

[NON-CONFIDENTIAL VERSION]

**NOTICE OF APPEAL
ENERGY LICENCE MODIFICATION**

SOUTHERN GAS NETWORKS PLC

Appellants

SCOTLAND GAS NETWORKS PLC

-and-

GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

RIIO-GD3 PRICE CONTROL

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4.	Exhibit FE1/2 to First Joint Expert Witness Statement of Matthew Roberts and Caitlan Russell, Frontier Economics on Totex Model Allowances
5.	First Expert Witness Statement of Matthew Roberts, Frontier Economics on Assessment of GEMA's Approach to Setting Ongoing Efficiency at RIIO-3 (" MR1 ")
6.	Exhibit MR1/1 to First Expert Witness Statement of Matthew Roberts, Frontier Economics on Assessment of GEMA's Approach to Setting Ongoing Efficiency at RIIO-3 (" Frontier OE Report ")
7.	Exhibit MR1/2 to First Expert Witness Statement of Matthew Roberts, Frontier Economics on Assessment of GEMA's Approach to Setting Ongoing Efficiency at RIIO-3
8.	First Witness Statement of Simon Kilonback, Chief Executive Officer, SGN (" SK1 ")
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12.	First Expert Witness Statement of Jeremy Deveney (Head of Engineering and Network Strategy) (" JD1 ")
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14.	First Witness Statement of Daniel Brennan, Head of Regulatory Finance, SGN (" DB1 ")
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1 Introduction

1.1 Overview

- (1) Southern Gas Networks plc (“**Southern**”) and Scotland Gas Networks plc (“**Scotland**”) (together “**SGN**” or the “**Appellants**”) are, respectively, the gas distribution network operators (“**GDNs**”) in the South of England and Scotland.
- (2) The Appellants each hold a distribution licence under section 7(2)(a) of the Gas Act 1986 (“**GA86**”) (the “**Licences**”).
- (3) This appeal concerns the determinations made by the Gas and Electricity Markets Authority (“**GEMA**”) in respect of SGN as part of the RIIO-GD3 price control process (setting Revenue and Incentives to deliver Innovation and Outputs – Gas Distribution).
- (4) The process will determine the terms of the pricing and services packages that GDNs across England, Wales and Scotland are expected to deliver over the course of the RIIO-GD3 price control period (which will operate from 1 April 2026 to 31 March 2031).

1.2 Request for permission to appeal

- (5) SGN seek permission under sections 23B(1) and (3) GA86 to bring an appeal (and, if permission is granted, to bring an appeal) against the decision of GEMA to proceed with modifications to the Licences published on 3 February 2026 (the “**Decision**”) under section 23(1) GA86.¹ These modifications give effect to the RIIO-3 price control, aspects of which are challenged in this Notice of Appeal.
- (6) SGN seek permission to bring this appeal in their capacity as relevant licence holders. Section 23B(2) GA86 provides that a relevant licence holder (within the meaning of section 23(10) GA86) may bring an appeal.
- (7) Under section 23(10)(b) GA86, the Appellants are holders of particular licences (as noted in paragraph (2) above) the conditions of which are to be modified pursuant to the Decision.
- (8) Accordingly, SGN have standing to bring this appeal. For the reasons developed below, the proposed grounds have (at least) a reasonable prospect of success.
- (9) SGN have endeavoured to provide all their facts, reasons, documentary evidence and witness statements with this Notice of Appeal. If permission to appeal is granted, however, it may be necessary for SGN to file further material, particularly following receipt of GEMA’s response.

1.3 Context and scope of appeal

1.3.1 The Appellants

- (10) SGN delivers natural gas and green gas to nearly six million homes and more than 188,000 businesses. SGN operates and maintains 75,276 km of gas pipes across Scotland and southern England. Recent data shows SGN’s network carried 129 TWh of energy, equivalent to over 40% of the UK’s total annual electricity demand.
- (11) SGN’s Southern network delivers gas to 4.2 million properties across the most densely populated parts of the UK, with 130,900 industrial and commercial (I&C) customers, and

¹ The various documents comprising the Decision are included in Exhibit SGN1 (SGN1_001 to SGN1_008).

includes 50,212 km of pipeline. The Southern area covers London's urban communities, coastal cities, county towns and rural villages.

