongoing efficiency concerns the potential frontier movement for energy networks and not the realised average performance of the whole economy.

49.4. Further and in any event, it is clear from GEMA's reasoning in the Overview FDs that the upper-bound of the 0.7%-1.3% range selected by GEMA did not itself cause GEMA to choose 1.0% as the OE parameter: see the response to Ground A4 below for an explanation of how qualitative factors were used to identify 1.0% as an appropriate landing point *above* the lower-bound of 0.7%.[29]

50. Finally, Cadent Notice §83 wrongly suggests that by adopting a range of 0.7% to 1.3%, GEMA "*effectively discounts*" all evidence other than: (i) NGET's OE estimate of 0.7%, addressed below under Ground A3; and (ii) the 1997-2007 time period estimate of 1.3%, and "*ignores*" the structural change in the economy that the GFC brought about:

50.1. For the reasons given in response to Ground A3 below, GEMA did not discount or disregard other evidence, in particular evidence consistent with a lower OE figure. Further, the evidence it took into account in arriving at its own lower bound of 0.7% was not limited to NGET's OE estimate.

[29] The assertions to the contrary by the Appellants – e.g. WWU Notice §5.46(c) – are plainly wrong.

50.2. For the reasons given in section 2 of the GT Appeal Report, cited above, GEMA's reasons for not placing undue emphasis on the weak productivity experienced by the wider economy post-GFC are sound; at the very least, GEMA was entitled, in its expert judgement, to reach that view.

50.3. As already noted, the upper end of the range reflected historical productivity during one of the complete business cycles identified by Grant Thornton.

(ii) Forecasts of productivity improvements

51. In the Overview FDs, GEMA stated at §8.47 that it had given qualitative consideration to forecasts of future UK productivity improvements[30] but noted that they were uncertain. It therefore determined that it would be wrong to tether the OE parameter to these forecasts. This position was supported by the Second GT Report, which stated that although such forecasts were "*informative about the direction of productivity trends for the wider economy*", independent forecasting should not be given overriding weight because any conclusions therein would be subject to change and not specific to the energy sector.

52. That was a legitimate approach. Cadent Notice §88 is obviously wrong to contend that GEMA failed to take such forecasts into account: GEMA plainly did so, as can be seen from Overview FDs §§8.47-48, confirmed by McMahon 2 §§171-73. Further, it was a matter for GEMA to determine in its expert regulatory judgement how much weight should be given to these forecasts, and that is what it did. As such, the Appellants' arguments in relation to these forecasts cannot get off the ground.

53. The particular criticisms made by the Appellants are as follows:

53.1. First, an OE assumption of 1% is said by Cadent to be "*incompatible with any reasonable interpretation*" of the OBR and BoE forecasts (which are said respectively to average 0.51% from 2024 to 2030 and 0.07% from 2024 to 2028): Cadent Notice §89. In a similar vein, SGN contends that greater weight should have been placed on future forecast data, claiming that GEMA's "*observation that forecasts are liable to change is not a reasonable basis on which to materially diverge from the most recent available data*": SGN Notice §398. Cadent and SGN thus in essence argue that it

[30] At Overview DDs §8.33, GEMA noted that such forecasts were "*informative about the direction of wider trends*".

was irrational for GEMA to do anything but set the OE rate in line with external forecasts of future economy-wide productivity. That is, however, a hopeless argument:

53.1.1. GEMA took account of such productivity forecasts but gave proper (indeed, cogent) reasons for not placing decisive weight on them, bearing in mind their uncertainty and mutability, as well as the fact that they are not sector-specific. See also the GT Appeal Report §2.9 section 2, highlighting the uncertainty stressed by the forecasters themselves; and indeed certain Appellants themselves emphasise how the OBR has historically mis-forecasted productivity in the wider economy.[31]

53.1.2. It is impossible to say that GEMA's approach was irrational; in fact, the only irrational course would be slavishly to follow such forecasts, which is the logical consequence of Cadent's and SGN's argument.

53.1.3. What GEMA had to do, and what it in fact did, was to make an informed assessment of OE based on its expert judgement taking into account a wide range of relevant evidence. It would have been inappropriate to attribute any greater weight to forecast figures than was applied.

53.1.4. Second, all of the Appellants criticise GEMA's reasoning at FD Overview §§8.48. There, GEMA set out one particular reason for not explicitly tethering the OE challenge to independent forecasts, namely that such tethering would imply frequent updating of the OE challenge during the RIIO-3 period as revised forecasts are published, which would be inconsistent with the RIIO framework and would lead to an unstable regulatory regime. The Appellants contend that GEMA's reasoning is flawed, as there would have been no need for GEMA to update its OE parameter during the price control period, had it relied on productivity forecasts (e.g. Cadent Notice §90(a)(i); NGN Notice §§168-9). However, this submission mischaracterises GEMA's reasoning, as explained by McMahon 2 §173. The purpose of Overview FDs §8.48 was simply to explain that GEMA did not consider the OE

[31] See Cadent Notice §90(b) and SGN Notice §392.

challenge to be directly linked to wider economy productivity, such that it would be appropriate to apply a corresponding update to the OE challenge level from the Draft Determination position based on an update to the OBR's forecast. GEMA observed in the Final Determinations that, should there be such a direct link, the implication would be that regular updates would be appropriate.

53.1.5. Direct correlation with external measures of productivity could also have created an implicit assumption that productivity gains are largely out of network companies' control. This is misleading and inconsistent with the purpose of OE as an ex ante target.

53.1.6. GEMA was simply reflecting evident reality that a recent fluctuation in a single productivity forecast could not be used mechanistically to vary the OE parameter, which needed to be set *ex ante* with certainty going forward: see McMahon 2 §173. That was plainly a legitimate matter to take into consideration, particularly where GEMA *did* also note the update to the OBR's forecast, but did not consider this strong evidence to amend the level of the OE parameter.

53.2. Third, the Appellants complain about the fact that the updated productivity forecasts released by the OBR in November 2025 did not cause GEMA to change its mind about the level of the OE challenge (Cadent Notice §81(c); NGN Notice, para 151; SGN Notice §390; WWU Notice §5.10).

53.2.1. WWU Notice §5.10 contends that GEMA "*declined to engage*" with that updated forecast, but it is clear from the face of FD Overview §8.49 that GEMA was aware of it and took it into account.

53.2.2. The other principal argument advanced by the Appellants relates to GEMA's subsidiary observation, in the final sentence of §8.49, that the revised OBR forecast sat within the upper bound of the GEMA Range within which it set the OE challenge. GEMA accepts that this observation was incorrect in that it compared the OBR's labour productivity forecast with its own OE range, which was based on TFP data. However, that mistake was immaterial, as external forecasts did

not determine the OE challenge but were instead just one factor among many. See further McMahon 2 §174 and Chapter 6 of GT Appeal Report.[32]]

54. In reality, the Appellants' arguments boil down to the contention that GEMA should have fully reflected the external forecasts in the OE parameter it ultimately chose. That is unsustainable. GEMA was entitled to take account of such forecasts but to give them limited weight, in view of the uncertainty attached to them. That approach discloses no legal error.

55. For the foregoing reasons, Ground A1 should be dismissed.

F. GROUND A2

F1. Introduction

56. Ground A2 concerns the Appellants' criticism of GEMA's observation that there were reasons to think that the regulated companies were partially insulated from the wider economic productivity slowdown over recent years.

57. More specifically:

    57.1. Cadent's "Sub-Ground 4" argues that GEMA erred in "*assuming that regulated network companies are insulated from wider productivity slowdowns in the UK economy*" (Cadent Notice §91). Cadent makes three arguments in this regard, that:

        57.1.1. GEMA's approach was not supported by empirical evidence or economic theory (Cadent Notice §95);

        57.1.2. GEMA did not have regard to or gave insufficient weight to evidence provided to it (Cadent Notice §96); and

[32] For completeness, WWU Notice §5.15 contends that Grant Thornton made certain errors in the Second GT Report in arriving at the conclusion that the CMA's (then) provisional redetermination in PR24 was not necessarily inconsistent with GEMA's (then) proposed OE challenge of 1% for RIIO-3. Chapter 6 of the GT Appeal Report acknowledges two errors, but neither of these have any material bearing on GEMA's decision, for the reasons given above. See also McMahon 2 §170.

57.1.3. NERA's analysis shows that the "*insulation hypothesis*" was erroneous (Cadent Notice §97).

57.2. NGN's "Error 2" is that: (i) there is no theoretical or empirical basis for GEMA's view on "*insulation*" (NGN Notice §§173-4); and (ii) the key drivers of the UK's structural productivity weakness are "*directly relevant to regulated energy network costs*" (NGN Notice §§172, 175-9).

57.3. SGN's "Error 2" (SGN Notice §§403-429) is that GEMA's approach "*assumes outperformance and/or material outperformance of UK-wide measures due to the regulatory framework without adequate evidence or reasoning*".

57.4. WWU's "Ground 1" (WWU Notice §§4.1-4.42) is that the so-called "*insulation hypothesis*": (i) contradicts principles of regulatory economics (WWU Notice §§4.6-4.17); (ii) lacks evidentiary support (WWU Notice §§4.18-4.24); and (iii) ignores that structural productivity drivers affecting the UK economy also affect GDNs (WWU Notice §§4.25-4.41).

F2. GEMA's approach

58. The reasoning criticised under Ground A2 is contained in the Overview FDs §§8.50-51. There, GEMA explained that:

58.1. As compared with companies operating in competitive sectors, regulated energy network companies have "*higher certainty over revenues and returns*", and that this gave them "*greater potential to outperform the wider economy because they operate within the RIIO price control frameworks*".[33]

58.2. Although Cadent had argued that GDNs were "*fully impacted by wider productivity slowdowns driven by a lack of public and private investment, infrastructure quality, quality of human capital stock and management quality*", GEMA disagreed, because the Final Determinations themselves had guaranteed "*record levels of investment into UK energy network infrastructure*".[34] It was therefore inconsistent for Cadent to

[33] Overview FDs §8.50.

[34] Overview FDs §8.51.

suggest that general economic slowdown and lack of investment would translate into the regulated energy sector.

59. As is clear from the reasoning which immediately follows this analysis (Overview FDs §§8.52-55), the term 'insulation hypothesis' was not one GEMA actually used in its decision making. Rather, GEMA set out specific qualitative factors which supported the view that network companies were not fully impacted by the wider slowdown and could outperform the average UK firm: see Overview FDs §§8.51-55. GEMA's view was that "*there are specific characteristics of regulated utility companies that enable potential productivity benefits not present to firms in competitive sectors*": McMahon 2 §178. This consideration was a qualitative and overarching one, supported by particular reasoning in the Overview FDs, and addressed further at Ground A4 below.

60. GEMA's approach in the Overview FDs had been indicated at the prior stage of Overview DDs, where GEMA stated at §8.33:

> *"We also consider that regulated network companies are not fully impacted by wider productivity slowdowns, given the predictability that the price control frameworks provide over future revenues and returns compared to the companies operating in competitive markets".*

61. GEMA's view was supported by expert analysis conducted by Grant Thornton.

61.1. In the First GT Report, Grant Thornton noted in relation to the "*challenges in setting OE targets*" that "*[w]ider macroeconomic trends may not translate directly into the energy sector due to the regulatory regime*" (p.9). It also stated that a higher than typical OE target "*may be appropriate*" if GEMA "*considered that regulated companies are more akin, in terms of productivity growth potential, to the historically higher performing sectors of the economy (such as Manufacturing and Information & communication*" (p.5).

61.2. In the Second GT Report, Grant Thornton observed at §6.36:

> "*We note that Ofgem is expecting significant capital investment in the energy sector during RIIO-3 relative to recent price controls, particularly for electricity transmission. At least some of this investment is likely to fund productivity-enhancing initiatives, if TOs hope to meet the ambitious time scales. Efficiency of delivery will then have to increase. This, in addition to the fact that regulated companies operate in a stable and predictable environment conferred by price control frameworks, justifies expectations of positive productivity growth in the sector.*"

62. Given this advice, and in the particular context of the weak productivity shown in the wider economy and discussed in Ground A1 above, GEMA was justified in considering that, in the RIIO-3 period, the network companies would not be exposed to some of the drivers of that low wider economy productivity, which are given so much weight in the Appellants' submissions both in these appeals and in their RIIO-3 forecasts (McMahon 2 §181).

F3. The witness evidence

63. GEMA relies on McMahon 2 §§175-215 and section 4 of the GT Appeal Report in relation to Ground A2. Without prejudice to the totality of that evidence, GEMA notes in particular that, as explained by Mr McMahon:

63.1. The Appellants mischaracterise GEMA's position by suggesting that it believes that GDNs are 'insulated' from all challenges in the wider economy. Rather, GEMA's view is that GDNs are *partially* protected through the regulatory regime: McMahon 2 §21 and §178.

63.2. GEMA does not deny – and has never ignored – that GDNs are exposed to "*headwinds in the wider economy*" (McMahon 2 §196). However, it is "*wrong to suggest that RIIO leaves [GDNs] exposed to those headwinds in the same way, and to the same degree, as firms in the wider competitive economy*": McMahon 2 §199.

63.3. Indeed, there are various general and specific considerations supporting that view.

63.3.1. In general, the RIIO framework, as explained by Mr McMahon:

"*provides stable ex ante allowances, a regulated return, financeability protections, uncertainty mechanisms/reopeners, and in some areas innovation and IT/digital funding; it therefore does not eliminate real-economy constraints, but it can materially cushion their effect on the company's ability to invest, plan and recover efficient costs*" : McMahon 2 §188.

63.3.2. Demand for gas distribution services is largely inelastic, with changes in wider economic conditions having little or no effect on the volume of

services GDNs are required to provide or on the revenues they recover: McMahon 2 §186.

63.3.3. The RIIO framework protects against underinvestment and sector-specific cost inflation, makes workforce planning, recruitment and training materially easier than in sectors exposed to cyclical demand, creates a generally stable environment for management, reduces exposure to export-demand loss: McMahon 2 §198.

63.4. Those considerations are also supported by economic theory, because although in the long-term it is true that regulated sectors should not outperform the wider economy, other sectors are more prone to volatility and short-term fluctuations, such that incentives to improve productivity can be offset by higher costs in the short term. Furthermore, as section 7 of the GT Appeal Report explains, GDNs, particularly those below the frontier GDN, have a wider set of efficiency opportunities than comparator firms. See, generally, McMahon 2 §§209-215 and §§74-75 below.

F4. GEMA's response to the GDNs' arguments

64. Ground A2 is misconceived: it seeks to identify an analytical error in a passage of GEMA's reasoning which cannot properly be criticised, on any sensible reading of it.

65. As explained above, the overall approach taken by GEMA in relation to OE was: first, to identify a "*broad feasible range*" of 0.1%-1.3%, based on quantitative analysis conducted by Grant Thornton; second, to narrow that plausible range by ascertaining a more appropriate lower bound of 0.7%; third, to choose the mid-point of the 0.7%-1.3% range based on a qualitative assessment of various factors. That structure is explained expressly in Overview FDs §8.23 (referring to the approach taken in Overview DDs) and is apparent on any reading of the GEMA's decision-making.

66. There is plainly no 'step' in that analysis at which GEMA made an uplift to its OE target because it considered that GDNs were insulated from wider economic trends. The insulation hypothesis is only referred to at Overview FDs §8.23 as one of a number of *qualitative considerations* which were assessed in the round: see GEMA's reference therein to "*the protection afforded to regulated network companies against wider productivity slowdowns*

due to the predictability of the price control frameworks".

67. That is also clear from the sections of the Overview FDs cited by the Appellants. GEMA conducted "*an in-the-round assessment of various sources of evidence*" to select "*an appropriate point estimate from our quantitatively derived focused range*": §8.46. Thereafter, at §§8.50-51, the observation that regulated energy networks are not fully impacted by the productivity slowdown in the wider economy is made as one of numerous qualitative factors that could, when looked at 'in the round', justify the selection of 1% from the 0.7%-1.3% range.

68. As such, WWU is wrong to identify the alleged insulation hypothesis as "*essential to GEMA's case*",[35] rather than as being one of various qualitative considerations taken into account.

69. In addition to their overall characterisation of GEMA's reasoning in relation to insulation, the particular criticisms made by the GDNs are also misplaced for the reasons explained below.

70. **Alleged lack of empirical evidence/support**. The Appellants are wrong to submit that GEMA did not have any evidential support for its view that the network companies were not fully impacted by the recent wider economy slowdown. McMahon 2 §§183 et seq explains by reference to the FDs how such partial protection can be expected to arise. Specifically:

    70.1. Mr McMahon explains how the Appellants are protected against so-called real price effects ("RPEs"): the price control is forecast to provide GDNs with around 0.7% pa protection against cost inflation over RIIO-GD3 (§184).

    70.2. He highlights that demand for gas distribution services is largely inelastic, with changes in wider economic conditions having little or no effect on the volume of services GDNs are required to provide or on the revenues they recover under the RIIO framework. Moreover, GDNs are protected against volume decline, such that even in a period where consumers will start transitioning away from gas to

[35] WWU Notice, §4.4.

electricity, the network charges per unit of gas will be adjusted to reflect lower volumes (§186).

70.3. He explains that all of the very substantial investment in operational and non-operational training across RIIO-1 and RIIO-2 was recovered by the network companies through the price control framework; this is a protection not afforded to companies in the wider economy, where training and development costs are overheads that often cannot be directly recharged to customers (§189).

71. Thus, GEMA did not err in considering that the RIIO framework provides at least partial insulation from economy-wide factors which inhibit productivity growth. It is true that GEMA did not seek to measure precisely the extent to which it could be said that GDNs were protected from challenges that have caused wider economic productivity to be low, but that would be an unrealistic exercise: as noted in McMahon 2 §§193-194 and section 3 of the GT Appeal Report, there are inherent limitations to such an exercise as there is no direct way to separate historical network productivity from other cost changes. That again illustrates that GEMA's approach to this factor was appropriate and cautious: it did not require the same kind of empirical evidential support as a quantitative consideration, and GEMA did not seek inappropriately to treat 'insulation' in this way.[36] However, it was plainly open to GEMA to consider qualitatively whether the regulatory context made a difference to future productivity expectations. To have failed to do so would be to adopt an unreal and blinkered approach when setting the OE target.[37]

72. Further, Cadent's suggestion that the "*complex regulatory environment*" in which it operates actually constrains its ability to *achieve efficiencies* (Cadent Notice §95(b)) is misconceived: as McMahon 2 explains at §198, 3rd bullet, the costs associated with it have been recognised in baseline totex or addressed through reopeners and related

[36] For that reason, the criticism at NGN Notice §174(e) – that GEMA has wrongly failed to adduce evidence of the materiality of the productivity boost attributable to the nature of the regulated sector – is misconceived.

[37] Cadent Notice §95(c) suggests that the logic of GEMA's position would support "*the wholly implausible proposition that productivity growth could be achieved by applying RIIO-style regulation across all sectors of the economy*". That is incorrect. GEMA's limited proposition is that there are reasons to conclude that the specific circumstances of these regulated companies are such that they are not fully impacted by wider productivity slowdowns. There are very specific reasons why the network companies are the subject of price regulation, including that they are each natural monopolies and the goods and services they provide are essential. That is not the case for most of the economy, in which productive and allocative efficiency can best be achieved through market forces.

mechanisms.

73. Cadent also suggests that GEMA did not have regard to the First EI Report cited by GDNs in their responses to the Overview DDs: Cadent Notice §96. That is plainly wrong. GEMA specifically addressed Cadent's submissions based on the First EI Report in the Overview FDs at §8.51. A central tenet of the First EI Report was that network companies are "*fully impacted*" by lack of public and private investment across the UK economy: Overview FDs §8.51. But that claim was overstated, as GEMA noted, (i) because of the protections offered by the fact that the companies are regulated monopolies and (ii) because RIIO-3 enabled record investment into the UK energy network infrastructure. Cadent's case is that, because GDNs operate in the broader economy and rely on (for example) infrastructure and transport links which may be impacted by economy-wide lack of investment, GEMA's approach was erroneous. But GEMA was not suggesting insulation from these issues in the absolute manner suggested by Cadent, as explained in McMahon 2 at §197. All it was doing was explaining why "*RIIO reduces the extent to which [economic] headwinds are transmitted into productivity outcomes through financial and commercial channels*" (ibid). GEMA's approach in that respect was unimpeachable.