- (12) SGN's Scotland network serves 1.8 million properties, including 57,700 I&C customers, across the largest geographic area of any UK gas network, and comprises 25,064 km of pipeline. The Scotland network spans major cities (Glasgow, Edinburgh) and remote regions with harsher weather.
- (13) For eight years in a row, Scotland has been the UK's number one gas network for customer service; Southern has improved from eighth to fifth. In GD2, SGN has consistently achieved a score of over 9 (on a scale of 10) for customer satisfaction across both networks. SGN leads the industry with the lowest complaints per 10,000 customers in RIIO-GD2, with the Scotland network averaging 1.7 and Southern network 3.4 complaints per 10,000 customers.
- (14) In response to customer and stakeholder ambitions on taking action to tackle climate change, SGN connected the UK's first biomethane connection (being a form of 'green gas', i.e., a clean fuel helping the UK achieve net zero emissions) to its network in 2020. This represented an important milestone in the development and provision of renewable energy in the UK. Today, SGN has the capacity to supply the equivalent of 323,000 households with biomethane.

1.3.2 Context

- (15) On 11 December 2024, SGN submitted an ambitious RIIO-GD3 business plan for the period 1 April 2026 to 31 March 2031, focusing on the core expenditure necessary to maintain a safe and reliable network, meet SGN's corporate and statutory objectives, and deliver the best value for money for consumers. The plan was shaped by SGN's most extensive engagement to date, drawing on insight from more than 11,000 engagements across domestic customers, SMEs, future customers, and local, regional and national stakeholders.² Reflecting customers' and stakeholders' priorities, SGN's plan placed particular emphasis on providing customers with high-quality service, maintaining a safe, secure and resilient supply of gas, delivering system efficiencies and long-term value for money, and support a low-cost transition to net zero, including through the increased deployment of biomethane.³
- (16) GEMA's aim for RIIO-3 is to unlock the investment needed to deliver secure uninterrupted supply of energy to consumers, whilst controlling costs to maximise value and protect consumers and developing a network that is environmentally sustainable.⁴ GEMA has approved £14.8bn of baseline total expenditure allowances ('totex') for gas networks (up £2bn from Draft Determinations). This represents a £2.25bn reduction compared with GDNs' submitted Business Plans. This is a downward adjustment to SGN's totex allowance by 16% against an average cut of 13% across the sector.⁵ GEMA considers that this provides a credible overall package that allows for necessary investments to be made at a fair cost to consumers.⁶

² SGN GD3 Business Plan, page 3. (SGN1_019)

³ SGN GD3 Business Plan, page 5. (SGN1_019)

⁴ FD Overview, pages 9 to 11. (SGN1_009)

⁵ GD Annex, Table 15. (SGN1_010)

⁶ FD Overview, page 10. (SGN1_009)

- (17) GEMA has made a number of methodological errors in setting final allowances for RIIO-GD3, including applying assumptions that do not reflect the operational reality facing SGN today. This is despite the robust engineering evidence provided to GEMA in SGN's Business Plan submission and throughout the RIIO-3 process. While SGN has identified a range of unsatisfactory outcomes that could be raised in this Notice of Appeal, SGN has in the time available focused on three clear errors, which are capable of remedy by the CMA.
- (18) The first set of errors relates to issues with the totex model allowances which materially underfund SGN's delivery of safety-critical workloads to meet its statutory obligations in GD3. GEMA's decision to overwrite SGN's Tier 1 Mains repex forecasts by applying an industry-wide normalisation is a heavy-handed approach that arbitrarily reduces its allowances, despite no issues being identified with its submitted forecasts. Further, GEMA's use of a single totex regression model with uniform "composite scale variable" weights fails to reflect operational reality. The approach disregards workloads that GEMA has approved as part of its engineering process and requires SGN to deliver during GD3.
- (19) Additionally, GEMA has incorrectly set the OE parameter at 1% per annum. This is incompatible with the prevailing macro-economic backdrop, which shows overwhelming evidence of a persistent and sustained productivity slowdown in the UK over 15 plus years. A 1.0% parameter requires GDNs to achieve productivity growth at materially higher rates than both sustained outturn data and independent forecast data. This conclusion is not justifiable at RIIO-3.
- (20) Stepping back, as a result of applying econometric modelling, assumptions and reasoning that are disconnected from engineering evidence, GEMA's proposed funding package for the GD3 price control period underfunds SGN. SGN considers that GEMA has failed to properly take into account the long-term detrimental impacts on consumers arising from inadequate funding to deliver a safe and reliable gas network at an affordable cost. GEMA has therefore failed to place appropriate weight on its principal objective and the performance of its statutory duties.

1.3.3 Scope of appeal

- (21) SGN has focused their appeal on two discrete topics. The grounds of appeal (summarised in in Section 2) are:
- (i) **Ground 1: Totex Model Allowances**
 - (a) **Ground 1A:** Overwriting of Tier 1 Mains repex forecasts;
 - (b) **Ground 1B:** Composite Scale Variable ("**CSV**") Weights; and
 - (ii) **Ground 2: Ongoing Efficiency ("**OE**").**
- (22) SGN believes that GEMA's Decision in respect of these grounds is wrong, has a material impact on SGN and raises important points of principle and regulatory precedent.

1.4 Key documents

- (23) SGN has provided written evidence for this appeal, principally in the form of the Witness Statements and accompanying exhibits, as set out in the **Index of Written Evidence** on page 1.

- (24) GEMA’s reasoning for the Decision is contained primarily in the following documents, which (together with certain other supporting materials) comprised GEMA’s Final Determinations (“FD”):⁷

Ground	Core GEMA FD documents
Ground 1A (Overwriting of Tier 1 Mains repex forecasts)	1. RIIO-3 Final Determinations – GD Sector Annex dated 3 February 2026 (“ GD Annex ”) (para. 5.314-5.329) ⁸
Ground 1B (CSV Weights)	1. GD Annex (Para 5.344-5.352) 2. RIIO-3 Final Determinations – SGN Sector Annex dated 3 February 2026 (“ SGN FD Annex ”) (para. 5.10) ⁹
Ground 2 (OE)	1. RIIO-3 Final Determinations – Overview Document dated 3 February 2026 (“ FD Overview ”) (para. 3.11, particularly sections 8.20-8.61) ¹⁰ 2. GD Annex (para. 2.12)

1.5 Contact details

1.5.1 Appellants

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Scotland Gas Networks PLC (company number SC264065)

1.5.2 Appellants’ address for receipt of documents

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⁷ The RIIO-3 licence was published on the 3rd February, the Final Determination was re-published on the 16th Feb, the date on the republished Final Determination document remained as the 4th December.

⁸ GD Annex. (SGN1_010)

⁹ SGN Annex. (SGN1_011)

¹⁰ FD Overview. (SGN1_009)

2 Summary of Grounds of Appeal and Relief Sought

2.1 Overview

- (25) Section 23D(4) GA86 states that the CMA may allow an appeal where it is satisfied that the decision appealed against was wrong on one or more of the following grounds:
- (i) GEMA failed properly to have regard to any matter mentioned in subsection (2) (Principal Objective and General duties);
 - (ii) GEMA failed to give the appropriate weight to any matter mentioned in subsection (2);
 - (iii) the decision was based, wholly or partly, on an error of fact;
 - (iv) the modifications fail to achieve, in whole or in part, the effect stated by GEMA by virtue of section 23(7)(b); or
 - (v) the decision was wrong in law.