74. **Alleged inconsistency with economic theory**. NGN submits that GEMA's approach is "*inconsistent with standard economic theory*" (NGN Notice §174(b)), a submission also advanced in Cadent Notice §95(c) and WWU Notice §§4.6-4.17. As explained at §63.4 above, referring to McMahon 2 §§210-215, that is wrong: GEMA was entitled to take the view that the RIIO-3 framework provides stability which, in the short-term context of instability and volatility in the wider economy, provided certainty and protection for GDNs, notwithstanding the long-term expectation that non-regulated sectors would outperform regulated sectors.

75. Moreover, section 7 of the GT Appeal Report provides an important theoretical reason why GDNs may be expected to outperform the wider economy and/or the sectors against which Grant Thornton benchmarked them in the First GT Report in terms of OE during RIIO-3. The GT Appeal Report explains that GDNs can draw on three distinct sources of efficiency improvement:

    75.1. Catch-up with the GB 'frontier' GDN, whereby less efficient networks adopt best practice within the domestic sector;

75.2. Catch-up with 'frontier' firms in the wider economy, including more efficient firms in other sectors or jurisdictions; and

75.3. 'frontier-shift', meaning improvements driven by new technologies and management practices.

76. Within the RIIO-3 framework, the second and third sources fall within the concept of Ongoing Efficiency. This means that all GDNs have a wider set of efficiency opportunities than comparator firms, providing a theoretical basis for expecting stronger OE performance in the GDN sector during RIIO-3 relative to competitive sectors.

77. The GT Appeal Report thus shows that GEMA's approach was grounded in good economic principles.

78. **The relevance of particular productivity weaknesses to GDNs**. In the Overview FDs, GEMA noted in particular that it expects regulated network companies "*to drive high managerial standards, consistent with network companies being able to outperform the 'average' UK firm*": §8.51. It also stated that regulatory certainty in relation to revenues "*allows for greater management focus on cost savings and cost efficiency*": §8.50. The Appellants challenge these findings as being without basis (e.g. NGN Notice §176) and as failing to consider the burden involved in regulatory engagement by GDNs. Cadent further submits that this approach ignores that "*companies across all sectors of the UK economy, including gas networks, will be drawing from the same pool of managers*" (Cadent Notice §96(a)).

79. These criticisms are misplaced. As explained in McMahon 2 §191, GEMA did not suggest (unrealistically) that RIIO-3 removes all management burdens. GEMA also accepts that price control processes, licence obligations and compliance requirements consume management time. But that does not undermine the distinct point that the RIIO framework also removes some of the burdens that would be placed on management in a competitive market: GDNs "*do not face customer churn, market-share risk, the need to adopt pricing strategies, or the need to defend revenues through marketing and other commercial activity*": McMahon 2 §191.

80. At NGN Notice §178(c), NGN further suggests that the "*fundamental uncertainty surrounding the long-term role of gas networks in the UK's energy transition creates material constraints on long-term productivity investments*". This claim is addressed at McMahon 2

§§206-207. Mr McMahon explains that the relevant question is whether long-term uncertainty about the future of gas "*prevents the kinds of productivity improvements that are capable of being realised within the RIIO-GD3 period*": McMahon 2 §207. GEMA's view is that the answer is 'no': "*[m]any of the productivity drivers relevant to OE - better scheduling and dispatch, improved asset information, optimisation of field activity, digitalisation of workflows, analytics, IT and data improvements, and more efficient use of labour and contractors - are measures whose value does not depend on a settled answer to the long-term role of hydrogen or the precise shape of the post-2030 gas system*": McMahon 2 §206. To put it at its lowest, it was open to GEMA to adopt that view. Moreover, as McMahon 2 §207 observes, policy uncertainty is not unique to gas networks or more pronounced for them than for the wider economy.

81. **Regulated networks' historical productivity performance.** NGN Notice §174(c) complains that GEMA has not sought to show that the networks' historical productivity performance has been any stronger than relevant benchmarks. That is correct, but does not disclose any error: as NGN notes, GEMA remarked in the Overview FDs on the very great difficulty of measuring historical efficiency, owing to the difficulty of separating out factors driving costs from changes in efficiency: see §8.45, 3rd bullet. If any attempt to measure such efficiency would be fraught with difficulty, then it is unsurprising that GEMA did not seek to do it, and is certainly not a ground for criticism.

82. The NERA Appeals Report §§92-93 suggests that there is evidence positively indicating that the gas and electricity sectors' productivity growth between 2008 and 2019 displays evidence of systematic underperformance, but section 3 of the GT Appeal Report points out a host of problems with, and limitations to, the NERA analysis, including that the choice of proxy for the regulated sectors is problematic and that NERA's analysis is highly sensitive to the choice of base year selected. For those reasons, the NERA evidence in this respect does not call into question GEMA's decision.

83. **Ground A2 in general**. Stepping back, the Appellants' submissions on Ground A2 are aimed at a straw man. They argue that the claimed "*insulation hypothesis*" adopted by GEMA posits that "*regulated energy networks will outperform wider economy productivity growth*" and that without this claimed 'insulation hypothesis' "*the overwhelming evidence of economy-wide productivity at 0.5% or below would directly indicate that networks should achieve similar levels*": WWU Notice §§4.3-4.4 (emphasis supplied). The premise is

therefore that there was clear and unequivocal evidence that OE should be set at around 0.5%, but that GEMA considered there to be a specific quirk of the energy sector which justified an uplift to OE to 1%.

84. That is simply not the approach which GEMA adopted, as the Appellants accept in other areas of their submissions.[38] The sleight of hand in the Appellants' submission here is to suggest that there was singular economic evidence of the 'wider economy's productivity', from which GEMA considered GDNs to be insulated. That suggestion is plainly wrong. In fact:

    84.1. As noted in the First and Second GT Reports, there is no single 'correct' way of conducting growth accounting analysis in order to arrive at estimates of historical productivity, and productivity forecasts produced by external bodies have limitations and are subject to change.

    84.2. More generally, the plausible range of productivity growth alighted on by GEMA *was* determined by reference to the "*wider economy*". As explained in the First GT Report at p.17 ("*Choice of sectors*"), Grant Thornton's approach to modelling productivity was deliberately broad, and assessed the energy sector within the context of all sectors which had been considered by CEPA previously (for the purpose of RIIO-2 analysis) or proposed by regulated companies.

85. It is therefore manifestly wrong to suggest that GEMA applied an insulation hypothesis which treated the regulated energy sector as a thing apart from the general economy. It did not. What GEMA did, entirely appropriately, was to consider other elements of the RIIO-3 price control and the broader regulatory environment that reduced GDNs' exposure to some of the drivers of low wider economy productivity when considering how to interpret that evidence of the wider economy, as well as reasons why GDNs might outperform comparator sectors.

86. Overall, it is submitted that there are no grounds for finding GEMA's approach to be irrational or otherwise wrong in law. Furthermore, none of the Appellants has sought to substantiate their allegations that GEMA committed an error of fact in its finding that the

[38] E.g. WWU Notice §3.10, explaining the 'plausible range' approach which has been outlined above.

network companies were not fully impacted by the broader productivity slowdown;[39] in particular, none of them has explained in what way GEMA allegedly made a mistake as to an "*uncontentious and objectively verifiable*" fact (per *E v Secretary of State for the Home Department*).[40]

87. For all of the foregoing reasons, the CMA is invited to dismiss Ground A2.

G. GROUND A3

G1. Introduction

88. The decision under challenge in Ground A3 is the adoption of 0.7% as the lower bound of the plausible range used to set the OE target.[41]

89. In its Overview FDs (§8.23) and Overview DDs (§§8.29-8.32), GEMA stated that 0.7% is the lowest OE target companies can reasonably be expected to achieve. At this stage of the analysis, GEMA "*had not reached any final view*" on whether the OE target should be 0.7%, or something higher: only that the plausible range started there (McMahon 2 §§98, 231). GEMA then went on to determine that, from the plausible range of 0.7% or higher, the appropriate OE target was 1% (McMahon 2, §§97-122: "*Stage 2*"). This second stage is considered under Ground A4 below (starting at §119).

90. The Appellants' criticisms of the decision to set the lower bound at 0.7% are found in:

    90.1. Cadent's "Sub-ground 1" alleging an "*error in moving the lower bound of the plausible range up from 0.1% to 0.7%*" (Cadent Notice §69ff);

[39] Cadent Notice §100(c); WWU Notice §4.42(c); NGN Notice §180.
[40] For completeness, it is entirely unclear how any error of fact or law on GEMA's part (which is denied) might translate into a failure to have regard to its statutory duties (per NGN Notice §180), or indeed which duties NGN has in mind. NGN's further assertions that GEMA failed to comply with regulatory best practice and that GEMA's 1% OE decision failed to achieve its stated effect are similarly unexplained. WWU Notice §4.41(c) contends that GEMA "*fails*" the duty in s.4AA(2)(b) because it has set OE "*as if networks operate in a different economic reality than they actually face*". Whatever that very vague formulation may mean, GEMA does not accept that it has set OE in a manner which is divorced from the economic conditions encountered by the networks. Nor, in setting OE, has GEMA failed properly to have regard, or failed to give appropriate weight, to the need to secure that licence holders are able to finance the activities.
[41] GEMA's evidence in respect of this sub-ground is set out in McMahon 2, in the sections: "***Stage 1: Identifying the broad range and narrowing it down***" (§89 et seq) and "***Ground A3"*** (§216 et seq).

90.2. NGN's "Error 3" that "*GEMA inappropriately relied on a single piece of evidence (NGET's 0.7% business plan assumption) as an absolute floor on its OE assessment and disregarded other relevant evidence*" (NGN Notice §181ff);

90.3. SGN's "Error 3" that "*GEMA erred in finding 0.7% to be the minimum OE companies can achieve and/or that 0.7% - 1.3% constitutes a plausible or narrow plausible range*" (SGN Notice §430ff)); and,

90.4. WWU's "Sub-Ground 2.3" alleging that the "*[t]he 'Lower Bound' is Arbitrary"* (WWU Notice §5.41).

91. The Appellants' criticisms fall into the following broad categories:

91.1. GEMA "*entirely disregarded*" evidence, in particular that of its own expert, Grant Thornton, which supported an OE target lower than 0.7% (Cadent Notice §69, §72; NGN Notice §188; WWU Notice §5.42(b); SGN Notice §434).

91.2. GEMA relied on a "*single data point*", i.e. NGET's 0.7% BP estimate, and in so doing allegedly assumed that this was the minimum all companies could achieve. The Appellants argue that GEMA's approach was not supported by the evidence or its reasoning (Cadent Notice §75(a); NGN Notice §183; SGN Notice §433, §438; WWU Notice §5.42(a)).

91.3. GEMA was wrong to assess that companies "*aim down*", and "*dismissed*", or overlooked, the Appellants' Business Plans, specifically that each of them had proposed 0.5% as an OE target (Cadent Notice §75, §76; NGN Notice §186; SGN Notice §435; WWU Notice §5.42(a)).

91.4. GEMA made an error of fact, allegedly misreading NGET's Business Plan as saying that 0.7% was the 'floor' or the minimum plausible OE estimate; it is argued that 0.7% can only reasonably be regarded as the "*ceiling*", or maximum estimate (Cadent Notice §74; WWU Notice §5.47, NGN Notice §188).

G2. GEMA's approach

92. GEMA's approach to establishing the lower bound of the plausible range of OE targets is explained in McMahon 2 §§218-231. GEMA's starting point was Grant Thornton's range of 0.1%-1.3%. This range was, in turn, based on Grant Thornton's own economic analysis,

as well as its consideration of the network companies' business plans and their consultants' reports (First GT Report pp 12, 28) (McMahon 2 §§71-84).

93. The consultants' reports provided in support of companies' business plans in 2024 suggested the following ranges (McMahon 2 §§40-48, §§219-225):

    93.1. Frontier, NGET's advisor, [redacted] (First FE Report §8, §10).

    93.2. Economic Insight, in its 2024 report for the GDNs (First EI Report), opined that OE was likely to fall in a range of 0.2% to 0.8% and stated "*[w]e do not advocate any particular point estimate within this range*" but that it was "*typically appropriate*" or "*best practice*" to set the OE challenge "*towards the middle of the range*" (First EI Report pp 9, 13, 73). [redacted] (McMahon 2 §229).

    93.3. Oxera gave a range of 0.0%-0.5% in its 2024 report for SPEN (Oxera SPEN Report p 4), [redacted] (Oxera SHET report p 22).

94. The ranges set out in the consultants' reports were based on analysis of historical productivity data, giving limited consideration or weight to qualitative factors (McMahon 2 §234).

95. Based on these reports, the network companies' business plans offered the following OE targets (McMahon 2 §§51-70, §221-22) :

    95.1. NGET proposed an OE challenge of 0.7% per annum on both opex and capex, which was the top end of the range which had been proposed by Frontier.

    95.2. SPEN proposed a target of 0.4%, which was towards the top end of Oxera's range of 0.0%-0.5%.

    95.3. SHET proposed 0.1%, which was the bottom of Oxera's range of 0.1%-0.5%.

    95.4. All of the GDNs proposed 0.5%, which was the mid-point of EI's range.

96. In the First GT Report, Grant Thornton considered the analytical choices which

underpinned the plausible ranges proposed by the economic advisors and settled on a set of parameters that resulted in a range 0.1% to 1.3%, i.e. the GT Range . Grant Thornton explained that setting its range of figures involved making various analytical choices. Grant Thornton concluded that the GT Range remained relatively broad, and therefore it would be sensible to consider other sources of evidence when setting the OE challenge (First GT Report, section 4). Grant Thornton recommended taking into account other evidence to narrow the range, in particular regulatory precedent, forecasts of annual productivity growth for the UK economy, and the network companies' proposed targets and their supporting evidence (First GT Report Ch 4; McMahon 2 §227, §§71-83).

97. Grant Thornton concluded that "*it would be reasonable to set the OE target at, at least, the most ambitious level proposed by the companies*" (First GT Report p 32). It offered three reasons. First, all companies should have the same opportunity to achieve OE targets, as the technological and/or process improvements that result in OE are available to all of them. Second, companies have a strong incentive to propose lower OE targets and therefore may have proposed OE targets that are below what may be possible in practice. Third, the network companies possess unique insights into productivity trends in their industry and it would seem reasonable to infer that the proposals put forward by the most ambitious company reflect this knowledge (First GT Report p 32, McMahon 2, §86, §226).

98. In the Overview DDs, GEMA considered this evidence and concluded that, having regard to GT's "*broad range*" of 0.1% to 1.3%, a "*narrower plausible range*" would be more relevant to RIIO-3 and to the energy sector (Overview DDs §8.29). GEMA set that narrower range at 0.7%-1.3%. In so doing, GEMA stated that it took into account the following:

    98.1. Network companies and their consultants have an incentive to "*aim down*" in their OE proposals and their growth accounting analysis (Overview DDs §8.31).

    98.2. All companies have "*the same opportunities to access the available technologies and markets*" and the same opportunity to achieve OE targets (Overview DDs §8.31).

    98.3. The bottom half of the range in the First GT Report included "*the proposals made by the majority of companies*" (Overview DDs §8.31),

98.4. Setting an OE target within that lower range, i.e. 0.1% to 0.6%, "*is not sufficiently challenging for a company operating in a regulated environment and would represent a significant departure from regulatory precedent*" (Overview DDs §8.31); and

98.5. An OE target chosen from a "*narrower plausible range*", namely a target of at least 0.7%, would better reflect a wider assessment of plausible productivity potential, referring in particular to the "*potential for above-average technological change*" and "*the need to provide a sufficiently strong incentive to improve productivity*" (Overview DDs §§8.29 and 8.32).

99. In the Overview FDs (§§8.38-8.40), GEMA decided that it would be setting a single OE target for all network companies, observing that "*all companies start the price control with the same opportunity to exploit as yet unknown productivity gains"*: McMahon 2 §92, §144. With respect to the plausible range, GEMA took the same approach as in the DDs and confirmed that the lower bound for the OE range would be 0.7%. GEMA noted that the lower bound of 0.7% represented "*the highest estimate submitted by one of the network companies in its business plan*", which GEMA considered to be the "*minimum level of annual OE improvement all network companies should be able to achieve"*, given "*the implicit incentives on them to 'aim down' in proposing OE targets*" (Overview FDs §8.23).

G3. GEMA's response to the GDNs' arguments

100. In considering the Appellants' submissions under this Ground, the following points should be borne in mind:

100.1. GEMA considered it appropriate to determine a single OE estimate for all network companies, given GEMA's view that they have the same opportunity to achieve unknown future productivity gains: McMahon 2 §144.

100.2. Six out of the eight Business Plans – including the four from the Appellant GDNs – had provided evidence from consultants which suggested a plausible range which went as high as, or higher than, 0.7%: McMahon 2 §225.

100.3. All of the GDNs' Business Plans proposed an OE level of 0.5%: McMahon 2 §§53-70, §222

101. In that light, it is unrealistic to suggest, as the Appellants do, that it was irrational or

otherwise wrong for GEMA to form the view that a figure from towards the bottom of the GT Range would not be an appropriate OE target. Indeed, given that all of the Appellants had themselves proposed an OE target of 0.5%, it is very difficult to see how the Appellants could have criticised a decision to reject a target lower than 0.5%. Thus, the real question is whether setting the lower bound at 0.7% rather than 0.5% was such as to render GEMA's OE decision irrational or otherwise wrong on one of the statutory grounds. It is submitted that the reasons for GEMA adopting that course amply justified it, as explained in response to the Appellants' arguments immediately below.

Criticism (1): GEMA "entirely disregarded" evidence which supported an OE target lower than 0.7%

102. The claim that GEMA "*entirely disregard[ed]*"[42] evidence produced which supported an OE target lower than 0.7% does not bear scrutiny:

102.1. GEMA carefully considered the evidence provided in each of the companies' business plans and the "*supporting evidence*"[43] in their advisors' reports, which specifically addressed reasons for adopting a target lower than 0.7%: McMahon 2, §233.

102.2. GEMA referred expressly, in DDs, to the First GT Report and its "*broad range*" of 0.1% to 1.3% (which it carefully considered: McMahon 2 §233), as well as the fact that the network companies had proposed OE targets below 0.7%: Overview DDs §8.29, §8.30.

102.3. GEMA also bore in mind that Grant Thornton had suggested that a narrower plausible range would need to be drawn from its GT Range, which remained broad: McMahon 2 §233.

102.4. The fact that methodologies adopted by the Appellants' consultants have produced TFP measures below the lower bound selected does not undermine GEMA's decision that the plausible range of OE estimates started at 0.7%. There is no settled methodology either for benchmarking using EU KLEMS data, or for determining the appropriate OE challenge: GEMA's decision in respect of OE was

[42] Cadent Notice §69; see also NGN Notice §188.

[43] Overview DDs, §8.29 and fn 40 (the latter referring to the First EI Report)

not (nor could it be) a purely mathematical exercise (McMahon 2, §19, §94, §234). GEMA's conclusion that the lowest bound of 0.1% in the GT Range was not realistic as the OE challenge in this particular context is unassailable: including because none of the companies, save SHET, had proposed an estimate anywhere close to that in their business plans; and, as noted above, the Appellants themselves proposed 0.5% in their business plans, based on a consultant's range of up to 0.8%: McMahon 2 §94, 96. Further and in any event, GEMA considered the companies' consultants' ranges to be conservative: McMahon 2 §96, §234.

102.5. SGN's submission (based on Annex C to the Frontier Appeals Report) that, had GEMA applied CEPA's RIIO-2 methodology to the 2025 KLEMS dataset, it would have arrived at an upper bound of 0.6%, i.e. below that of the 0.7% lower bound it in fact chose, is misconceived. As explained more fully in section 7 of the GT Appeal Report, it is incorrect to say that applying CEPA's KLEMS methodology at RIIO-2 would have led to a particular range with an upper bound: see §48.2 above.

103. Thus, GEMA was fully alive to, and took into account, the range of evidence before it: in light of which GEMA had good reason to form the view that the lower half of the GT Range was insufficiently challenging for the purposes of setting the RIIO-3 OE parameter: McMahon 2, §96, §227(iv). GEMA did not ignore data points below 0.7%: rather it concluded that this was the lowest figure that could be justified on a "*properly balanced review*" of the evidence, and that any lower would be inconsistent with promoting efficiency (McMahon 2 §§242, 253).

Criticism (2): GEMA relied on a "single data point", i.e. NGET's 0.7% BP estimate, and in so doing allegedly assumed that this was the minimum all companies could achieve

104. Contrary to the Appellants' claims, GEMA did not rely on a single data point when setting the lower bound for its OE assessment:

104.1. FDs §8.23, which referred to NGET's proposed OE target, was simply a summary of GEMA's rationale for rejecting an OE estimate of less than 0.7%. As the Overview DDs §§8.25-8.32 and McMahon 2 §233, §§239-241 make clear, NGET's OE target was not viewed in isolation: in reaching its conclusion, GEMA carefully considered a range of evidence provided to it (see above, §§102.1 - 102.2).

104.2. As noted above at §103, GEMA's regulatory judgement as to the lower bound was also informed by an overall assessment of the range which was plausible and appropriately stretching. GEMA assessed that setting an OE target within the lower portion of the GT range (i.e. 0.1% to 0.6%, most of which was below almost all companies' own proposed OE targets) was "*not sufficiently challenging for a company operating in a regulated environment and would represent a significant departure from regulatory precedent*" (DDs §8.31; McMahon 2 §§96, 227-28).

104.3. In any case, it was not wrong for GEMA to place greater weight on the most ambitious target proposed by a network company, and to conclude that if 0.7%, at least, was reasonably achievable for NGET then the same applied to other network companies: McMahon 2, §242. This was a reasonable reference point for the efficiency improvements that should be deliverable for other network companies too because, GEMA concluded, they all have the same opportunity to exploit unknown, future OE productivity gains at the outset of the price control (McMahon 2 §92, 144) (Overview FDs §8.38). This was an <u>assessment</u>: not an <u>assumption</u>.

104.4. In this respect, GEMA agreed with the opinion expressed by Grant Thornton that (First GT Report, p 8):

104.4.1. "*By definition, all companies should have the same opportunity of achieving OE targets (in contrast to catch-up efficiency which, by definition, should be larger for less efficient firms). Technological and/or process improvements that characterise OE are typical of the notional company, but available to all in the same way.*"

104.4.2. Network companies have "*a strong incentive to propose lower OE targets (so some companies may have proposed OE targets that are below what may be possible in practice)*" and

104.4.3. Network companies have "*unique insights into the productivity trends in their industry (even if these are uncertain), so it would seem reasonable to infer that the proposals put forward by the most ambitious company reflect this knowledge and are achievable (although it should be noted that it may be possible to go further).*"

104.5. In addition, it is wrong for the Appellants to characterise NGET's 0.7% proposal as an outlier (McMahon 2 §239). That is an overly simplistic submission, given the content of the business plans, and supporting evidence, as a whole. As explained in McMahon 2, the upper bounds of Economic Insight's and Frontier Economics' own proposed ranges were broadly the same: **0.7% - 0.8%:** McMahon 2 §236.

104.6. NGET operates in the same environment as the Appellants, with the same opportunity to make productivity improvements. GEMA was not wrong, in considering the Appellants' 0.5% proposals, to also bear in mind that NGET and the Appellants had all derived their OE targets from similar ranges. The difference was that NGET had "aimed up" to the top of the range (McMahon 2 §249).

105. For the avoidance of doubt, in choosing 0.7% as the lower bound GEMA was not eliminating this as a feasible option (McMahon 2 §§98, 231) (see §89 above). This was in line with the First EI Report and First FE Report, which recognised that 0.7% was part of the plausible range.[44]

106. The Appellants are therefore wrong to suggest that GEMA only relied on NGET's proposal in setting the lower bound for its OE appraisal. Having considered the evidence holistically, in particular the evidence of the network companies' own advisors, GEMA did not place weight solely (or inappropriately) on NGET's assessment, but was plainly entitled to consider it.

Criticism (3): GEMA was wrong to assess that companies "aim down" and "dismissed", or overlooked, the network companies' Business Plans, and in particular that each of the Appellants had proposed 0.5% as an OE target

107. The Appellants all complain that GEMA wrongly assumed, in its decision-making, that the network companies all "'*aimed down' to a minimum level*"[45] in their OE proposals (McMahon 2 §244). It is said that GEMA's position is contradicted by the fact that the companies largely adopted OE targets from at least the midpoints of the ranges proposed

[44] For that reason, Cadent Notice §75(f) is wrong in submitting that by selecting a figure of 0.7%, which was the highest estimate proposed by a network company, as its lower bound, "*GEMA ensured that its ultimate OE assumptions would inevitably be significantly higher than even the very highest of the energy networks' estimates*".

[45] Cadent Notice §75.

by their respective consultants.[46] However, GEMA had good reason to adopt that view, both as a matter of basic economic incentives and on the evidence before it.

108. First, it bears emphasising that assessing the scope for ongoing efficiency is very challenging. There is no single correct way of going about that task. Just as GEMA is called upon to make judgement calls when making its assessment, so too must the companies when making OE proposals in their Business Plans, and in turn their consultants when proposing OE ranges for the purposes of those plans. That truism itself creates scope for companies to propose lower rather than higher estimates. Furthermore, the direct impact of the OE parameter on companies' totex allowances generates an obvious incentive for companies to seek to maximise their totex allowances through their OE proposals, without in some sense misrepresenting to Ofgem what is achievable or otherwise gaming the regulatory system: McMahon 2 §§247-251. GEMA's observation at Overview DDs §8.31 that the companies and their consultants "*have an incentive to aim down in their OE proposals and to make analytical choices which favour lower growth accounting outcomes*" is therefore unimpeachable.

109. Second, these obvious incentives were manifested in the evidence that was before GEMA. GEMA considered the ranges in consultants' reports, on which companies' OE estimates relied, to be "*based on conservative approaches to the quantitative data*": as Mr McMahon explains in more detail, the reports gave greater weighting to the post-GFC period of low productivity growth: McMahon 2, §94, §234(ii). Further, only two of the companies' business plans were prepared to 'aim up' even within the relatively tight confines of their consultants' ranges; and in SPEN's case, it aimed up within the already conservative range of 0.0%-0.5%: McMahon 2, §249.

110. Third, the fact that the other network companies did not appeal the OE decision lends further support to GEMA's view that there are incentives to aim down when making proposals. If, for example, SHET had considered that GEMA's decision (setting OE at a level tenfold higher than SHET's own proposal) was wrong in that it vastly overestimated SHET's ability to realise such efficiencies, it had every incentive to bring its own appeal: McMahon 2 §249-50.

111. Fourth, Mr McMahon explains that there is no incentive mechanism within the price

[46] Cadent Notice §75(c) and (e).

control to encourage companies to propose a stretching OE estimate, nor any direct mechanism to reward ambition in this respect (the Business Plan Incentive does not extend to their OE estimates): McMahon §248.

112. Finally, there is no basis to suggest – as some of the GDNs do (e.g. Cadent Notice, §79(d)) – that GEMA's approach incentivises companies to underestimate the OE target in future price controls. Companies will need to evidence and justify OE levels in future price controls, just as they had to for RIIO-3, and GEMA's use of submissions in future price controls will depend on the level of ambition shown by the companies in those future submissions. Similarly, criticisms about 'inconsistency' of approach with RIIO-2 are misplaced (e.g. Cadent Notice, §76): GEMA's assessment in Overview FDs in respect of OE was specific to the RIIO-3 submissions (and, as explained above, grounded in the evidence before it): McMahon 2 §251.

Criticism (4): GEMA made an error of fact, allegedly misreading NGET's Business Plan as saying that 0.7% was the 'floor': the minimum plausible OE estimate; and/or 0.7% can only reasonably be regarded as the 'ceiling', or maximum estimate

113. Contrary to the submissions of Cadent and WWU,[47] GEMA did not misread or misinterpret NGET's Business Plan as setting a 'floor'. This is explained in McMahon 2 §§252-253:

    113.1. It is quite clear from the First GT Report, the Draft Determinations and the Final Determinations that neither Grant Thornton nor GEMA was under any misapprehension that NGET had characterised its Business Plan submission as being the minimum plausible OE estimate it could achieve.[48]

    113.2. The contention that 0.7% can only reasonably be a 'ceiling' is also wrong (WWU Notice §5.41): for all the reasons set out above, GEMA took proper and conscientious account of the evidence in reaching a regulatory judgement about the plausible minimum OE estimate: McMahon 2, §219, §253. Further, GEMA's

[47] Cadent Notice §74, WWU Notice §5.47

[48] As set out in Overview FDs §8.23, GEMA decided that the minimum plausible estimate of OE, was 0.7%. GEMA did not say that NGET had, itself, regarded 0.7% as the 'lower bound': rather it made the point that 0.7% equated to the proposal in NGET's BP. Cadent and NGN appear to have simply misread the Overview FDs in this respect. This criticism is therefore misconceived.

assessment was that: (i) the consultants' ranges (underpinning the companies' OE estimates in their business plans) were based on conservative approaches to the quantitative data, as explained above (§109); and in any event (ii) those ranges gave limited weight to qualitative factors. Mr McMahon explains that, while Frontier's and Economic Insight's reports underpinning NGET's and the Appellants' business plans treated 0.7% or 0.8% as the upper bound of plausible estimates, 0.7% cannot properly be viewed as the 'ceiling' once the potential impact of qualitative factors, such as embodied technical change, is considered: McMahon 2, §§42-50, §234(iii), §252. Thus, there was no error: GEMA considered that a range starting at 0.7% better reflected a wider assessment of productivity potential: McMahon 2, §227, §252. GEMA's assessment of qualitative factors as to whether the OE estimate should be 0.7% or higher (which was the next stage of its decision-making), is discussed under Ground A4 below (starting at §119).

G5 Conclusion on Ground A3

114. In conclusion, it is submitted that GEMA's decision to set the lower bound for its assessment of OE at 0.7% was justified and does not render the OE decision wrong. Further, considerable circumspection is required before interfering with GEMA's expert judgement about the minimum plausible OE estimate, i.e. the least which companies could reasonably be expected to achieve. Given the complex factual picture, extensive evidence, and clear room for reasonable disagreement, the Appellants cannot show that GEMA's decision was irrational or otherwise wrong.

115. The CMA will have in mind, in this respect, the allegedly materially better 'alternative' approaches proposed by SGN and WWU respectively in place of GEMA's evidence-based assessment:

    115.1. SGN contends that a materially better alternative would be to "*conduct a reasonable weighing of the quantitative and qualitative evidence in the round*" (SGN Notice §438).

    115.2. WWU does not contend for a materially better alternative to the setting of the lower bound for GEMA's OE assessment, but does contend at WWU Notice §5.56 that that the following OE decisions would be materially better:

"(a) 0.1% or lower: supported by post-GFC evidence and recognition of structural change;

(b) 0.5%: supported by external forecasts (OBR, BoE) and very long-run EU KLEMS analysis."

116. As to these:

116.1. SGN's "alternative" is precisely what GEMA has *already* done in arriving at its overall target of 1% (McMahon 2 §86).

116.2. WWU's first alternative is unreal and is directly contradicted by its own OE proposal in the WWU BP. Its second alternative is materially incomplete, relying only on its own favoured approach to historical growth accounting together with uncertain forecasts of economy-wide productivity by external bodies.

117. These half-hearted and misconceived alternatives merely reinforce that GEMA did not err in its approach.

118. For all the foregoing reasons, the CMA is invited to dismiss the Appellants' arguments falling under Ground A3.

H. GROUND A4

H1. Introduction

119. Ground A4 is that GEMA erred in its reliance on qualitative factors, which were assessed and taken into account in ultimately choosing a figure of 1% from the 0.7%-1.3% range adopted by GEMA.

120. In particular:

120.1. Cadent's "*Sub-Ground 5*" alleges that "*GEMA's decision to pinpoint the OE assumption (within GEMA's plausible range) at 1% was not reasonably open to it on a fair and proper assessment of the qualitative factors cited in the FD*" (Cadent Notice §98ff);

120.2. NGN's "*Error 4*" alleges that "*GEMA has erred in its reliance on qualitative factors in support of its OE figure that are unsubstantiated and/or spurious*" (NGN Notice §190ff)

120.3. SGN's *"Error 4"* alleges that *"GEMA's assertion that qualitative factors support a 1.0% OE assumption is unevidenced and is based on flawed reasoning"* (SGN Notice §447ff)

120.4. WWU's *"Ground 3"* is that GEMA relied on *"unevidenced qualitative factors"* (WWU Notice §6.1ff).

H2. GEMA's approach

121. GEMA's rationale for its consideration of qualitative factors is explained in detail at McMahon 2 §§17 and §§257-320. At §17 Mr McMahon explains that:

"…there is no direct way of measuring the size of OE improvements that are achievable. The level of future productivity improvements is inherently unknowable. We cannot be sure where and how they will arise. However, we can draw inferences from economic principles and practice that there will be improvements in productivity over time. As there is no way of directly measuring future productivity improvements, setting the OE challenge is not simply a mathematical exercise. Instead, the choice of OE assumption is based on both qualitative and quantitative factors. This means that we do not set the OE assumption based on any single factor."

122. Taking account of qualitative factors is settled regulatory practice and involves expert judgement, as the CMA accepted at §7.451 of the ***RIIO-2 Appeals***:

"…Regulators should be afforded a margin of appreciation when setting the OE challenge. They must exercise regulatory judgement in determining how to reflect the different evidence sources. We find that basing a decision on multiple factors and taking account of those factors qualitatively rather than quantitively is within the margin of appreciation that should be accorded to regulators."

123. In the Draft Determinations GEMA explained that it intended to take into account the following considerations material to this ground of appeal (Overview DDs §8.33):

123.1. **VA metric:** The *"potentially lower measurement in the value added (VA) metric, which tends to return higher estimates of TFP ranges in growth accounting analysis (all else equal)".*

123.2. **Embodied/Disembodied technical change:** *"The potential for both embodied and disembodied technical change; taking into consideration that (GO-based) Total Factor*

Productivity (TFP) growth rates calculated from the EU KLEMS database may underestimate the total potential for cost savings that can be achieved by network companies when quality improvements in the factor inputs are considered".

123.3. **IT&T, data and digitalisation ("D&D"):** *"Companies' strong ambition to deliver significant technological change through their IT&T and data and digitalisation activities in RIIO-3… Growth accounting analysis shows that the IT and communications sector has comparatively strong historical productivity growth rates compared to many other sectors. Therefore, the additional funding we have proposed for IT&T and data and digitalisation activities offers significant opportunity for network companies to drive efficiency improvements through their businesses".*

123.4. **Innovation investment:** *"Companies' ability to benefit from efficiency gains resulting from historical customer-funded innovation funding provided in previous price controls…We also expect companies to benefit from investments in innovative new technologies (eg advanced leakage detection ["ALD"] and data platform for leakage analytics ["DPLA"] in GD) which offer significant potential for productivity improvements in RIIO-3".*

123.5. **Regulatory precedent:** *"Recent UK regulatory precedent, including RIIO-2, RIIO-ED2, and Ofwat's PR24…There is also a notable alignment around OE targets at 1% per annum".*

124. At §8.34, GEMA expressed the provisional view that a 1% OE parameter reflected*:*

"a balanced view, which is grounded in quantitative analysis while giving appropriate weight to qualitative considerations on the potential for disembodied technical change and the use of VA. It also gives some weight to the expectation that companies should expect to see productivity benefits from their historical investments in RIIO-2 and planned investments in RIIO-3 in IT&T, data and digitalisation and innovation project".

125. Following consideration of representations (summarised at Overview FDs §8.41), GEMA maintained the view that it was appropriate to take such qualitative factors into account. At Overview FDs §8.52 et seq, GEMA elaborated on its consideration of qualitative factors as follows:

125.1. **VA metric and technical change:** "*We maintain our view that giving qualitative consideration to VA measures of productivity and the potential for both embodied and disembodied technical change is appropriate, given regulatory precedent in RIIO-2 and RIIO-ED2. We consider that embodied technical change (ie related to quality improvements in inputs) is important when setting the efficiency challenge, as the potential for productivity growth may be underestimated if it is excluded*" (Overview FDs §8.52).

125.2. **IT&T, D&D:** GEMA noted "*network companies' strong ambitions to deliver significant technological change in RIIO-3*" (Overview FDs §8.23), and explained at §8.53 that RIIO-3 IT&T and D&D allowances – amounting in aggregate to over £3 billion – constituted 11% of *ex ante* totex allowances in RIIO-3. GEMA rejected certain companies' argument that they already accounted for the productivity gains associated with their proposed IT&T investments within their RIIO-3 forecasts, noting that such efficiencies were consistent with catch-up efficiency rather than OE. GEMA's view was that "*the high level of stated ambition, combined with the level of funding provided, as supportive of setting a stretching but achievable OE target in RIIO-GD3*" (Overview FDs §8.53).

125.3. **Innovation investment:** In respect of ALD and DPLA technologies, GEMA considered that "*it is reasonable to expect companies to identify opportunities for these technologies to drive improvements in productivity as they are rolled out across the GDNs*" (Overview FDs §8.54).

125.4. **Regulatory precedent:** "*Our overall methodology is consistent with regulatory precedent, with our decision itself reflective of an in-the-round assessment of the opportunities that network companies have to drive productivity going forward*" (Overview FDs §8.55).

126. Thus, GEMA's decision to set OE at 1% took account of multiple qualitative factors (in addition to those addressed earlier in this Reply). It did not seek to quantify their impact but instead had regard to them in its in-the-round assessment.

H3. GEMA's response to the GDNs' arguments

127. Taken collectively, the Appellants contend, in summary, that it was not reasonably open to GEMA to take these five qualitative factors into account in setting OE at 1% based on

its plausible 0.7%-1.3% OE range. Such an argument must overcome a high hurdle. Consideration of each of the factors necessarily required expert regulatory judgement based on GEMA's knowledge of the sector and the potential impact of the price control allowances it had set. Moreover, as the CMA observed in the ***RIIO-2 Appeals*** at §7.248, such factors are not amenable to the attribution of specific weight. Instead, as at RIIO-2, they were taken into account in making an in-the-round decision, which is a "*common and appropriate approach to regulation*" (ibid). It is submitted that it was evidently open to GEMA to use both quantitative and qualitative factors in coming to its decision; that such qualitative factors were not capable of precise measurement; that GEMA proceeded cautiously in incorporating such factors within its overall assessment; and that that the identification of a 1% OE challenge based in part on such factors cannot be seen as irrational or otherwise wrong. For the reasons given below, the Appellants' criticisms of GEMA's reliance on qualitative factors are misplaced.

128. GEMA addresses each qualitative factor, and the Appellants' criticisms of it, in turn below.

(1) VA Metric

129. Cadent criticises GEMA's decision to take into account the impact of the VA metric rather than purely the GO metric on which the GT Range was based. Cadent claims that both NERA and "*Grant Thornton (GEMA's own adviser) concluded that use of the GO metric is more appropriate in the context of forecasting*" (Cadent §99(a)).