2.2 Ground 1: Totex Model Allowances

- (26) GEMA applied an industry-wide pre-modelling adjustment to all GDNs' Tier 1 mains repex forecasts to correct issues with NGN and Cadent mains laid forecasts, which showed a material shift from smaller diameter to larger diameter mains bands, without a clear engineering or economic justification. GEMA overrides each GDN's own repex forecast mix by applying a novel adjustment that uses WWU's decommission-to-lay assumption with each GDN's own technique assumptions.
- (27) **(Ground 1A)** SGN contends GEMA erred in two respects in relation to overriding GDNs' Tier 1 Mains repex forecasts by:
- (i) **Error 1:** Applying its "normalisation adjustment" to GDN repex forecasts which, in the case of SGN, was flawed, unnecessary and disproportionate; and
 - (ii) **Error 2:** Misapplying the adjustment and failing to fully "normalise" SGN repex forecasts, by applying a 'mix and match' approach to assumptions (i.e., combining WWU decommission-to-lay assumptions with SGN-specific technique assumptions).
- (28) **(Ground 1B)** Separately, GEMA has made the following errors in relation to CSV weights:
- (i) **Error 1:** GEMA's approach fails to reflect genuine differences between GDNs' cost structures, **(Error 1A)** and, by applying average weights to cost drivers, its approach is logically inconsistent with the workloads it has approved **(Error 1B)**.
 - (ii) **Error 2:** GEMA has placed undue weight on historical data and has failed to account for exogenous structural changes to spending.
 - (iii) **Error 3:** GEMA's reasons for adopting its top-down method and rejecting SGN's proposed bottom-up method are flawed.

2.3 Ground 2: Ongoing Efficiency

- (29) SGN contends that GEMA has erred in imposing an OE parameter of 1.0%. The available evidence does not support an OE rate of 1.0%, which is inconsistent with the prevailing macro-economic backdrop and GEMA's reasoning is flawed.

- (30) More specifically, SGN contends that GEMA has erred in the following respects:
- (i) **Error 1:** GEMA erred in setting a 1.0% OE parameter that is incompatible with the rate of UK productivity improvement since 2008 and/or is incompatible with and misinterprets recent, independent forecasts. SGN notes that:
 - (a) a 1.0% parameter is incompatible with the past and future evidence of the UK's sustained and ongoing structural productivity weakness; and
 - (b) GEMA's consideration of future forecast-data has been based on incorrect, misinterpreted and incomplete data.
 - (ii) **Error 2:** GEMA's expectation that gas networks are insulated from and therefore can outperform materially the economy wide slowdown is not supported by the evidence and is based on flawed reasoning.
 - (iii) **Error 3:** 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 notes that:
 - (a) GEMA's reasoning that 0.7% is the minimum plausible OE level that all networks can be expected to achieve is based on a single data point and is demonstrably flawed
 - (b) GEMA's 1.3% upper bound is incompatible with recent outturn and forecast data, and on its own DD reasoning, is not "reasonable"; and
 - (c) GEMA has effectively "aimed up" in setting its "narrow plausible" range, such that its "midpoint" in fact materially exceeds the upper bound considered credible by economic experts and data.
 - (iv) **Error 4:** GEMA's assertion that qualitative factors support a 1.0% OE assumption is unevicenced and is based on flawed reasoning.
 - (v) **Error 5:** GEMA has erred by disproportionately decreasing allowances by setting a higher OE on the basis that the OE should be applied to stretch and incentivise companies to deliver productivity improvements
- (31) Across Ground 1 and Ground 2, for the reasons set out in this notice, SGN submits that GEMA's conclusion on OE is wrong within the meaning of Section 23D(4) GA86.
- (32) In particular, SGN submits that:
- (i) GEMA's decision was wrong as a matter of law within the meaning of Section 23D(4)(e) GA86.
 - (ii) GEMA's decision was based wholly or partly on errors of fact within the meaning of Section 23D(4)(c) GA86.
 - (iii) GEMA has failed to achieve its stated effect within the meaning of Section 23D(4)(d) GA86.
 - (iv) GEMA failed, within the meaning of Section 23D(4)(a) and (b) GA86 to have due regard/give appropriate weight to the performance of its duties under Section 4AA(1-1A), (2), (5) and (5A) GA86.

2.4 Relief sought

- (33) SGN request that the CMA quash GEMA's Decision under Section 23E(2)(a) GA86 and substitute its own decision under Section 23E(2)(c) GA86 to the extent necessary to remedy the errors in the Decision as outlined in this Notice of Appeal.
- (34) The specific relief sought is explained in Sections 4 and 5 below and set out in SGN1_072. SGN will provide all such assistance to the CMA as is necessary to secure the implementation of any required relief within the CMA's administrative timetable.

3 Section 3: Legal Principles

3.1 Overview

- (35) In this Section, SGN identify the statutory framework that governs this appeal under the GA86.
- (36) This Section has three parts:
- (i) First, SGN refer to the statutory mechanism for the modification of licence conditions.
 - (ii) Second, SGN identify the statutory grounds of appeal.
 - (iii) Third, SGN identify the standard of review to be applied in determining whether to allow this appeal.
- (37) SGN have included this Section to explain the requirements that they understand will apply under the statutory framework, and to assist the CMA by providing context for their case.

3.2 Modification of licence conditions

- (38) GEMA has the power under section 7(2)(a) GA86 to “grant a licence authorising any person... to convey gas through pipes to any premises in an authorised area of his...”
- (39) GEMA further has the power to “make modifications of ... (a) the conditions of a particular licence” under section 23(1) GA86.
- (40) The Decision was made under section 23(1) GA86 following the publication of the FD and the close of the subsequent licence modification consultation.

3.3 Statutory appeals to the CMA

3.3.1 Right of appeal

- (41) Section 23B(1) GA86 states that:
- “An appeal lies to the CMA against a decision by [GEMA] to proceed with the modification of a condition of a licence under section 23.”*
- (42) An appeal may be brought by a “relevant licence holder” and certain other persons or bodies (section 23B(2) GA86). SGN are both “relevant licence holders” as defined in section 23(10) GA86, as the holders of the Licences.

3.3.2 Appeals process

- (43) Appeals are governed by the Energy Licence Modification Appeals: Competition and Markets Authority Rules (2022). Rule 4.1 provides that “[t]he overriding objective of [the] Rules is to enable the CMA to dispose of appeals fairly, efficiently and at proportionate cost within the time periods prescribed by the Acts.”
- (44) The CMA has also published guidance to assist appellants, namely the Energy Licence Modification Appeals: Competition and Markets Authority Guide (2022).
- (45) The CMA is required to determine an appeal against a price control decision within six months of the permission date (extendable to seven months on the application of a party).¹¹

¹¹ GA86, ss. 23F(1)-(4).

- (46) Appeals are usually determined by a group constituted by the chair of the CMA under Schedule 4 to the Enterprise and Regulatory Reform Act 2013.¹²

3.3.3 Permission to appeal

- (47) Section 23B(3) GA86 states that:

“The permission of the CMA is required for the bringing of an appeal under this section.”

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

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

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

- (49) GEMA has 10 working days from receipt of the application for permission to appeal to make representations on the application.¹³

- (50) Permission to appeal is determined by an *“authorised member of the CMA”*.¹⁴ Such a decision must be taken within 10 working days of GEMA’s representations on permission to appeal, or, in the absence of such representations, within 14 working days of receipt of the application for permission.

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

3.3.4 Relevant matters

- (52) Section 23D(3) GA86 states that *“in determining the appeal the CMA:*

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

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

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

3.3.5 Legal test on appeal

- (54) Section 23D(4) GA86 states that:

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

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

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

¹² GA86, s.23C(2A).

¹³ GA86, Sch 4A, para 3(2).

¹⁴ GA86, Sch 4A, para 1(8).