130. That claim is straightforwardly wrong. Grant Thornton in fact described the selection of metric as "*a widely debated choice*" (the First GT Report p 4). Grant Thornton continued (the First GT Report p 20, emphasis added):

> "*The GO metric results in a more conservative range and is also more consistent with how the OE metric is applied in practice as part of the regulatory framework (GO relates to the total value of production rather than just the VA component, and is therefore consistent with the application of the OE target to total expenditure). The narrow range proposed in this report in this report is therefore based on GO.*
> *However, Ofgem may wish to recognise the potentially lower measurement error in VA estimates and note that regulators (including Ofgem itself, Ofwat and UREGNI, as set out in chapter 4) have typically considered both the GO and VA metrics in setting OE*

targets and that there are arguments in favour of either metric. It is therefore potentially defensible for Ofgem to consider VA-based estimates in setting OE targets, and Ofgem may wish to consider doing so."

131. See also the GT Appeal Report §§4.6-4.9.

132. That there is no single correct metric to use for the growth accounting analysis was recognised by the CMA in the ***RIIO-2 Appeals***. At §7.146 the CMA stated that "*[t]he appropriate weighting to attach to the VA productivity measure and the GO measure is a matter of regulatory judgement and different regulators can take different views on this topic*".

133. Accordingly, it was at the very least reasonably open to GEMA to have regard to the fact that the VA metric would have an upward effect on the GT Range and thus also on GEMA's narrower range.

134. NGN and SGN make a separate criticism that Annex B of the Frontier Appeal Report identifies a benchmark range from the EU KLEMS data which incorporates VA measures and results in a plausible range of -0.1% - 0.7% (NGN Notice §203; SGN Notice §463). However, as detailed at McMahon 2 §262 and in section 5 of the GT Appeal Report, that upper bound estimate is based on Frontier's own choices of time periods and comparator sectors that differ markedly from those adopted by Grant Thornton and GEMA. The Frontier Appeals Report therefore does not undermine GEMA's decision to give consideration to the VA metric when choosing an OE point estimate from within its own 0.7%-1.3% range.

(2) Embodied and disembodied technical change

135. Cadent, NGN and SGN criticise GEMA for relying on the potential for embodied and disembodied technical change to result in further efficiency (Cadent Notice §99(b); NGN Notice §204; SGN Notice §459). There is no basis for this criticism.

136. GEMA took account of the potential for embodied technical change due to the potential cost savings that can be realised by companies owing to quality improvements in factors of production, such as tools, equipment, materials or technology: McMahon 2 §265. As McMahon 2 §265 explains, it is particularly important to take account of this factor as the potential for productivity growth may be underestimated if it is excluded, for example, by relying on using GO-based metrics only. Such metrics might underestimate the total

potential for cost savings that can be achieved by network companies when quality improvements in the factor inputs are considered. This is supported by §7.259 of the ***RIIO-2 Appeals*** decision, where the CMA said that:

> *"[T]he reliance on embodied technical change should be commensurate with the reliance on GO measures...GEMA placed some weight on the GO measure and did not place too much weight on the VA measure. Therefore we find that it was appropriate for GEMA to place some weight on embodied technical change. We agree...that the impact of embodied technical change on the OE challenge should be influenced by the weight placed on the GO measure."*

137. The position is *a fortiori* here: as noted above, the Overview FDs observed that embodied technical change is particularly important in the context of the RIIO-3, where technological change is anticipated.

138. Cadent complains that the impact of embodied technical change has not been quantified, and that it cannot itself justify an OE assumption of 1%. NGN and SGN similarly complain that GEMA has not sought to quantify the impacts of technical change. These submissions fail to appreciate, however, that embodied technical change is incapable of precise measurement, not least as the productivity gains associated with it are unknowable in advance. It was therefore appropriate, and consistent with previous practice, for GEMA to have qualitative regard to this factor as part of its in-the-round assessment.[49]

(3) IT&T, data and digitalisation

139. As explained above, GEMA pointed both to the record levels of RIIO-3 investment in IT&T and D&D for which GEMA had made allowance and to the fact that the quantitative KLEMS data showed the IT and communications sector to have comparatively strong historical growth rates compared to many other sectors. Those points amply justified GEMA placing at least some reliance on this qualitative factor.

140. The Appellants argue that there is no evidence that this investment will give rise to efficiency opportunities or productivity growth in the GD sector beyond the wider UK economy (Cadent Notice §99(c); NGN Notice §200(a); SGN Notice §456; WWU Notice

[49] For the avoidance of doubt, GEMA did not take account of disembodied technical change as a qualitative factor (cf Cadent Notice §99(b)). As observed at McMahon 2 §102, disembodied technical change is inherently captured by TFP as estimated from the KLEMS data; see also McMahon 2 §264.

§6.25). In response, McMahon 2 §§315 explains that such a comparative exercise, grounded in quantitative data, is unrealistic. He explains, however, that GEMA considers there to be strong grounds for thinking that (i) the cumulative effect of sustained investment in IT&T and D&D over successive price controls, together with (ii) the characteristics of gas distribution networks as asset-heavy, data-intensive systems, means that such investment can help to deliver fast productivity growth in this sector than in the wider economy: see McMahon 2 §§273-304. He elucidates GEMA's thinking as follows:

140.1. First, gas distribution relies on large, interconnected physical networks operating over wide areas. Digital technologies can be applied directly to core operations such as leakage identification, predictive maintenance, and demand forecasting. Therefore, whereas in the wider economy digitalisation mainly improves administrative and service functions, in gas distribution it shapes how and when physical work is carried out: McMahon 2 §275.

140.2. Second, many gas distribution activities are repeatable and data-driven – such as inspection, prioritisation and planning – making them well suited to automation and analytics. In this context, even small improvements in planning, targeting, and utilisation can significantly reduce costs, suggesting scope for higher productivity growth than in the wider economy: McMahon 2 §276.

140.3. Third, the gas distribution sector has historically lower digital maturity compared with many other parts of the economy. It often relies on fragmented systems or bespoke local solutions operating largely in silos, such that digitalisation can yield larger efficiency gains than in more advanced sectors: McMahon 2 §277

141. The Appellants also argue that this spending will not result in efficiency gains, but is instead targeted at other issues, including cyber security, 'business as usual' replacement of IT&T assets, or service quality objectives (Cadent Notice §99(c); NGN Notice §200(c); SGN Notice §457; WWU Notice §6.27). However, this is undermined by the Appellants' own business plans, which made explicit links between their proposed IT&T and D&D investments and improvements in operational efficiency. As summarised by McMahon 2 §§280-292:

141.1. Cadent's Digitalisation Action Plan stated that "*more granular data can lead to significant operating efficiencies and asset reliability improvements*". Cadent also included data and digitalisation within the "*Efficiency and value for money*" and proposes to spend £7.1m on a Expanding Target Data Architecture project, which is described as intending to "*optimise operational efficiency*" by improving interoperability and reducing staff interactions with multiple IT systems.[50]

141.2. In its Digitalisation Strategy, NGN defined digitalisation as replacing manual and semimanual processes with technology and new ways of working "*to improve the efficiency of the process*".

141.3. In its Digitalisation Strategy, SGN stated that digitalisation is "*at the heart of SGN's goals…to build efficiency*". An example given is SGN's [redacted][51]

141.4. WWU's Digitalisation Strategy also identified several technology investments as supporting greater efficiency during the price control period. WWU's IT&T spend included a [redacted][52]

142. Furthermore, the argument that some of the Appellants' IT&T spending will be committed to cyber security is factually inaccurate. McMahon 2 §289 explains that GEMA "*made a clear reporting distinction between cyber and IT&T investments within the BPDTs and through the business plan assessment process*", such that the IT&T investments which GEMA took into account as a qualitative factor did not incorporate any spending on cyber security.

143. WWU and SGN argue that taking account of IT&T investment amounts to double-counting as the efficiency gains expected from it are already fully embedded in their business plans (WWU Notice §6.21, SGN Notice §458). However, this submission

[50] McMahon 2 §§280 and 281.
[51] McMahon 2 §284
[52] McMahon 2 §285

misunderstands the nature of the OE parameter, which is that it is designed to capture unknown efficiencies. Efficiencies identified ahead of time are properly to be considered catch-up efficiencies, as explained at Final Determinations §8.53 and McMahon 2 §292.

(4) Innovation investment

144. The Appellants argue that there is no evidence to suggest that innovation funding allowed by GEMA can be expected to deliver efficiency improvements (Cadent Notice §99(d); NGN Notice §196; SGN Notice §449; WWU Notice §6.24). Three criticisms in particular are made.

145. First, the Appellants criticise GEMA for having regard to efficiency gains that could be made during RIIO-3 from historical innovation that took place during RIIO-2 (Cadent Notice §99(d); NGN Notice §197; SGN Notice §453; WWU Notice §6.27). It is said that the innovation investment during RIIO-2, in the form of the Network Innovation Allowance ("NIA") and the Strategic Innovation Fund ("SIF"), was not (and the equivalent funding provided for at RIIO-3 is not) directed towards efficiency gains, but rather towards environmental and social benefits, and that, to the extent any efficiencies arose from past innovation funding, they will likely have been bedded into business plan submissions for RIIO-3 totex, such that taking them into account as part of OE results in double-counting. These submissions are unmeritorious:

    145.1. GEMA did not assume that all innovation funding results in efficiency increases. McMahon 2 §297 acknowledges that since RIIO-2 the scope of dedicated innovation funding has shifted away from innovation aimed primarily at short-term operational efficiency, and towards innovation supporting the energy system transition and supporting vulnerable consumers. This is reflected in the design and governance of the NIA and the SIF; and Mr McMahon makes clear that the impact of innovation funding would not, on its own, justify any particular level of ongoing efficiency.

    145.2. This does not, however, mean that it was inappropriate for GEMA to take qualitative account of the likelihood that some such innovation will result in efficiency increases. Innovation in areas such as digitalisation, automation, monitoring and the use of data to support operational decision making, can be reasonably expected to reduce costs or improve productivity: McMahon 2 §298.

145.3. The potential of innovation funding in these areas to create efficiency gains is reflected in the Innovation Strategies submitted by GDNs themselves. For example, GDNs highlighted initiatives including enhanced asset monitoring, the use of AI and machine learning in network operations, and innovation aimed at improving processes and data-driven decision-making. GDNs also mentioned that specific NIA workstreams would "*automate time consuming processes and tasks*" (Cadent RIIO-3 Innovation Strategy p.16), "*maintain and improve existing digital infrastructure to increase efficiency*" (NGN RIIO3 Innovation Strategy p.31), "*reduce costs, improve quality of analytics to help optimise decisions on investment*" (WWU RIIO3 Innovation Strategy p.23) and include "*a commitment to innovation aimed at optimising processes and workflows to maximise the productivity of our operatives and back-office activities*" (SGN RIIO3 Innovation Strategy p.22): McMahon 2 §298-99.

145.4. Standing back, GEMA's view that innovation funding at previous price controls can be expected to translate into efficiency gains during RIIO-3 is based on the commonsense proposition that innovation benefits typically take time to materialise. In RIIO-2 GDNs are expected to have spent at least £89m. Given the scale of this customer-funded investment over successive price controls, it is unrealistic for the GDNs to suggest that it has delivered no solutions capable of supporting improved productivity or more efficient network operation during RIIO 3, as McMahon 2 §§299-304 explains.

145.5. McMahon 2 §303 gives concrete examples of two projects from RIIO-2 that present opportunities for realising efficiency gains in RIIO-3. This includes the Intelligent Gas Grid project, led by SGN and funded through the Strategic Innovation Fund ("SIF"), which suggested potential GB-wide benefits, if deployed, of £42m of avoided gas-escape repair costs between 2024 and 2035 and £59m of lower mains-replacement costs from more efficient repex delivery and increased use of insertion rather than open-cut replacement between 2024 and 2032.

145.6. There is no basis to suggest that taking account of innovation at RIIO-2 risks double-counting. Innovation benefits from projects funded in earlier price controls are inherently uncertain, often realised only after deployment decisions are taken. For example, the Intelligent Gas Grid project will conclude in July 2026, creating the potential for deployment during RIIO-3; and GEMA's expectation is

that "*efficiency opportunities will emerge over time as innovation trials are embedded into business-as-usual activities, supported by learning-by-doing, organisational change, and the sharing of lessons learned*": McMahon 2 §304. It would not have been possible for companies to fully reflect gains from such historical innovation funding in their RIIO-3 business plans, not least as "*innovation benefits from projects funded under earlier price controls are inherently uncertain, typically only realised once deployment decisions are taken, and in many cases arise from projects funded by, or disseminated across, multiple networks*": McMahon 2 §305.

146. Second, NGN and SGN focus in particular on investment in Advanced Leakage Detection (ALD) and Digital Platform for Leakage Analytics (DPLA), which GEMA took into account as offering significant potential for productivity improvements at RIIO-3 (Overview DDs §8.33; Overview FDs §8.54). NGN and SGN argue that these technologies are environmental and safety-driven and may result in increased, rather than reduced, costs (NGN Notice §178(b); SGN Notice §§450-451). However, GEMA was clearly entitled to form the view that these new technologies had real scope to deliver efficiency gains:

    146.1. As GEMA noted at Overview FDs §8.54, (a) the suppliers of the ALD technology which the GDNs expect to trial and use in RIIO-GD3 have stated that cost reductions and operational efficiency improvements are important advantages of their products,[53] (b) the use of DPLA and ALD technologies are still in their infancy in the networks, and (c) significant funding has been made available for testing and adoption of these technologies in RIIO-3.

    146.2. The potential efficiency gains are elucidated in McMahon 2 §§306-313. In particular:

        146.2.1. ALD improves the quality, resolution and timeliness of network data, enabling more accurate leak localisation and, in some cases, assessment of leak severity through methane quantification. It does not increase overall workload but reprioritises assets and timing of interventions. By shifting from a reactive to a proactive, risk-based approach, it directs

[53] See McMahon 2 §311, referring to the suppliers' websites.

effort towards the most leak-prone and unsafe assets, reducing misdirected activity.

146.2.2. DPLA integrates operational and sensor data with advanced analytics and probabilistic modelling to identify, quantify and predict gas leakage. The potential efficiencies this creates were laid out by Cadent in a paper accompanying its RIIO-3 business plan submission. There, Cadent presented the DPLA as a tool to enhance operational efficiency, with its partner Guidehouse noting the potential of DPLA to reduce methane leakage and improve decision-making if fully implemented.

147. Third, WWU submits that the CMA rejected GEMA's approach in RIIO-2 of applying an 'innovation uplift' to OE based on what WWU alleges is identical reasoning taken to by GEMA in RIIO-3 (WWU Notice §6.31). This criticism is also misconceived. GEMA has not adopted the same approach to innovation at RIIO-3 as it did at RIIO-2. Consistent with the CMA's findings in the ***RIIO-2 Appeals***, GEMA did not quantify the contribution of innovation funding to ongoing efficiency at RIIO-3 and did not apply any specific 'innovation uplift'. Instead, at RIIO-3, GEMA took innovation as one qualitative factor within a wider, in-the-round assessment of the appropriate measure for OE: McMahon 2 §§269-270. This is consistent with the CMA's finding in the ***RIIO-2 Appeals*** that "*basing a decision on multiple factors and taking account of those factors qualitatively rather than quantitively is within the margin of appreciation that should be accorded to regulators*" (§7.450-451).

(5) Regulatory precedent

148. In the Final Determinations GEMA noted that the 1% OE parameter it had chosen was consistent with regulatory precedent. Numerous regulators have in recent times set OE at that level, as section 4.1 of the First GT Report explains. It was not irrational for GEMA to have regard, in its final assessment, to the widespread adoption of that figure. Cadent accuses GEMA of blindly applying such precedent "*without having proper regard to the underlying body of evidence afresh* (Cadent Notice §99(f)) and WWU argues that "*regulatory precedent should not override evidence*" (WWU Notice §6.52). These submissions are unfounded: a proper reading of the Final Determinations, and of McMahon 2, makes amply clear that GEMA carefully considered the evidence before it and took all of it into account in reaching its decision.

149. Moreover, the Appellants themselves have referred to regulatory precedent in seeking to advance their argument under this ground, such as WWU referring to the CMA's approach to the 'innovation uplift' in RIIO-2. It is hopeless to suggest that GEMA is not entitled to have regard to this precedent when forming its view on OE.

H4. Conclusion on Ground *A4*

150. For the reasons set out above, GEMA did not err in relying on any of the qualitative factors criticised by the Appellants. Further, even if GEMA did err in taking account of a particular qualitative factor, that would only undermine the decision if it could not be supported by refence to the other factors. As emphasised above, GEMA's assessment was a holistic, in-the-round one, informed by its expert regulatory judgement. It is submitted that the ultimate decision to set OE at 1% was amply supported by reference to any of the qualitative factors relied on by GEMA in the FDs.

151. Accordingly, the CMA is invited to dismiss Ground A4.

I. GROUND A5

152. Finally, Ground A5 contends that GEMA erred by setting OE on the basis that OE should be applied to stretch and incentivise companies to deliver productivity improvements.

153. In the Overview FDs at §8.22, GEMA reasoned that:

> "*OE represents an important regulatory tool that allows regulators to challenge regulated companies to perform above the level of the average company in the economy, and ensure consumers pay fair prices for the services they receive. We think setting an OE target at 1% pa is consistent with setting a high level of ambition for network companies to operate as efficient businesses and to continue to drive effective cost savings over time by adopting innovative new approaches to running their businesses.*"

154. This approach is now said by three of the Appellants[54] to have been unlawful. More particularly:

    154.1. NGN at NGN Notice §§192-195 argues that GEMA has misdirected itself "*as to the proper function of an OE figure within a price control*", because OE should not be a

[54] Cadent has not appealed on this ground.

"*stretching target*" or incentive for firms "*beyond what can be supported by any reasonable view of the relevant evidence*". NGN contends that the decision to set a 1% OE level fails to achieve its stated effect of setting an efficiency target parameter to reflect the productivity improvements that even the most efficient company can achieve.

154.2. SGN at SGN Notice §§468-471 suggests that OE is not intended to be a stretching parameter; instead mechanisms such as the Totex Incentive Mechanism are intended to reward companies that outperform their allowed costs, and "*[b]usiness plan incentives further ensure that GDNs are incentivised to be ambitious and innovative from the outset*".

154.3. WWU contends that "*OE is not an 'incentive mechanism' and cannot be a 'stretching target'. These characterisations, which appear throughout GEMA's Final Determination, fundamentally misunderstand OE's role*" (WWU Notice §3.7; see also §§6.15, 6.56(a)). WWU's point, consistent with SGN's position, is that OE must "*reflect expected productivity improvements*" (WWU Notice §6.7) and that there is no scope for OE to incentivise companies to enhance their productivity. WWU contends that GEMA's alleged error constitutes a "*[f]undamental misunderstanding of [the] regulatory regime*" and results in GEMA failing to conduct the requisite evidence-based assessment of achievable efficiencies (WWU Notice §6.15).

155. Ground A5 appears to be premised on §§5.3-5.6 of the Frontier Report, where it is suggested that "*[t]he role of the catch-up and OE processes is to establish ex ante totex allowances at the expected efficient level over the five-year period*" (emphasis added).

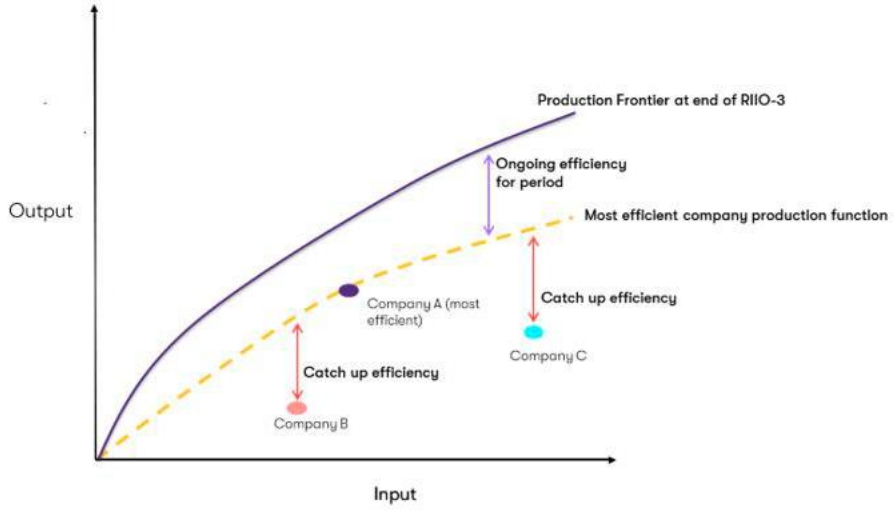
156. GEMA does not accept that description, which is inconsistent with the approach consistently adopted and upheld by the CMA. In particular:

156.1. First, it is not clear what is meant by the "*expected efficient level*". However, it is well-established that OE is intended to be a target applied to even the most efficient, frontier firm. The characterisation of OE as a mathematical figure which should simply "*reflect expected productivity improvements*" across a sector (WWU Notice §6.7) is therefore wrong, and logically appears to suggest that OE should be a target for only below-average firms (to achieve efficiency gains at the

'expected level'), rather than for all firms. That, however, is catch-up efficiency. WWU's suggestion is unsupportable as a matter of regulatory theory.

156.2. Second, and relatedly, this submission conflates catch-up efficiency and OE. As explained in the First GT Report "*all companies should have the same opportunity of achieving OE targets (in contrast to catch-up efficiency which, by definition, should be larger for less efficient firms)*" (at §5.3). The position was explained graphically in the First GT Report as follows.

Figure 3 Graphical representation of Ongoing Efficiency and Catch-up Efficiency



157. GEMA's approach did not demonstrate any conceptual error as to the framing of OE. As explained in McMahon 2 §322, there is a long history of economic regulators treating frontier shifts (of which OE is an example) as stretching targets, the level of which can be assessed using quantitative and qualitative measures. It is therefore wrong to suggest that OE should be treated as a "*factual premise*" capable of purely quantitative assessment: see WWU Notice §6.56(a).[55]

158. Nor, for the reasons set out above in relation to Grounds A1 to A4, are the Appellants correct to suggest that OE has wrongly been treated by GEMA as "*an overly-stretching parameter that goes materially beyond the wider economy*" (SGN Notice §470): see in particular

[55] WWU is also plainly wrong in its contention WWU Notice §6.56(a) that GEMA has committed some error of fact. WWU once again does not explain what uncontentious and objectively verifiable fact GEMA is said to have mistaken. It is assumed that WWU would rely in this respect on OE being "*an estimate of the rate at which a firm operating at the frontier can be expected to reduce its costs*" rather than an incentive tool, but that is simply WWU's contention – not an established fact.

§§88-117 above in relation to Ground A3. Insofar as Ground A5 materially restates (and summarises) the Appellants' general contention that OE has been set "*arbitrarily high*" and on a basis that cannot be sustained by the evidence, GEMA repeats its position as developed above.

159. Finally, this set of arguments is fatally undermined by the findings of the CMA in the ***RIIO-2 Appeals.*** At §7.444 the CMA observed that "*it is normal regulatory practice to set relatively stretching efficiency targets*". It found that, given GEMA's specific regulatory objectives as established under statute, it is "*appropriate for GEMA to set a stretching, but achievable OE challenge*" and that, accordingly, 'aiming up' was not an error. That being so, the express submission that OE "*cannot be a 'stretching target'*" [56] must be wrong, and reflects a misunderstanding of the settled regulatory landscape.

160. Ground A5 should therefore be dismissed.

J. GROUND B (SGN ONLY): TOTEX MODEL ALLOWANCES - OVERVIEW

161. What is here referred to as "Ground B" reflects Ground 1 of SGN's appeal, which concerns two distinct aspects of GEMA's cost assessment process. Grounds 1A and 1B are addressed respectively in sections N and O below. For the reasons there set out, the CMA is asked to dismiss SGN's Ground 1 in its entirety. GEMA was not wrong, and so its decision must be confirmed by the CMA.

K. GROUND B(1A): TIER 1 MAINS

K1. Background

162. Ground 1A concerns a pre-modelling adjustment to the GDNs' Tier 1 Mains repex forecasts and costs, in the calculation of the repex synthetic cost driver used when calculating totex allowances. The wider context to GEMA's GD3 cost assessment process, in which the treatment of repex forecasts arises, is addressed in Mayfield 1 §§15-61. The relevant background to this issue is addressed in Mayfield 1 §§62-104. In summary:

[56] WWU Notice §3.7.

162.1. Replacement expenditure, or repex, is the largest component of each GDN's totex. The largest component of repex under RIIO-3 is the iron mains replacement programme, which began in 1974 following a series of severe gas incidents. The HSE's programme has come to be known as the Iron Mains Risk Reduction Programme ("**IMRRP**"). Tier 1 Mains (those less than or equal to 8 inches in diameter) must be decommissioned by the end of 2032 or earlier i.e. shortly after the end of the RIIO-3 regulatory period: Mayfield 1 §§65-67. See GD Final Determinations §§3.69-71 for a description of the IMRRP.

162.2. Over successive price controls, GDNs have been asked to provide forecasts of their expected repex costs, which are used in the regression model for the purposes of identifying totex allowances. As accepted in the Frontier Economics' Report on Aspects of GEMA's RIIO-3 Cost Assessment Methodology ("**Frontier Cost Assessment Report**") on which SGN relies, [redacted]

162.3. As regards repex, the forecast costs estimated by GDNs depend on a number of variables. In particular, the cost of repex work depends on the "**decommissioned workload**", i.e. the length and diameter of pipe that is being replaced or taken off the network, and the "**lay workload**", being the length and diameter of pipe that is installed in its place: see Mayfield 1 §100. Repex costs also depend on the technique used – principally, whether lay workload is carried out by using an "**insertion technique**", by which narrower pipes are inserted into existing mains pipes to effect the replacement, or an "**open cut**" technique, according to which a new trench is excavated along a mains route: see Mayfield 1 §69-70.

162.4. When submitting their business plans for RIIO-GD3, GDNs forecast their workload and cost estimates, i.e. their expectations as to decommissioned workload and lay workload: Mayfield 1 §28. These forecasts are disaggregated by reference to each GDN's banding expectations, i.e. the diameter of pipe that is to be decommissioned (abandoned) and commissioned (laid): Mayfield 1 §28(i), (ii). The seven bands of pipe vary significantly in average unit cost: the higher the band, and the greater the pipe diameter, the greater the cost to a GDN in laying that pipe: Mayfield 1 §§69-70, 76. In practice, repex involves

decommissioning an old main by commissioning a new one. The costs recorded reflect the combination of these activities. In GDNs' BPDTs they are reported as costs of mains commissioned: Mayfield 1 §80.

162.5. The GDNs will likely receive a greater totex allowance where their repex banding mix forecast predicts that pipe of greater diameter will need to be commissioned during a price control. In general terms, however, the expectation is that GDNs will primarily use the insertion technique, which means installing narrower diameter mains than the existing mains. That implies an expected reduction in the volume of the network (see SGN Notice §165).

162.6. In addition to submitting forecasts of their expected repex workload, GDNs have provided GEMA with their historical actual data showing their historical commissioned and decommissioned workloads and volumes (which can then be compared with their forecasts at the outset of RIIO-GD2).

163. As described in Mayfield 1 §§101-104, the structure and formulation of the repex cost driver and Tier 1 PCD give rise to the potential incentive for GDNs to inflate elements of their submitted workloads in a way that benefits their totex allowances and potential profitability during the price control:

163.1. GDNs could submit in their business plan data templates ("**BPDTs**") a 'commission' workload higher than required by (i) weighting the workload mix to favour larger diameter band work over smaller; (unit costs increase with diameter band sizing; therefore, a mix weighted more towards larger diameter pipes will result in a more expensive workload overall, all else equal); and/or (ii) increasing the total amount of commissioned mains relative to decommissioned mains (i.e. increasing the value of the lay-to-abandon ratio), resulting in a higher volume of commissioned works.

163.2. Inflating 'commission' workloads results in a higher submitted repex allowances within the BPDT submissions. This allowance then feeds into the normalised costs which flow into the totex model, after accounting for adjustments. These normalised costs are used to determine efficient totex costs for each network, and therefore to set the *ex ante* totex allowances the companies receive at the start of RIIO-GD3

163.3. Once the price control starts, the company has the opportunity to deliver a different diameter band mix and/or a lower overall volume of mains than that submitted in its BPDT. That would allow it to deliver its Tier 1 repex programme at a lower cost than its allowance, resulting in outperformance. This in turn increases its profitability.

164. The data that was submitted by GDNs in their BPDTs demonstrated a problem. In blunt terms, at least some GDNs appeared to be overstating their repex banding forecasts, by skewing the mix towards larger and more costly pipe diameters, which were not consistent with historical or expected repex work, and historical data showed a material concern about the accuracy of forecasting: see Mayfield 1 §98.

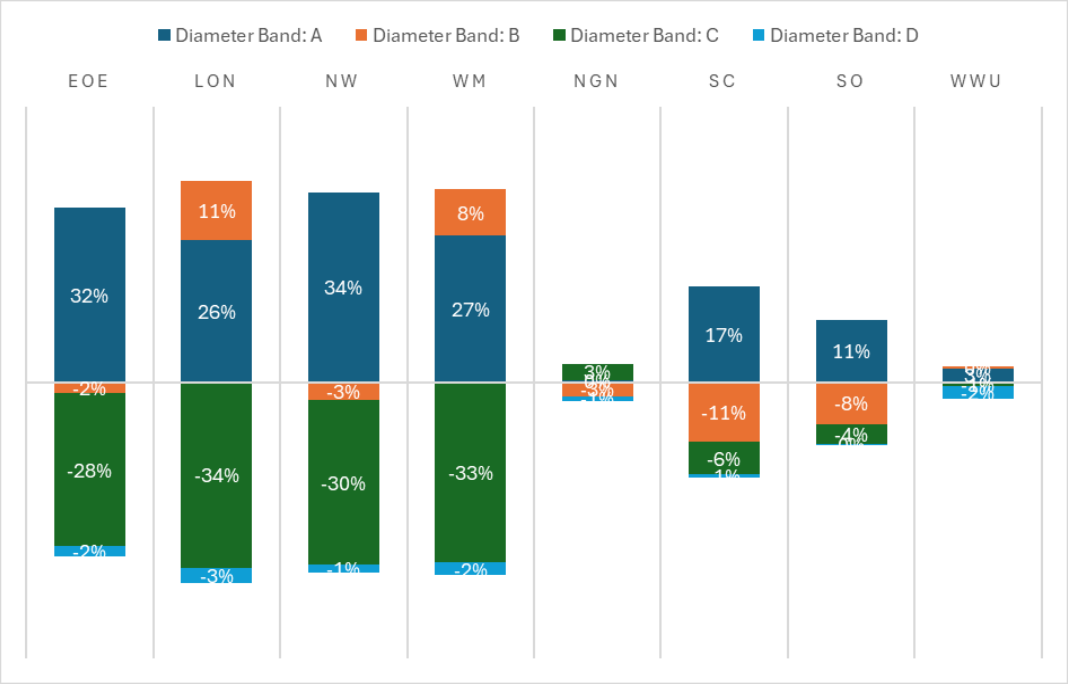
164.1. As addressed in Mayfield 1 §§122-123 and Table 9, all GDNs submitted final business plans with significant increases in their forecast repex expenditure for RIIO-GD3 compared with RIIO-GD2. At the sector level, the cost of repex submissions increased by 34% between price controls.

164.2. As addressed in Mayfield 1 §129/Figure 6 and §135(iii), all GDNs except for SGN submitted forecasts suggesting a lay:abandon ratio of 1, despite historically the figure being below 1 (i.e. historically a shorter distance of mains was laid than abandoned); SGN was the only company forecasting a ratio below 1.

164.3. As shown in Mayfield 1, and Figures 7 and 8, GEMA's analysis showed that Cadent and NGN expected to complete a commissioned workload mix with significantly more diameter band C pipes, and a correspondingly lower proportion of diameter band A pipes relative to their historical delivery, notwithstanding that the 'decommission' workload mix remained broadly stable between historical and forecast workload (Mayfield 1 §§137-140).

164.4. GEMA assessed variances between forecast and actual delivery during GDNs in RIIO-GD2, as shown in Mayfield 1 Figure 9:

Difference in GD2 Forecasted and actual Tier 1 repex Diameter Band Volumes



This showed that, at GD2, Cadent delivered c.30% more Diameter Band A than they had initially forecast at the outset of RIIO-GD2, and similarly 30% less Diameter Band C. SGN also exhibited a high forecast variance, delivering 17% and 11% more Diameter Band A, and similarly less Diameter Bands B and C, than originally forecast.

165. In that context, GEMA stated in GD Draft Determinations §5.220 that it had "*concerns about the justification for some of the Tier 1 mains workload forecasts submitted by GDNs*". It remarked upon the "*notable inconsistencies between historical and forecast years with respect to diameter band mix*" and that the ratio between forecast volume of mains to be commissioned and to be laid was not consistent with historical trends or engineering logic. GEMA stated that it would, following further consultation and the assessment of further evidence, consider adjusting GDNs' forecast Tier 1 commissioned workloads based on, *inter alia*, more robust methodological approaches for ascertaining these forecasts: GD Draft Determinations §5.224.

166. In its response to Draft Determinations, SGN stated (§§561-563, SGN1_18 p.86, emphasis added):

> "561. The current forecast scenarios across networks are incompatible to enable fair efficiency benchmarking, with [redacted] putting forward

commitments of delivery that drive value to customers. To enable a fair comparison of business plans a normalisation will be required.

562. Within our cost bilateral in March 2025, we identified three potential solutions to enable comparative benchmarking which would be applicable for both the banding mix and abandonment ratio issues:

(i) A single level of design efficiency based on historical averages should be applied consistently to all networks, providing an incentive to networks that are able to implement a more efficient design and penalising networks that are not, or

(ii) Networks that have maintained a high level of design efficiency (SGN and WWU) should be allowed to recalibrate to align with less efficient networks, or

(iii) Networks should be required to restate their forecasts in line with good engineering design efficiency and provide an engineering rationale as to the variation. …

563. We agree with the principle if there are valid engineering adjustments to network workload forecasts, these adjustments should be made within the cost driver assumptions"

167. On 25 September 2025, SGN submitted a further response, stating: "*[w]e suggest that Ofgem apply normalisation adjustments to ensure consistency in forecast assumptions across networks, given the material impact the banding mix and abandonment ratio assumptions have on cost efficiency*": see Mayfield 1 §165.

168. In its GD Final Determinations §5.317, GEMA recorded that, since Draft Determinations, it had gathered additional evidence on each GDN's Tier 1 mains forecast, "*through SQs, data requests, the [Cost Assessment Working Group ("**CAWG**")] and bilateral discussions*". As explained in further detail in Mayfield 1 §§170-182, the further evidence that GEMA collected showed significant disparity in the methodologies deployed by GDNs to forecast their Tier 1 mains repex. GEMA also had concerns about how this work had been forecast by the GDNs historically at RIIO-2, as described above at §164.

169. GEMA concluded, based on the confirmations by the GDNs themselves, that their forecasting involved "*varying levels of uncertainty and differences in assumptions*": GD Final Determinations §5.324. In its expert assessment as regulator, GEMA considered that these discrepancies between forecasts were unjustifiable, particularly in circumstances

where the forecasts for two of the GDNs (NGN and Cadent) were far out of step with historical data, with no explanation for that change being suggested by any GDN: see GD Final Determinations §§5.320-322.

170. GEMA therefore decided to normalise all Tier 1 repex forecasts "*to ensure a consistent set of assumptions are applied across the industry*": GD Final Determinations §5.325.

171. GEMA considered and rejected alternative normalisation options, as described at Mayfield 1 §§185-193 and 242, including normalising inconsistently across the sector. GEMA's final decision was aimed at ensuring that a standard approach was taken across all GDNs, such that no GDN's forecast would be overstated (the effect of which would be to skew the repex synthetic cost driver in GEMA's price control model and distort efficiency comparisons).

172. The method deployed by GEMA to carry out this normalisation was as follows (see further the step-by-step approach described in Mayfield 1 §§209-213):

    172.1. The starting point was to use each GDN's forecast <u>decommission</u> Tier 1 workload, with which GEMA saw no reason to interfere. Those forecasts were seen as most likely to be accurate and predictive, because only seven years of the IMRRP remains, five of which fall within RIIO-3, providing limited opportunity for GDNs significantly to change the mix of decommissioning work that needs to be undertaken: GD Final Determinations §5.327.

    172.2. GEMA also used each GDN's forecast <u>technique</u> proposed to be used (the ratio between open cut or insertion). Technique forecasts reflect network-specific operating environments, delivery practices and constraints, and were reported in BPDTs. Retaining the technique ratio accordingly ensured that the normalisation addressed the specific issue that had been identified, without unnecessarily overriding legitimate, network-specific delivery choices. As explained in Mayfield 1 §196: "*We considered that open cut ratio is, to a large degree, determined by the characteristics of the main already within the ground (i.e. the decommissioned main), including its geographical location, location on the network, and physical characteristics. Therefore, we considered that maintaining forecast open cut insertion ratios was consistent with using each companies' decommissioned workload forecasts, as submitted*". That is consistent with SGN's own evidence, at Deveney 1 §69, which describes

circumstances where open cut must be used rather than insertion – and each of §69(a)-(c) are referable to the decommissioned main.

172.3. GEMA applied a decommission-to-lay assumption, which was used to predict what size of pipe would actually be used to replace each band of decommissioned mains. Those figures were intended to replace, on a normalised basis, the individual, variable, uncertain and seemingly overstated (in the case of at least NGN and Cadent) lay forecasts provided by the GDNs.

172.4. The decommission-to-lay assumption was taken from evidence submitted by WWU. [redacted] WWU's methodology for forecasting its Tier 1 mains workload was described as follows by GEMA (GD Final Determinations §5.326):

> "We found WWU's approach to forecasting its Tier 1 mains workloads to be the most robust, built bottom-up and informed by highly detailed network models. It has also demonstrated strong historical accuracy across its RIIO-GD2 forecasts, with only very limited variation in its outturn Tier 1 diameter band mix to date. For these reasons, we consider WWU's data to be a reliable proxy for expected industry standards."

In contrast, [redacted] and SGN had [redacted] (Mayfield 1 §175). GEMA assessed that it was appropriate to use WWU's decommission-to-lay matrix for all GDNs in circumstances where there is a high level of commonality, repeatability and comparability between the repex activities delivered by the GDNs (which is indeed the very reason why it is considered suitable to be included within the regression for comparative benchmarking at all): Mayfield 1 §193(ii). As explained in Mayfield 1 §242 / Tuffen 1, there is an implicit relationship between the physical characteristics of the mains being laid and those being decommissioned, and these assumptions hold broadly true across all GDNs.

172.5. WWU's decommission-to-lay assumption was applied to the GDNs' forecast decommissioned workload in a technique-specific way, recognising the relationship between technique and lay diameter (e.g. that 'insertion' will only ever be used to lay a smaller diameter pipe than the pipe being decommissioned – see Mayfield 1 §§74-79), and in circumstances where the treatment of banding mixes was expected to be similar between GDNs by technique. The forecast open cut and insertion volumes for each GDN were then aggregated to ascertain their overall aggregate lay volume.