- (c) *that the decision was based, wholly or partly, on an error of fact;*
 - (d) *that the modifications fail to achieve, in whole or in part, the effect stated by the Authority by virtue of section 23(7)(b);*
 - (e) *that the decision was wrong in law.”*
- (55) These five grounds are considered in further detail below.
- (i) **Section 23D(4)(a) GA86: GEMA failed properly to have regard to the matters mentioned in section 23D(2) GA86**
- (56) The matters referred to in section 23D(2) GA86 are GEMA’s carrying out of its principal objective and the performance of its duties under sections 4AA, 4AB and 4A GA86.
- (57) The key obligations imposed by these sections are considered below.
- (a) **The principal objective**
- (58) Section 4AA(1) GA86 states that:
- “The principal objective of the Secretary of State and [GEMA] in carrying out their respective functions under this Part is to protect the interests of existing and future consumers in relation to gas conveyed through pipes”.*
- (59) Section 4AA(1A) GA86 adds that:
- “Those interests of existing and future consumers are their interests taken as a whole, including—*
- (a) *their interests in the Secretary of State’s compliance with the duties in sections 1 and 4(1)(b) of the Climate Change Act 2008 (net zero target for 2050 and five-year carbon budgets);*
 - (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.”¹⁵*
- (60) Section 4AA(1) GA86 makes it clear that it is referring to both existing and future consumers, and it is clear that “consumers” in this context includes end users of gas.
- (61) The practical implications of the duty to protect the interests of consumers were considered in *NPG (2015)*. In its final determination in that case, the CMA stated that:
- “the importance of [a] policy goal cannot, in our view, negate the need for decisions [in] the price control to be justified and supported adequately by reasoning and evidence”¹⁶*

¹⁵ Section 4AA(5A) GA86 defines designated regulatory functions by reference to Article 40(c) to (h) of Directive 2009/73/EC (the “**Gas Directive**”) modified so as to require GEMA to, among other things, (1) eliminate restrictions on trade in natural gas including enabling the development of appropriate cross-border transmission capacities to meet demand, (2) promote system adequacy and energy efficiency, (3) promote the integration of large and small scale production of gas from renewable energy sources and distributed production in both transmission and distribution networks, (4) facilitate access to the network for new production capacity, in particular removing barriers that could prevent access for new market entrants and of gas from renewable energy sources, and (5) help to ensure consumer protection and achieve high standards of public service contributing to the protection of vulnerable customers.

¹⁶ *NPG (2015)*, para. 132 (SGN1_038).

and

“we considered carefully our duty to protect the interests of consumers. We do not consider that this duty requires us to uphold, or permitted GEMA to introduce, a significant change in approach that was inadequately justified.”¹⁷

- (62) In *Firmus (2017)*, meanwhile, the CMA observed that it “*would expect assumptions that are major drivers of the price control to be based on robust evidence*”. It found, in relation to the so-called non-additionality rate that the evidence submitted by the Northern Ireland Authority for Utility Regulation (“UR”) did “*not support its decision*” and that there was a “*significant lack of rigour*” in the approach the UR had taken. This meant that the UR had contravened its principal objective as well as “*its [other] statutory duties and the stated effect in the GD17 Decision*”.¹⁸
- (63) The High Court has also recently noted that “*it is difficult to see how ‘their interests of existing and future consumers’ can be protected if the interests of each licence holder to be able to finance its activities is not considered*”, noting that if a licence holder cannot finance its activities “*that is likely to have an impact on the interests of consumers, including their interests in the security of the supply of gas to them*”.¹⁹
- (64) The principal objective is not properly upheld by underfunding delivery of necessary workloads to deliver for customers, or making material cuts to allowances based on flawed or unevicenced reasoning (see Ground 1A paras. (156), Ground 1B paras. (354), Ground 2 paras. (473)).

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

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

“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...”

- (66) SGN note that the reference to the need to “secure” that such demands are met. This is necessarily an onerous test, since GEMA has to ensure that GDNs are not only able to ensure availability of gas, but also secure that they are delivered to an appropriate standard of quality and continuity. Paragraph (62) above is repeated.
- (67) This need is not met where assumptions applied to networks would compromise a network’s ability to maintain safe and reliable supply to its customers (Ground 1A, para. (156)).

(c) The need to secure that licence holders are able to finance their regulated activities (the “Financing Duty”)

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

“the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed by or under this Part, the Utilities Act 2000, Part 5 of the Energy Act 2008 or section 4, Part 2, or sections 26 to 29 of the Energy Act

¹⁷ *NPG (2015)*, para. 141 (SGN1_038).