172.6. In addition, and to ensure consistency with its approach in respect of Tier 1 mains forecasting, GEMA also increased SGN's forecast lay to abandon ratio from 0.967 (Scotland) and 0.983 (Southern) to 1.000: GD Final Determinations §§5.330-5.333, Mayfield 1 §§130, 197-199. The context for that decision was that Cadent, NGN and WWU had forecast that they would deliver a lay:abandon ratio of 1 during RIIO-3, whilst SGN forecast a ratio below 1 (i.e. implying that it would lay less pipe during RIIO-3 than it abandoned). GEMA noted that this would reduce the value of SGN's repex component in the cost driver relative to other GDNs: GD Final Determinations §5.331. Given the potential for inconsistency, this too was normalised by GEMA, with the effect that SGN's repex allowance again increased and SGN benefited from GEMA's approach.

172.7. In order to keep constant the relationship between costs and workloads (i.e. keeping submitted unit costs constant), GEMA accordingly adjusted the submitted repex costs as described in Mayfield 1 §§200-201.

173. The effect of this normalisation process on SGN's repex is not clearly stated in SGN's appeal. For example, SGN states at SGN Notice §158 that "*[c]orrecting the error by removing GEMA's overwriting adjustment for SGN (but retaining it for the other GDNs) would increase SGN's allowances by* [redacted] *over the GD3 period*". The framing of SGN's appeal in that way fails to address that the effect of the normalisation (compared with not carrying it out at all) was to increase SGN's totex allowance. As explained at Mayfield 1 §224 (and Table 11), the effect of the normalisation is to increase SGN's totex allowance by [redacted]. These outcomes are consistent with the *ex*

ante expectation arising from GEMA's concerns with the reported data (namely that the overstatement of forecast lay diameter was most stark in respect of Cadent and NGN).

K2. The errors and grounds of appeal alleged by SGN

174. SGN argues that GEMA made two errors in respect of Tier 1 Mains totex allowance calculation, which are:

    174.1. First, that GEMA erred in applying an industry-wide normalisation to all GDNs, because this was unnecessary, disproportionate and flawed in respect of SGN ("**Alleged Error 1**" at SGN Notice §§193-228); and

    174.2. Second, that GEMA misapplied its normalisation adjustment ("**Alleged Error 2**" at SGN Notice §§229-244).

175. As regards Alleged Error 1, SGN makes three submissions.

    175.1. First, that WWU is not a reliable proxy for industry standards (the "**Reliable Proxy error**" at SGN Notice §§200-217);

    175.2. Second, that GEMA identified issues only in relation to Cadent's and NGN's banding mix data, but not in relation to SGN's data (the "**Identified Issues error**" at SGN Notice §§218-222); and

    175.3. Third, that GEMA's approach was not necessary for effective cost benchmarking (the "**Necessity error**" at SGN Notice §§223-226).

176. Alleged Error 2 focusses on an allegation that GEMA misapplied its normalisation adjustment by deciding to combine GDN-specific technique assumptions with WWU's decommission-to-lay assumption (SGN Notice §236). It is alleged that this approach is "*internally inconsistent*" and "*fails to recognise the relationship between the decommission-to-lay matrices and the technique of workload delivery from an engineering perspective*" (SGN Notice §§236-237).

177. SGN does not align these alleged errors with the statutory grounds of appeal under s.23D(4). For the avoidance of doubt, the CMA must assess the specific errors alleged by SGN by reference to the prescribed statutory grounds. It is not sufficient for SGN to seek

to show some abstract arguable 'error' without reference to the particular relevant test under s.23D(4), as described at §26 above.

178. As particularised at SGN Notice §§156 and 246, SGN's case appears to be that:

178.1. The Identified Issues error demonstrated that, for the purposes of s.23D(4)(a) and (b), GEMA failed to have proper regard to and/or to give appropriate weight to:

178.1.1. the principles under which regulatory activities should be transparent, accountable proportionate, consistent and targeted only at cases in which action is needed, and to other principles appearing to represent regulatory best practice (s.4AA(5A) GA86), because GEMA's normalisation was "*industry-wide*" and not targeted only at "*those companies where GEMA identified a problem*" (SGN Notice §246(i)(a)); and

178.1.2. GEMA's principal objective (under ss.4AA(1) and (1A) GA86) to protect the interests of customers including their interests in the security of the supply of gas to them, and GEMA's duty to secure that licence holders are able to finance their activities (s.4AA(2) GA86), because SGN is "*materially underfunded to deliver workloads necessary to meeting these duties*" (SGN Notice §246(i)(b)).

178.2. The Reliable Proxy error is said to be an error of fact for the purpose of s.23D(4)(c) GA86, because (i) it is inconsistent with the operational requirements of SGN's network and (ii) GEMA's analysis of GDNs' ratio of commissioned to abandon volumes relied on incorrect data (SGN Notice §246(ii)(a) and (b)).

178.3. GEMA's decision is said to fail to achieve its stated effect for the purpose of s.23D(4)(d) GA86 because (i) rather than protecting customers from cost increases or underfunding of networks, GEMA's approach "*arbitrarily disadvantage[s] SGN*" and underfunds it, and (ii) Alleged Error 2 meant that GEMA "*failed to correctly implement WWU's methodology*" (SGN Notice §246(iii)(a) and (b)).

178.4. GEMA's decision is said to be wrong in law, contrary to s.23D(4)(e), because:

178.4.1. It was irrational to apply WWU's assumptions to SGN because "*this produces a workload mix that would not deliver sufficient pressure to the end customer*" (SGN Notice §246(iv)(a)).

178.4.2. GEMA took into account irrelevant considerations, such as "*the supposed robustness of WWU's method*" (by means of the Reliable Proxy error) (SGN Notice §246(iv)(b));

178.4.3. GEMA failed to make "*appropriate inquiries or to consult*" on its approach to normalisation (SGN Notice §246(iv)(c)); and

178.4.4. The Reliable Proxy error was "*irrational and wrong*" when combined with GDN-specific technique assumptions (SGN Notice §246(iv)(d)).

179. As explained below, each of these errors (and associated grounds of appeal) is without merit.

K3. Alleged Error 1

180. Alleged Error 1 is that GEMA erred in applying an industry-wide normalisation to all GDNs, because this was unnecessary, disproportionate and flawed in respect of SGN.

181. As noted above, SGN makes three related claims in relation to Alleged Error 1, which for convenience can be described as the Reliable Proxy error, the Identified Issues error, and the Necessity error.

The alleged Reliable Proxy error

182. The Reliable Proxy error contends that WWU's decommission-to-lay assumption was not a reliable proxy for industry standards: SGN Notice §§200-217. GEMA's finding to the contrary is said to have been an error of fact (see §178.2 above) and/or to have given rise to an error of law (see §§178.4.2 and 178.4.4 above).

183. An error of fact must relate to a matter which can be "*established*", i.e. objectively verified without reference to contentious matters: see WWU (above) at §142, citing E v Secretary of State for the Home Department [2004] QB 1044. That test requires that "*matters of opinion and evaluation*" are distinguished from "*objectively verifiable fact*": R (Institute for

Chartered Accountants in England and Wales) v Lord Chancellor [2019] EWHC 461 (Admin) at §79.

184. Both (i) the extent to which WWU's decommission-to-lay assumption served as a reliable industry proxy, and (ii) the question of whether use of a proxy would ignore operational requirements within a given SGN's network (as put at SGN Notice §246(ii)(a)) are matters of regulatory judgement and evaluation. They cannot be objectively verified, but depend on a multi-factorial assessment of what approach should be used to conduct a normalisation: see Mayfield 1 §§236-244. For this reason alone, SGN's first claimed error of fact is unsustainable.

185. In any event, there was a good basis for GEMA to consider that WWU's decommission-to-lay data was a reliable proxy. As explained above at §172.4 and in Mayfield 1 §206, its data was "*robust, built bottom-up and informed by highly detailed network models*", and its historical forecasts did not demonstrate the historical variance shown in SGN's and Cadent's data. Moreover, GEMA reasonably assessed that the Tier 1 mains replacement process is sufficiently similar as between GDNs for there to be no reason to expect any particular variance in decommission-to-lay banding at the aggregate level once decommission workload and technique is taken into account. SGN itself had suggested implementing *"a single level of design efficiency based on historical averages … consistently to all networks"* – see above at §166. So SGN's approach too had been that a single model could appropriately be rolled out consistently across GDNs – but GEMA preferred using a properly-calculated forecast matrix rather than simply relying on historical averages.

186. SGN also advances a second alleged error of fact, that GEMA's conclusion that WWU's methodology was a reliable proxy was based on an erroneous assessment of WWU's ratio of commissioned to abandoned volumes ("**RCAV**"): see SGN Notice §210(iv). As to that:

186.1. SGN's analysis of the RCAV and the conclusions it seeks to draw from that analysis are materially flawed. As to the explanation of the results of the RCAV analysis, see further Mayfield 1 §§269-285 and §212 below.

186.2. In this case, the consideration of RCAV was a separate piece of analysis used to ascertain whether GDNs' business forecasts were generally consistent with historical delivery and consistent between GDNs: see GD Final Determinations

§§5.321-324. WWU's RCAV figure was not a reason why GEMA considered WWU's assumptions to be appropriate for adoption across the industry. Nor was RCAV used to calculate the normalisation adjustments that were applied.

186.3. The adoption of WWU's methodology for ascertaining a decommission-to-lay workload forecast was based on separate analysis outlined in GD Final Determinations §5.326. There, as part of a multi-faceted decision, GEMA considered that WWU's approach to forecasting Tier 1 mains lay diameter workloads (which is a distinct metric from RCAV) was the most robust and historically accurate: see GD Final Determinations §5.326. It was on the basis of that finding that WWU's data was held to be a reliable industry-wide proxy. The assessment of RCAV was not used to calculate normalisation adjustments or to determine that WWU data was reliable.

186.4. There was a minor error in the calculation of RCAV at the time of FDs. That error is explained in Mayfield 1 §285 and Annex A thereto. The error is immaterial to GEMA's decision-making. Restating the calculation of RCAV does not alter the conclusions that were drawn from the analysis: it "*affects the absolute level of the RCAV metric but does not alter the relative patterns observed across companies and time periods*" (Mayfield 1 Annex A §21). To be legally relevant, any error of fact must have played a material part in the reasoning of the decision-maker: see WWU at §142. Certain mistakes of fact "*may be made provided that the mistakes are not grave enough to undermine the basis of a multi-faceted decision*": R v ITC, ex p. Virgin Television Limited [1996] EMLR 318 at 342.

187. The claimed errors of law are similarly hopeless.

187.1. First, SGN Notice §246(iv)(b) characterises the Reliable Proxy error as an irrelevant consideration, apparently on the basis that the robustness of a proxy "*does not render it suitable as means of estimating costs for SGN's network*". That is a submission that no proxy (other than perhaps one based on SGN's own data) could have been used to normalise SGN's workload estimates. But SGN supported a normalisation in principle (see §185 above). It is not arguable that the presence of a robust industry-wide proxy was an irrelevant consideration to GEMA's determination as to how costs on individual networks should be estimated.

187.2. Second, SGN suggests that GEMA's rationale for adopting a proxy was "*irrational and wrong*" when combined with GDN-specific technique assumptions (SGN Notice §246(iv)(d)). Any rationality challenge faces a high bar, and that is only increased where what is challenged is an exercise of regulatory judgement. There are good reasons why GEMA normalised decommission-to-lay assumptions without also normalising technique assumptions, as explained further below in relation to Alleged Error 2. The suggestion that to do so was irrational is untenable.

188. For those reasons, the Reliable Proxy error cannot give rise to any error within the scope of s.23D(4) GA86. In any case, there is no substance in the submissions advanced by SGN on this point.

189. The basis upon which this argument is advanced is <u>not</u> that WWU's own methodology of forecasting decommission-to-lay assumptions was flawed in any respect. Such a claim is not tenable in light of the factors noted at Mayfield 1 §242, namely that WWU had demonstrated low historical variance between its forecast and outturn workloads, and had produced forecasts at a granular level of detail.

190. SGN thus does not appear to dispute GEMA's expert assessment that WWU's methodology for ascertaining a decommission-to-lay forecast was robust and historically accurate, as it found in GD Final Determinations §5.326. Instead, SGN's submission is that the <u>result</u> of applying WWU's assumption to SGN's own forecast is to "*shift volumes towards lower-cost, smaller-diameter mains*": SGN Notice §202. That is a poor starting point for an alleged error, because that shift reflects precisely the issue with which GEMA was concerned, viz that the workload forecasts appeared to overstate banding diameter in a manner which could not be supported by historical data or expectations under RIIO-3, and in a manner which was inconsistent between GDNs.

191. SGN nonetheless contends that the reduction in its workload forecast might compromise "*the safe and reliable operation of consumer appliances and lead to additional interventions to avoid disconnecting customers*": SGN Notice §203. These claimed safety risks do not advance SGN's case for three reasons.

191.1. First, SGN's argument conflates benchmarking assumptions used for modelling with engineering design decisions taken when pipelines come to be installed:

Tuffen 1 §22.2. As SGN accepts (SGN Notice §205), the engineering decisions it ultimately takes are a matter for it alone, and it can allocate its totex allowance as required to meet regulatory obligations in relation to safety.

191.2. Second, insofar as SGN's workload diameter banding forecasts were overstated prior to normalisation, the alleged impact on the modelling assumptions is also overstated by SGN. It was the reliability of this very data that GEMA tested and, given its concerns about reliability, concluded that normalisation was required to address.

191.3. Third, as explained further in §§210-212 below, SGN's suggestion of a reduction in network capacity appears in fact to be referable to SGN's own 'open cut' technique forecasts in its BPDTs, rather than any issue with the normalisation – SGN cannot lay the blame for its own inaccuracy at GEMA's door.

192. A final argument made by SGN in relation to the use of WWU's assumption as an industry-wide proxy is that its own forecast reflected "*detailed network planning*", and that WWU's models and forecasts should only have been applied to WWU's network, for which they were designed: SGN Notice §212. However, that argument ignores the reality that WWU's forecasts were not bluntly used to overwrite SGN's forecasts without reference to the nature of its own network. Indeed, the need not to adopt such an untargeted approach was precisely *why* GEMA took into account each GDN's own decommission forecasts and technique assumptions. The inclusion of those technique assumptions, to which WWU's different decommission-to-lay assumptions were separately applied, ensured that GEMA's approach was well-specified and its intervention limited in a proportionate manner.

<u>The alleged Identified Issues error</u>

193. The second point made by SGN in relation to Alleged Error 1 is an allegation that GEMA identified issues only in relation to Cadent's and NGN's banding mix data, whilst "*[n]o concerns were raised at any stage of the GD3 process in relation to SGN's submitted repex forecasts*": SGN Notice §§218-222.

194. Quite apart from the fact that the framing of this issue overlooks the fact that the normalisation worked financially in SGN's favour (i.e. to increase its allowances by

[redacted] relative to not implementing the normalisation), the argument is wrong for two main reasons.

195. First, and as is clear from the GD Final Determinations, one of the issues identified by GEMA was the fact of GDNs taking a different approach to forecasting Tier 1 mains repex: see §5.317. The appropriate way to correct that problem, which *ex hypothesi* affected each GDN, and which was explained by GEMA to give rise to "*varying degrees of uncertainty within the submitted data*", was to apply an industry-wide normalisation: GD Final Determinations §5.317 (and see §5.324 similarly). GEMA's aim was to apply a consistent set of assumptions across the industry to normalise forecasts to protect customers from unjustified cost increases and networks from being underfunded (GD Final Determinations §5.325) and that aim precluded it from normalising solely the forecasts of NGN and Cadent. Such an approach would also have improperly ignored GEMA's assessment that WWU's approach to forecasting its Tier 1 mains workload was the most robust. Having made that finding, it was plainly permissible for GEMA to consider that the most robust approach should be applied to all GDNs, not only to Cadent and NGN.

196. Second, and leaving aside GEMA's legitimate desire to introduce an industry-wide approach, GEMA *did* identify issues with SGN's submitted forecasts. As explained in Mayfield 1 §232 "*[i]n the case of SGN, we identified various issues that gave us cause to doubt the detail and level of accuracy of its Tier 1 forecasts*". It is correct – and clear on the face of the GD Final Determinations – that the problems identified by GEMA were most acute in the case of NGN and Cadent. But that does not mean that SGN's data was unimpeachable:

196.1. An analysis of forecast and outturn data for RIIO-GD2 years 1 to 3 showed that SGN too had overstated its forecast commissioning of Diameter Band C in favour of Band A. See Mayfield 1 Figure 9, which shows variance on Band A for SGN Scotland of 17% and for SGN Southern of 11%.

196.2. [redacted]

196.3. SGN had itself indicated to GEMA that it relied on backward-looking historical averages to determine its banding ratios, rather than undertaking detailed, forward-looking modelling to determine the actual work that was required in RIIO-GD3. SGN made it clear that it undertook detailed design work for repex only for 12-24 months ahead, suggesting its entire RIIO-GD3 forecast was based on relatively high-level assumptions regarding workload mix, rather than a detailed understanding of the work left to be delivered: Mayfield 1 §234(iii).

196.4. While relying on these backward-looking averages, SGN at the same time emphasised that it would face *increased complexity* in delivering its repex programme in RIIO-GD3: Mayfield 1 §234(iii). That approach was viewed by GEMA as involving "*some logical inconsistency*" which led GEMA to "*doubt the reliability of the banding mix assumptions and the forecasts on which they were based*" (Mayfield 1 §234(iv)).

197. In short, the problem identified by GEMA was not "*company-specific*", as suggested at SGN Notice §222. It was an industry-wide problem with roots in the forecasts presented by GDNs for RIIO-GD2. In any case, however, there were specific issues with data submitted by SGN, which confirmed GEMA's concerns about the need for industry-wide correction (when viewed in context alongside the acute concerns in relation to data received from NGN and Cadent).

198. For these reasons, the legal errors said to have been made by GEMA by means of the Identified Issues error are without merit. In particular, SGN's case is that normalisation should have been targeted only at those companies where GEMA identified a problem, in line with GEMA's duty under s.4AA(5A) GA86, but that GEMA failed to have regard to this duty. That is not correct. As explained in Mayfield 1 §185, GEMA specifically considered three initial options in relation to normalisation: (i) to allow companies to resubmit using the same assumptions as Cadent and NGN; (ii) to normalise using historical averages; and (iii) to normalise using industry-standard banding mix assumptions. As explained in Mayfield 1 §184 GEMA considered but specifically rejected applying a normalisation to NGN and Cadent while excluding SGN, due to the fact that "*(i) the evidence as a whole also gave rise to material concerns about the robustness of SGN's forecasts and (ii) a consistency of approach across the GDNs was to be preferred over an inconsistent adjustment*".

The alleged Necessity error

199. The third point made by SGN under the banner of 'Alleged Error 1' is that GEMA's approach was unnecessary for effective cost benchmarking: SGN Notice §§223-226. The point advanced here by SGN is that it is reasonable for different companies to adopt different forecasts, based on different assumptions, and that there was "*no logical reason why GDNs' forecasts should be based on a common engineering assumption*": SGN Notice §225(ii).

200. The allegation of such an error is surprising in circumstances where it was SGN's own position that a normalisation was necessary and appropriate: see §§166-167 above. The change in SGN's position emphasises that this ground of appeal is nothing more than an opportunistic attempt to increase the financial benefit that SGN has already obtained by the normalisation that was implemented.

201. In any event, this point adds nothing of substance. It was well within the scope of GEMA's discretion as regulator to determine that, although it may sometimes be reasonable for different companies to adopt different forecasts based on different metrics, the position in respect of repex lay diameter banding forecasts was too unstable and too variable. That issue was outlined in Draft Determinations §5.224 and Mayfield 1 §148, and was supported by historical data applicable to all GDNs (including SGN). Mayfield 1 §§245-249 explains the risks of applying differing assumptions between GDNs to the stability of GEMA's regression estimation. It therefore gave rise to no legal error for GEMA to decide that a normalisation was necessary on the particular facts of this case, and indeed that too was the position adopted by SGN.

202. Stepping back, and turning to the remaining legal issues identified by SGN, it is apparent that SGN's primary concern is not a particular analytical or methodological error made by GEMA, but rather the *outcome* of GEMA's (lawful) reasoning, which on SGN's view is that SGN was underfunded. However, the claim to underfunding depends on SGN's forecasts being accepted as accurate, reliable and consistent, which they were not. It also overlooks the fact that the effect of the normalisation was, consistent with SGN's analysis, comparatively favourable to SGN – resulting in a relative increase to its own totex allowances of [redacted] as compared to no such normalisation being implemented: Mayfield 1 §224.

K4. Alleged Error 2

203. Alleged Error 2 concerns the method by which GEMA normalised the GDNs' decommission-to-lay assumptions against technique forecasts. The key aspect of GEMA's reasoning as relevant to Alleged Error 2 was that GEMA did not apply a single lay workload assumption to each of the GDNs' total decommissioned workload assumptions, based on WWU's decommission-to-lay figures. Rather, a more refined and focussed approach was adopted, by which specific decommission-to-lay assumptions from WWU in respect of use of the open cut technique and use of the insertion technique were applied separately to the GDN's forecasts.

204. As explained in Mayfield 1 §196, that was an appropriate choice. Assumptions on banding mix are formulaic and can be based on standard engineering assumptions because of the implicit relationship between the diameter of decommissioned and commissioned mains. By contrast, assumptions as to when open cut or insertion technique will be used depend on "*company-specific delivery choices and local conditions*", e.g. the geographical location of the main in the ground, its location within a network, the physical characteristics of the main, and the general geography of a GDN's network. See Tuffen 1 §§11-17. As such, it was appropriate for GEMA to apply WWU's decommission-to-lay assumption to each GDN's own forecast use of open cut and insertion techniques.

205. This choice was also appropriate because it was consistent with GEMA having relied on each GDN's forecast decommissioned workload, without any overwriting. GEMA's approach was to accept the decommissioning volumes forecast by GDNs, but to overwrite their lay diameter assumptions. But having accepted forecast decommissioning volumes, it would be illogical to overwrite GDNs' assumptions as to when they would use open cut rather than insertion techniques, because that heavily depends on the decommissioning workload which had been identified.

206. As explained in Mayfield 1 §214, after Final Determinations, SGN had raised the way that the normalisation had been carried out, retaining technique assumptions, as an 'error' in the gitlab portal following Final Determinations. But it was not an error: it was a faithful implementation of GEMA's intended approach. [redacted]

206.1. [redacted]

206.2. [redacted]

207. Alleged Error 2 thus appears to misunderstand the purpose of GEMA's regulatory intervention. GEMA did not seek to impose on GDNs the exact forecasts of WWU, modified only to reflect their respective forecast decommissioned workload. Rather, the purpose of this intervention was to correct non-comparable and historically unevidenced assumptions specifically about the diameter pipe by which all decommissioned mains (and however decommissioned) could be expected to be converted into commissioned mains.

208. It was within GEMA's regulatory judgement to determine that the most appropriate way to do this was to apply robust, well-evidenced decommission-to-lay diameter banding assumptions to forecast decommission workloads, by reference to a GDN's own technique assumptions. Indeed, GEMA's approach was more targeted than the approach proposed by SGN, because it ensured that the decommission-to-lay assumption was appropriately applied to actual reported technique assumptions, which had been put forward by GDNs in their business plans and which gave rise to no regulatory concern. This was not an inappropriate or mistaken regulatory approach. It was a decision falling well within GEMA's expert margin of appreciation.

209. SGN's proposed alternative approach is more intrusive and runs the risk of ignoring relevant distinctions between GDNs, which GEMA was entitled to take into account. As

noted in Mayfield 1 §266, applying SGN's approach (which is that WWU's open cut and insertion technique forecasts should also have been applied to each GDN) would mean that even though SGN's own forecasts that it reported to GEMA in its BPDT (CV6.01 Mains Tier 1 table) were that open cut technique would be used for 6.3% (SGN Scotland) and 4.2% (SGN Southern), SGN would instead be treated as if it would use open cut in 19.5% of cases. That would not be a reasonable or justified approach, not least because it would create a high likelihood of overfunding (where in practice a greater proportion of lower cost insertion technique was used).

210. What appears to underlie SGN's attempt to characterise this targeted approach to the normalisation as an error is that SGN reported inaccurate technique assumptions to GEMA:

210.1. As explained in Mayfield 1 §§262-268, SGN's appeal submissions (and in particular figure 1 of Mr Brennan's witness statement) contain different open cut assumptions from those reported in the BPDTs. SGN's appeal documents imply open cut assumptions of 11.1% and 9.7%, as opposed to its BPDT reported figures of 6.3% and 4.2% respectively. The "notes" under Mr Brennan's figure 1 (p.10) state that the technique figures "*differ from the specification lines at the bottom of BPDT CV6.01 Mains Tier 1 rows 242 to 256*" and "*These rows … were not anticipated to be central to financial assessment. …. [t]he mismatch in the specification figures compared to the lay workload construction assumptions was only recognised after the FD was published and the revised methodology understood*". SGN Notice §243 seeks to downplay the importance of reporting accurate forecasts to GEMA by contending that "*Information on the technique split was not relevant in previous price controls*".

210.2. However, GEMA relies upon the information provided in the BPDTs within the business plan review and cost assessment approach (Mayfield 1 §265). The Data Assurance Guidance, described at Mayfield 1 §§25-27, emphasises the importance of GDNs providing accurate information to GEMA, and that "*[u]ltimate responsibility for data assurance … lies with the Board of the Licensees. Ofgem relies on the Data submitted by the Licensees and expects it to be accurate and reliable and therefore takes misreporting of Data very seriously*". SGN confirmed that it had completed its business plan in line with the Business Plan Guidance and Data Assurance Guidance (Mayfield 1 §115).

210.3. SGN's business plan had specifically addressed the fact that it had "*maximised the use of insertion techniques to minimise our time on the street rather than using traditional open-cut methods*" (Mayfield 1 §127, citing SGN's business plan §4.2.5), a submission which SGN repeated to GEMA in August 2025 (Mayfield 1 §155(ii)).

210.4. All GDNs, including SGN, had been required to report their forecasts on a highly granular basis (including as to technique) by a Supplementary Question issued on 1 September 2025 (Mayfield 1 §170), [redacted]

211. At no point prior to this appeal had SGN indicated that the 'open cut' numbers reported in its BPDTs were incorrect; even in this appeal it raises the point only obliquely (i.e. by the 'notes' under Mr Brennan's figure 1) rather than acknowledging its own putative error and the relevance of the same candidly before the CMA. It would be regrettable if this appeal ground were being pursued in an attempt to circumvent the consequences for SGN of having reported incorrect figures. Nor can SGN's own error be the basis for an error of fact under the test set out in E: see §32(iii) above.

212. In its appeal, SGN complains that the effect of the normalisation would be an implied net reduction in SGN's network capacity, using modelled RCAV. However, as explained in Mayfield 1 §§269-285 and Tables 13-15, when RCAV is modelled by reference to insertion and open-cut separately, the Tier 1 adjustment to forecasts results in a consistent relationship across all of the networks in GD3. Mayfield 1 Figure 11 shows that, while the normalisation results in a lower RCAV than SGN's submitted forecast, it does not set it below the RCAV that SGN actually delivered across RIIO-GD2. The implication is that the RCAV analysis does not indicate any error in the methodological approach to the normalisation, but rather that any implied greater reduction in network capacity than SGN had intended for RIIO-GD3 is a product of SGN's lower reported 'open cut' forecast. As explained in Mayfield 1 §§283-284:

> "283. The conclusions that SGN draws from its RCAV analysis in its notice of appeal are misleading. The reason forecast RCAV values differ between networks is a result of the different forecast of the share of open cut between networks. SGN's conclusions fail to recognise this link, and therefore, do not support its case that our adjustment fails to effectively normalise forecast workloads between networks.

> 284. We consider this data further emphasises why we were correct to use the company open cut and insertion forecasts and apply separate banding mixes assumptions to the two techniques. The purpose of the adjustment was to standardise diameter banding assumptions to remove forecast inconsistencies, while leaving company-specific delivery choices, such as the split between insertion and open cut, unchanged. As I have set out, our FD adjustment effectively delivered this. We do not consider that overwriting the open cut shares for the companies would have improved the accuracy or comparability of the Tier 1 forecasts within the benchmark modelling."

The legal errors alleged

213. In respect of Alleged Error 2, SGN's primary case appears to be that this alleged error has the consequence that GEMA's decision failed to achieve its stated effect: SGN Notice §246(iii)(b).

214. That is wrong. Even if it were legitimate to use a discussion in GD Final Determinations to identify the intended effect, it is apparent that GEMA's intention was not to standardise all GDNs' forecasts by reference to WWU's lay workload forecast regardless of differences between the proposed techniques to be used by GDNs. GEMA's intention, as explained in GD Final Determinations §5.317, was to normalise the figure expected to be sufficiently consistent across GDNs (decommission-to-lay diameter banding assumptions) and not figures which might reasonably differ between them (decommission workload and technique forecasts). GEMA's aim was to "*normalise all Tier 1 repex forecasts in our Final Determinations, to ensure a consistent set of assumptions are applied across the industry*" (GD Final Determinations §5.325).

215. As such, GEMA's decision to apply WWU's decommission-to-lay assumptions to GDNs' own technique assumptions achieved GEMA's aim: consistent assumptions (as to banding mix) were applied across the industry and in a focussed GDN-specified way. That approach did not demonstrate an error within the meaning of s.23D(4)(d) GA86.

216. To the extent that SGN Notice §246(iv)(d) makes a submission that it was irrational in the public law sense (and thus an error of law) to combine WWU's decommission-to-lay assumptions with GDN's own specific technique assumption, that is not a sustainable legal argument. As explained above, there were sound reasons to distinguish between normalising decommission-to-lay ratios and normalising technique assumptions. It is not

the case that GEMA's approach was one which no reasonable regulator would have adopted, and SGN has not come close to meeting that high standard.

217. Finally, SGN makes fleeting references to allegations of inadequate consultation (SGN Notice §156(i)(a), §197, §246(i)(a), §246(iv)(c)). The allegation is without merit. As addressed above and in Mayfield 1 §§286-291, the issue with the reported Tier 1 commissioning forecasts was identified when GEMA was working towards publishing Draft Determinations – thereafter, GEMA undertook extensive consultation, received detailed consultation responses (including SGN's request that GEMA implement a normalisation), and followed up the issue with GDNs directly through bilateral meetings and data requests. There was proper and adequate consultation on the issue.

218. For the above reasons, GEMA was not 'wrong' on any of the statutory grounds in normalising the decommission-to-lay assumptions for the repex synthetic driver in the way it did.

L. GROUND B(1B): THE COMPOSITE SCALE VARIABLE

219. By Ground 1B, SGN contends that its alternative approach to combine the seven cost drivers into a single explanatory variable for the regression is superior to that used by GEMA. It accordingly contends that GEMA's approach to combining the cost drivers was "wrong" within the meaning of a ground under s.23D(4) GA86. However, GEMA was well aware of the alternative ways to combine cost drivers to calculate a Composite Scale Variable as the explanatory variable within the totex regression. Each methodological approach has advantages and disadvantages. GEMA weighed up those factors when deciding the approach to adopt. GEMA was not "wrong" on any of the statutory grounds in preferring its selected approach over the alternative favoured by SGN (or indeed any other alternative).

L1. GEMA's approach to calculation of the CSV

220. GEMA's task in setting the price control is to determine efficient allowances for the GDNs in RIIO-3: Mayfield 1 §11. The principle underlying GEMA's modelling approach is to compare companies' submitted totex costs against those of a notionally-efficient company, in order to assess whether their forecast costs are likely at an efficient level or not, and to reflect allowances accordingly: Mayfield 1 §12.

221. In GEMA's GD Final Determinations, it decided to adopt a single totex regression model based on a composite scale variable cost driver, combined with non-regression benchmarking and technical assessment of those cost activities which are not suitable for regression benchmarking. GEMA decided to assess efficiency at the 'totex' level i.e. comparing the efficiency of all expenditure, rather than the efficiency of different parts of the cost base. As explained in GD Final Determinations §5.42-49:

> "The totex model is grounded in economic and engineering logic, resulting in good statistical performance and explanatory power. We have tested other approaches (eg bottom-up and middle-up models) and found they had worse performance. The use of a single top-down totex model also allows for trade-offs between opex, repex and capex to be captured, and allows GDNs a degree of flexibility in deciding how best to deploy total available funding across different types of activity using their own expertise. This is consistent with the principles of the RIIO framework.
>
> NGN, WWU and Cadent, as well as NPg, supported the principle of using a single top-down totex regression model. NPg noted that it is good practice to use simple and transparent models in cost assessment. While we recognise that some circumstances may call for a more complex approach, we agree that it is generally best to adopt a simpler more transparent models for the reasons above. SGN and NGED disagreed with the use of a single top-down totex regression model but accepted the principle of using regression models as a central tool in cost assessment. …
>
> We note that our top-down totex regression model already captures the cost drivers of middle-up and bottom-up models through the CSV. Moreover, an advantage of using a single top-down totex model is that it does not require us to make judgements as to the best allocation of available funding between different areas of expenditure or about how much weight to place on the results of different models. A single top-down totex model is guided by the resource allocation choices made by companies. It is also better able to capture the trade- offs between capex, repex and opex. This was a point also made by NPg, which argues that this flexibility is essential in promoting cost efficiency and innovation. We also note that gas distribution is a mature and established industry, where different GDNs deliver comparable activities, that are well represented by our single totex model (as evidenced by its good statistical fit). Bottom-up and middle-up models would arguably be more appropriate for industries where there are greater differences between the activities performed by each company, which need to be modelled at a more granular level."

222. To assess notional efficient costs, GEMA identifies the average relationship between actual and forecast expenditure and cost drivers across GDNs, adjusted for catch-up efficiency. From a practical perspective, GEMA needs to make assumptions about the cost structure of the notionally-efficient company, in order to have a benchmark against which to assess each GDN's submitted costs. That is a balanced exercise of regulatory judgement concerning different methodological trade-offs.

223. The approach adopted by GEMA is to define the notionally-efficient company as reflecting the average industry cost structure over the period 2013/14 to 2030/31. Central to the decision to adopt this approach is GEMA's view that the gas distribution sector has been, and will continue to be, broadly comparable over time, given the type and mix of workloads that GDNs undertake. GEMA considers that the GDNs broadly deliver the same outputs and operate in similar markets.

224. GEMA identified seven different component cost drivers, each providing different information about the nature and characteristics of the network areas in which each GDN operates, the network assets each owns, and the amount of work each needs to do. SGN does not appeal the selection of cost drivers. They are summarised in Mayfield Table 16 as follows:

Cost driver adjustment	Driver type	Cost driver units	Cost category mapped to	Data inputs to define the driver
Repex synthetic costs	Workload	£m	Repex	Repex synthetic unit costs, repex mains lay and services workloads
Capex synthetic costs – connections	Workload	£m	Connections	Capex synthetic unit costs, connections workloads
Capex synthetic costs – reinforcement	Workload	£m	Reinforcement	Capex synthetic unit costs, reinforcement workloads
Emergency CSV	Scale & workload	#	Emergency	Customer numbers (80%), total external condition reports (20%)
Total external condition reports	Workload	#	Repair	Total external condition reports (i.e. report of gas leaks)
Modern Equivalent Asset Value (MEAV)	Scale	£m	Everything else	No. of assets on network and replacement unit costs for those assets
Maintenance MEAV	Scale	£m	Maintenance	Subset of no. of assets on network and replacement unit costs for those assets

225. The aim of the CSV is to bring these various metrics together into a single variable for use in the regression. The output figure is effectively an 'index' that seeks to explain the relative relationship between costs and costs drivers for each GDN: Mayfield 1 §301. To do that requires making a judgement on both the method to combine the various drivers, and the weighting of each individual cost driver.

226. The approach that GEMA adopted permits GEMA to test the efficiency of each GDN against a notional operator with a fixed cost structure across GDNs. GEMA recognises that in doing so it may theoretically be hypothesising that a GDN would be doing more of one activity and less of another compared to its forecast cost structure. However, this trade-off was considered to be acceptable and not unduly distortive because there is enough comparability in costs structures between GDNs in each price control period. To the extent that there are real regional, company-specific or workload differences between

GDNs, GEMA accounts for these through pre-modelling adjustments and/or within the cost drivers themselves, rather than through the specification of the totex model.

227. GEMA's modelling approach is described in Mayfield 1 §360. It uses a totex regression with a Cobb-Douglas functional form, and a multiplicative approach to combine the individual cost drivers into a single CSV. GEMA calculated the CSV by raising each cost driver to the power of its weight,[57] and multiplying them together to create a single CSV value, for each network for each year. Totex and the totex CSV are converted into their natural logarithms, to make the relationship between ln(totex) and ln(CSV) linear, to permit the regression to be estimated using OLS techniques. The approach results in 144 data points (18 years x 8 networks) which are used to estimate the regression.

228. GEMA explained its decision to adopt this approach in GD Final Determinations §§5.345, 348-351 as follows:

> "5.345 We have decided to retain our approach to determining the weights of each component within the totex CSV for RIIO-GD3. The weight of each CSV component, or cost driver, is calculated as the relative proportion of average industry submitted costs corresponding to the cost category associated with each cost driver, for the period 2013/14 to 2031/32 (actual costs up to 2024/25 and forecast costs from 2025/26 onwards). This is consistent with the idea that our totex regression model is seeking to determine efficient costs for a notional efficient company – with a cost structure equivalent to the industry average. We consider that our approach has a strong engineering and economic rationale, it is transparent and well understood by industry and is statistically robust. We also note that it is consistent with previous price controls. While alternative approaches are available, we find that they either depart from the idea of a notional efficient company, increase the risk of controlling for endogenous factors, or cannot be robustly implemented with the available data. …
>
> 5.348 SGN disagreed with our CSV weighting approach. It argued that our approach, which it noted implies benchmarking against a notional company, fails to recognise regional differences and legacy network configurations. SGN argued for what it called a 'bottom-up' CSV approach, which it claimed better reflects actual activity shares and regional needs. Specifically with respect to CSV weighting, SGN proposed that instead of using the average expenditure share for each cost category we instead use

[57] In other words, where repex synthetic costs had a weight of 39.4%, the CSV calculation for that driver would be: [repex synthetic cost]$^{0.394}$; where MEAV had a CSV weight of 37.0%, the CSV calculation for that driver would be: [MEAV]$^{0.37}$, and so on.

the median expenditure share amongst the seven GDNs. SGN did not provide a clear justification for why it considers that its median approach would provide a more appropriate representation of the cost structure of a notional efficient company.

5.349 We tested SGN's proposed CSV weighting approach and found that it resulted in a lower adjusted R^2, which indicates worse statistical fit. Moreover, we consider that there is a stronger economic and engineering rationale for our approach, as average industry weights are more representative of the notional efficient company. In a scenario where there was a highly skewed distribution in cost structures, the cost structure for the median company could be very different from the average cost structure and from the cost structure of the company at the extreme end of the distribution. Together with the fact that the median approach was not consulted on at DDs, and the support for our approach from the other three GDNs, we consider that it is more appropriate to continue to use our average weighting approach.

5.350 Two DNOs disagreed with our CSV weighting approach. One states that it introduces further endogeneity (implying that GDNs have a degree of control over their cost structure), which undermines the integrity of the benchmarking model (which is intended to capture only exogenous costs drivers, or cost drivers that are outside the control of GDNs). The other notes that fixed CSV weights imply that the average cost split is efficient for all networks. Both suggested estimating CSV weights statistically, for example through 'pre-regression', Bayesian Model Averaging, stepwise regression, LASSO, or Principal Component Analysis.

5.351 We have tested a number of alternative totex regression models and approaches to CSV weighting as part of RIIO-2 and in RIIO-3 (both before and after DDs). We have found that a major practical constraint to the use of more data-driven alternative model specifications, such as those proposed in the previous paragraph, is the relatively small number of data points available and hence the limited number of model parameters that can be robustly estimated statistically. This problem is compounded by collinearity between cost drivers. Taken together, these two factors mean that more complex and data-driven models typically perform worse in terms of statistical fit and/or produce illogical results (for example, negative coefficients). These practical constraints are a key reason for the use of a CSV in the first place, where the choice of constituent elements is rooted in engineering logic. We have found that the use of statistical methods to determine the composition and/or weight of the CSV produces results that are not sufficiently robust and which can contradict the underlying engineering rationale."

L2. Comparison with SGN's alternative approach

229. SGN's proposed alternative approach is described in Mayfield 1 §§361-364. SGN's approach uses the same cost drivers, and also calculates an outcome for each network in each year. It involves the following:

229.1. For a given activity, calculate the average 'unit cost' using total 2013/14 – 2030/31 data as cost category divided by cost driver, for each network. This gives a set of eight unit costs per activity (i.e. one per network).

229.2. For each activity, identify the median point from the range of the eight GDN's unit costs.

229.3. For each cost driver, multiply the industry median unit cost by the cost driver value.

229.4. Sum the products of step 3 together to arrive at the final value of the totex CSV.

229.5. Both totex and the totex CSV are converted into their natural logarithms when estimating the regression.

230. There are, therefore, material similarities between the two approaches (Mayfield 1 §§365-366):

230.1. SGN accepts the use of a Composite Scale Variable: in other words, SGN accepts the need to make assumptions about the industry 'average' cost structure. Both approaches are constructing some form of notional licensee: and a notional efficient licensee will not, by the very nature of being a notional construct, necessarily reflect the particular characteristics or attributes of any particular given GDN.

230.1.1. Both approaches rely on the same underlying data sets: cost data for the period 2013/14 – 2030/31 (i.e. 18 years' data). The data used is normalised in both models, i.e. data which takes into account exclusions (such as workload disallowances from engineering review), normalisations (e.g. regional factor adjustments for exogenous costs), and separate assessment (moving costs out of the regression to instead be assessed through non-regression approaches). Both approaches rely

on a combination of 11 years' historical data (2013/14 – 2023/24) and seven years' forecast data (2024/25 – 2030/31) to determine the industry averages.

230.2. Both approaches use data from all eight of the GDNs to determine the weights.

230.3. Both approaches apply a single set of weights which apply to every network across every year, when calculating the totex CSV. In both models, the CSV driver weightings serve the same underlying function, which is to determine the relative importance of each cost driver component in the totex CSV.

230.4. Both approaches use the same input values for the cost drivers.

231. As to the differences between the approaches (see Mayfield 1 §§367-374):

231.1. GEMA's approach calculates the mean, while SGN's approach uses the median, to determine average weightings. There are competing advantages and disadvantages to each approach. The advantage of using a mean is that it is a metric that considers every data point within the sample; however, it can be sensitive to outliers which can distort the average. The advantage of using a median is that it can provide a better representation of typical values in skewed datasets; however, it ignores most of the information contained within the dataset. In SGN's proposed approach, this means that the actual 'unit costs' for only two out of the eight networks are only ever being used for each cost activity.

231.2. In terms of CSV weights, GEMA's approach uses average industry cost shares, whereas SGN's approach uses median industry unit cost. The advantage of GEMA's approach is that it ensures that the entire dataset impacts the final weight of each individual cost driver component weighting, and that the notional company reflects the industry average. The consequence of SGN's approach is that the weight for each cost driver may be based on a different network's cost efficiency. The end result of the overall cost driver weights might not be representative of one that any reasonable notional company might achieve.

231.3. In terms of functional form, GEMA's approach uses the Cobb-Douglas function. This function relies on a multiplicative construction of the totex CSV, with the regression using a log of the CSV. It is, by definition, the product of the various

units, each raised to the power of their respective weights. The Cobb-Douglas functional form is easy to interpret and is flexible in terms of economies of scale, and is a widely-accepted approach in econometric cost modelling. SGN expressly supported the use of it in its Draft Determinations Response §441 (see Mayfield 1 §346(ii)). Instead, SGN's functional form uses an additive formulation to combine the individual cost driver components into the totex CSV, which is not strictly consistent with the use of a Cobb-Douglas function to represent totex. A further disadvantage of the additive form is that it can be harder to interpret when different cost drivers have different units.

232. GEMA was aware of competing advantages and disadvantages of different approaches to specification of the totex model. Indeed, GEMA used an approach akin to SGN's proposed CSV formulation in RIIO-ED2, and has consulted on using it in the context of RIIO-ED3. However, in the context of RIIO-ED2, it was used as part of a suite of totex and bottom-up models that were combined to arrive at efficient totex, representing a different context to that of RIIO-GD3: Mayfield 1 §374.

233. Given the material similarities between the two approaches, it is perhaps unsurprising that there is no material impact on totex across the GDNs dependent on the approach adopted. See Mayfield 1 §375 and Table 17, which indicates that the total industry difference is only 0.3%, and "*the difference in RIIO-GD3 allowances between SGN's approach and our FD approach for six networks, including SGN's Scotland network, is less than +/-0.5%*". SGN's Southern network is more sensitive to the choice of approach, reflecting a difference of around 2%. However, this does not mean that the model is distortive. Rather, it is reflective of the fact that SGN has cherry-picked this suggested methodological adjustment as an approach that works in its own financial interests for that particular network. That is far from demonstrating that the approach adopted by GEMA is "wrong" under any of the statutory grounds of appeal.

L3. The alleged errors made by GEMA

234. SGN's Notice §260 identifies three putative "*principal errors in GEMA's approach to CSV weights*". As with its Ground 1A, SGN does not expressly tie these putative errors to grounds of appeal under s.23D(4) (at SGN Notice §261 and §354). The three alleged errors are considered first, before turning to the grounds of appeal.

235. **Alleged Error 1A** is that *"GEMA's approach fails to reflect genuine differences between GDNs' cost structures"*. It is addressed at Mayfield 1 §§378-384. It is a curious allegation of an error, in circumstances where SGN's proposed remedy itself relies on a similar totex benchmarking approach to that applied by GEMA. The construction of a notional network is an abstract representation of a gas network based on an average view of the networks operating within the industry. The characteristics of the notional network will not exactly mirror those of individual networks. In practice, this means that the actual network is likely to have different operating, reporting and cost structures to the notional efficient network. Fundamentally, GEMA's view was that there existed sufficient stability and uniformity between what was required of each of the GDNs within the RIIO-GD3 period to justify the approach adopted. See, e.g., Mayfield 1 Figure 1, demonstrating that the overall cost structure of the GD industry has remained broadly stable over time.

236. Moreover, differences between GDNs <u>are</u> accounted for and taken into account by virtue of (i) pre-modelling regional factors and company-specific factors (see Mayfield 1 §31 and GD Final Determinations §5.68), and (ii) the underlying datasets used – those differences are not simply ignored. That is a matter that was tested and consulted on throughout the process prior to Final Determinations, as described at Mayfield 1 §§305-357. As explained in Mayfield 1 §42, where costs have drivers that vary significantly between GDNs, or are unique to a subset of GDNs and are therefore not suitable for inclusion in the regression model, GEMA uses non-regression benchmarking approaches (e.g. to model streetworks costs). For certain cost activities that are bespoke to individual GDNs, or where the nature of the work within an activity is highly GDN-specific, GEMA uses technical assessment.

237. **Alleged Error 1B** is that *"by applying average weights to cost drivers, its approach is logically inconsistent with the workloads it has approved (Error 1B)"*. This point is addressed at Mayfield 1 §§385-388. This allegation of error appears to be premised on a misunderstanding of what GEMA is doing when workloads are "approved". The inputs to the totex model are normalised costs, taking account of workload adjustments, and adjusted workload drivers (i.e. taking account of workload adjustments), consistent with the outcome of the engineering review process. These costs are allowed within the totex model. But those costs are <u>not</u> necessarily found to be efficient: see Mayfield 1 §§34-40. The costs assessment in the regression identifies efficient costs of the approved workloads: the notional operator is, by design, an abstraction of that data to the mean

average (just as SGN's preferred approach is an abstraction of that data to the median average) in order to determine the separate question of cost efficiency.

238. SGN's alternative remedy does not propose a different approach in this regard. SGN does not challenge the use of normalised costs or adjusted cost driver inputs within the model. There is thus, even on SGN's case, seemingly no 'error' to correct.

239. **Alleged Error 2** is that "*GEMA has placed undue weight on historical data and failed to account for exogenous, industry-wide changes to efficient cost structures*". It is addressed at Mayfield 1 §§389-392. Again, this is a curious allegation of an error in circumstances where SGN's proposed remedy uses the exact same dataset (18 years' data) to set the weights used to specify the totex CSV. These are applied the same across all years (historical and forecast) and all networks. It follows that SGN's remedy would place similar weight on historical data, and would allow for changes through time in similar ways to GEMA's approach.

240. Within the totex model, GEMA uses annual cost and cost driver data. The cost data was used both as the dependent variable in the regression (i.e. for each GDN), and also to determine the industry average weights used in the specification of the totex cost driver. By using the resulting 144 data points, i.e. one for each network in each year, GEMA incorporates changes in the share of costs through time, reflecting changes to the structural and operational characteristics of the network, and reflects these in the structure of the cost driver. Changes in company cost drivers through time are captured directly by the input data. Again, this key characteristic of the model is also found in SGN's proposed remedy.

241. Further, ahead of Draft Determinations, GEMA tested different options for specifying the totex CSV, which included approaches where totex CSV cost driver weights varied each year in accordance with the observed industry cost structure for the year in question. GEMA's conclusion was that such approaches led to models that were less statistically robust than the approach used at FDs, and some models which utilised company-specific or annual weights suffered from potential conceptual weaknesses of allowing increased endogeneity within the CSV cost driver: Mayfield 1 §§338, 391.

242. **Alleged Error 3** is that "*GEMA's reasons for adopting [its] approach to CSV weights, and rejecting SGN's proposed alternative approach are flawed*". Ultimately, SGN's reasons boil down to disagreement with GEMA's assessment of competing benefits and drawbacks

of different methodological approaches. The point is responded to at Mayfield 1 §393-403. GEMA's reasons are not "*flawed*" for the reasons explained in more detail above. Moreover, and as is apparent from reading GD Final Determinations, the reasons on which SGN relies (taken from GD Final Determinations §5.345 and 5.348) were not each addressed to a comparison between GEMA's approach and SGN's alternative approach, but were more generally addressing the reasons for GEMA having favoured its chosen model – it therefore does not follow (contrary to the way it is presented in SGN Notice) that each reason is a *"justification for rejecting SGN's approach"* (SGN Notice §326).

243. There is not one 'right' way to calculate a CSV. Each approach has advantages and disadvantages. But GEMA had strong and valid reasons for favouring its approach to CSV formulation:

243.1. As explained at §231.3 above, it was consistent with GEMA's preferred functional form for the totex model, which SGN is itself supportive of using.

243.2. It is simple, transparent, tested and supported by the other GDNs.

243.3. It is materially similar in numerous key respects to the alternative proposed by SGN, including as to the central concept of taking a measure of average from the same eight GDNs, over an 18-year period, across common cost driver input values, to determine a single set of weights which are applied to every network across every year when calculating the totex CSV. GEMA's decisions in this regard therefore cannot be said to be erroneous.

243.4. SGN's alternative approach had a (negligibly) lower R-squared value (0.907 compared to 0.910). That reinforces GEMA's conclusion that SGN's proposed approach does not improve the explanatory power or robustness of the totex modelling.

243.5. SGN relies, in the Frontier Costs Assessment Report, on a 'worked example', which is intended to show that its approach would result in a more accurate assessment of companies' relative efficiency. [redacted]

[redacted]

244. Nor is it right to assume that a single approach to calculating the CSV is appropriate for every sector. GEMA used a combination of different approaches in RIIO-ED2, and is consulting on a different approach from RIIO-GD3 for RIIO-ED3: Mayfield 1 §395. That in turn reflects the different features of the electricity distribution sector, including the greater degree of variance between licensed entities. At SGN Notice §§344-346, SGN seeks to rely on comments from the Independent Water Commission's Final Report to the effect that there were concerns about whether Ofwat's benchmarking had taken sufficient account of company-specific conditions. However, that report was not considering particular methodological differences in calculating a CSV; and it relates to the regulatory context of water, which has a more complex operating structure resulting in greater variation between the activities and outputs of each water company: Mayfield 1 §§400-401. It is therefore of no direct application to the question before the CMA on the present appeal.

L4. SGN's grounds of appeal

245. As addressed in §30 above, the question on appeal is not whether SGN – or indeed the CMA – might prefer a different approach to calculating a CSV, considering it to be in some generalised way "better". SGN must demonstrate that GEMA was wrong on one of the statutory grounds of appeal.

246. SGN seeks to do this in three ways in SGN Notice §§354-355. Each is without merit.

247. **First**, at SGN Notice §354(i), SGN contends that GEMA failed properly to have regard to, or give appropriate weight to, its statutory duties. As to this:

247.1. In its grounds of appeal, SGN does not clearly distinguish between the different tests under s.23D(4)(a) and (b). The test under s.23D(4)(a) is whether GEMA failed properly to have regard to its relevant statutory duties. That ground of appeal is distinct from a question as to weight under s.23D(4)(b). See the CMA's determination in the RIIO2 appeals at §§8.271-8.278, including that *"it is well established that any consideration by the court of compliance with a duty to "have regard" to a particular factor involves a review of the process and not the merits"* (citing R

(Pharmaceutical Services Negotiating Committee) v Secretary of State for Health [2018] EWCA Civ 1925) and "*In our view, the word 'properly' in section 23D(4)(a) merely confirms that the CMA must assess whether GEMA has taken sufficient steps to comply with that duty, correctly understood*". See also WWU [171]-[172], pointing out that there is no significance as between the statutory duty of "having regard" and "having due or proper regard".

247.2. As to s.23D(4)(a), GEMA is required properly/duly to have regard to the identified duties, and this ground of appeal permits the CMA to assess whether the decision is wrong because GEMA failed to do so. GEMA did have due regard to its statutory duties when formulating the approach to its calculation of totex: that is plain from the consultation carried out by GEMA and the terms of its Final Determinations cited above.

247.3. As to s.23D(4)(b), and the suggestion that GEMA was wrong because it did not give appropriate *weight* to its statutory duties, Parliament has not been in any way prescriptive as to the approach for GEMA to adopt in constructing a totex regression model, never mind the precise method by which the CSV is calculated. There are numerous different valid approaches with different advantages and drawbacks; GEMA carried out the balancing exercise recognising the benefits and drawbacks of different CSV approaches. In those circumstances, the CMA can be expected to show a high degree of deference to the granular exercises of regulatory judgement by GEMA in favouring its particular CSV model. SGN's alternative approach to calculating the CSV is not a "better" way *of weighting GEMA's competing statutory duties*, never mind a "materially better" way of doing so, and GEMA was not *wrong* in how it weighed those duties.

247.4. The relevant statutory duties relied on by SGN are characterised as the "*Consumer duty and financing duty*" and the "*Principles of best regulatory practice, including that regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed*". SGN Notice repeatedly frames the so-called "financing duty" as if it were a duty of outcome, to secure funding for any activity that SGN may wish to carry out: see SGN Notice §§66, 70, 73. However, as set out at §22 above, the statutory duty is that GEMA "*shall have regard to*" "*the need to secure that licence holders are able to finance the activities which are the subject of*

obligations by [relevant statutory requirements]". This is not a duty of outcome: WWU at [170]. It is a duty to have regard.

247.5. SGN contends that there has been a failure to have proper regard to, or give appropriate weight to, the consumer duty and financing duty because SGN has been "*underfunded*". That formulation begs the question "underfunded" against which metric? The very purpose of constructing the totex regression model is to formulate a way of assessing efficient costs which should be funded, and inefficient costs which are to the detriment of consumers and which should not be. There will be winners and losers in any selection between methodological approaches which result in non-identical outcomes, but the extent of the difference between GEMA's approach to calculating the CSV and SGN's approach is minimal across the sector: see §233 above.

247.6. The justification given as to why GEMA's approach is said not to have had proper regard, or give appropriate weight, to the principles of best regulatory practice is that *"GEMA's approach to CSV weights is inconsistent with its engineering assessment"* and "*GEMA applied the alternative approach in other comparable regulatory price controls, notably ED2 … and ED3*". The reason why these criticisms are without merit has already been addressed above. There is nothing inconsistent with conducting an efficiency assessment in respect of normalised costs (i.e. costs post engineering assessment). SGN's preferred approach uses the very same dataset. The fact that GEMA used a different approach in RIIO-ED2 and is consulting on using the different approach for RIIO-ED3 in fact demonstrates the careful and considered view taken to CSV dependent on the prevailing characteristics of the sector. The statutory duty requiring regard to the principles of best regulatory practice does not mandate that an identical approach be used in RIIO-GD3.

248. **Second**, at SGN Notice §354(ii), SGN contends that GEMA's decision failed to achieve the effect stated by GEMA to be intended by the decision.

248.1. The clearest exposition of GEMA's approach to the CSV is in GD Final Determinations §5.345, cited at §228 above. Even if it were appropriate to use such a comment for the purposes of s.23D(4)(d), GEMA's licence modification gives effect to this stated intention. SGN points to no basis on which GEMA has failed to achieve this stated intention.

248.2. SGN is driven instead to relying upon a sentence in the Sector Methodology Consultation (§5.1), in which GEMA referred to assessing a level of efficient costs to carry out "*their activities*": SGN Notice §258. This plainly is not an appropriate way to identify the stated intention of the licence modification for the purposes of s.23D(4)(d), not least where it is an early consultation paper. But in any event, that document accurately reflects GEMA's implemented approach. The *GDNs' activities* have been assessed, modelled, and funded on an efficient basis by reference to an assessment of efficient costs.

248.3. Again, SGN's ground of appeal is premised on a finding that GEMA has "*effectively underfund[ed] SGN to deliver workloads it deemed necessary*". But GEMA's approach has done no such thing. SGN's position appears to be premised on its confusion underlying "Alleged Error 1B", addressed above.

249. **Third**, at SGN Notice §354(iii) and §355, SGN contends that GEMA's decision in selecting its approach to calculating the CSV, as opposed to SGN's preferred approach, was "*wrong in law*". This is hopeless. It is said to arise on three bases.

249.1. First, it is said that GEMA acted irrationally in not using SGN's preferred approach. That is unarguable, and in any event can add nothing to the challenge as to weight identified above (given that it would need to meet a higher standard of challenge).

249.2. Second (in §354(iii)(b)), it is said that "*GEMA took account of irrelevant considerations, namely the average cost structure of the industry for setting the efficient allowances for companies to carry out "their activities"*". However, it is relevant and legally permissible for GEMA to have regard to the average cost structure (and indeed SGN does so itself in its own model, albeit using a different averaging technique).

249.3. Third (in §355), it is said that "*GEMA failed to give adequate consideration to, or place sufficient weight on relevant considerations, including that the cost structure of the "notional" company changes over time (due to industry-wide changes) and differs between companies (due to the workload which GEMA itself has approved which vary by region)*". That is not a stateable ground of challenge for something to be wrong in law. As a matter of law, weight is a question for the primary decision-maker, subject to

rationality review: Tesco Stores Ltd v Secretary of State for the Environment [1995] 1 WLR 759. So the formulation of the legal ground is simply unarguable. It is any event wrong on the merits for reasons explored above (see in particular §240 above).

250. Accordingly, each of SGN's grounds of appeal under s.23D falls to be dismissed. GEMA was not "wrong" in any of the ways alleged in adopting its preferred approach to calculation of the CSV.

M. CONCLUSION

251. The CMA is invited to dismiss the appeal grounds addressed in this Response.

252. If, contrary to the foregoing submissions, submissions on remedies are required, GEMA proposes that any submissions on remedies should be made following the CMA's Provisional Determinations.