¹⁸ *Firmus Energy (2017)*, paras 5.146-5.147 (SGN1_036).

¹⁹ *WWU v CMA (2026)*, paras. 161, 169-170. (SGN1_030)

2010 or Chapter 1 of Part 2, Chapters 2 and 3 of Part 4 and sections 245 to 247 of the Energy Act 2023.”

- (69) The High Court has confirmed that “*this duty requires regard to be had to the need of each licence holders, and not just licence holders as a collective or group, to be able to finance their activities*” and, as above, has observed that it is difficult to see how the principal objective to consumers can be protected if “*the interests of each licence holder to be able to finance its activities is not considered*”.²⁰
- (70) Section 4AA(2)(b) GA86 applies in this appeal because the Decision is in relation to activities which are the subject of obligations imposed “*under this Part*” – that is, Part 1 GA86. Again, the reference to the need to “*secure*” that licence holders are able to finance their regulated activities implies an onerous test.
- (71) In *SONI (2017)*, the CMA found numerous breaches of the financeability duty.²¹ For example, it observed that:

*“if asymmetric risks result from a framework under which SONI faces considerable risk of not recovering its efficiently incurred costs without it being compensated for these risks, in our view this would not be consistent with UR’s duty to ensure SONI’s financeability”;*²²

and

*“we consider that the Dt mechanism as presently specified results in significant uncertainty for SONI and is sufficiently unworkable that it is not consistent with the UR’s duty to secure SONI’s financeability”.*²³

- (72) It follows, therefore, that section 4AA(2)(b) GA86 requires GEMA to not only set adequate cost of capital allowances, but also sufficient allowances to cover other costs. Moreover, GEMA acts inconsistently with this duty when it relies on erroneous data, and when it relies on methodologies that lack sufficient rigour/robustness and create unwarranted asymmetric risks and uncertainty.
- (73) The Financeability Duty is not properly upheld by underfunding delivery of necessary (and approved) workloads to deliver for customers, or making material cuts to allowances based on flawed or unevidenced reasoning (see Ground 1A paras. (155), Ground 1B paras. (352) and Ground 2 paras. (471)).

(d) Promoting efficiency and economy

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

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

²⁰ *WWU v CMA* (2026) at paras 161, 169-170. (SGN1_030)

²¹ See *SONI* (2017), Ground 1, errors 1(a), (b) and (c); Ground 2, errors 2 and 6; Ground 3, errors 10 and 11 (SGN1_037).

²² *SONI* (2017), para. 6.220. (SGN1_037)

²³ *SONI* (2017), para. 6.241. (SGN1_037)

(75) SGN note that the language “*the manner in which [GEMA] considers is best calculated*”, while it suggests a less onerous test than that provided for in those provisions which refer to the need to “*secure*”, nonetheless requires GEMA to meet high standards. When faced with a range of possible approaches to an issue, GEMA’s obligation is to act in the manner “*best calculated*”. Accordingly, its margin of appreciation does not extend to choosing an approach where there is another “*materially better*” available choice.

(76) Paragraph (62) above is repeated again. The CMA in *Firmus (2017)* also observed that:

*“[B]y setting OO connection targets on the basis of incorrect data (Ground 2A) and/or by setting the OO 25% non-additionality rate on a basis that has been so fundamentally undermined that it cannot stand (Ground 2B), the GD17 Decision on the connection incentive was wrong on the [grounds that] ... (c) the UR failed properly to have regard to and/or to give appropriate weight to its statutory duty to promote the efficient use of gas and efficiency and economy in the conveyance, storage or supply of gas”.*²⁴

(77) The efficiency duty is not upheld by failing to allow efficient recovery of costs without proper justification (see Ground 2 para. (470)).

(e) Best practice regulation (the “Best Practice Duty”)

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

(a) *the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed; and*

(b) *any other principles appearing to him or, as the case may be, it to represent the best regulatory practice”.*

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

(i) the Parliamentary and Health Service Ombudsmen’s Principles of Good Administration document (the “**Principles of Good Administration**”);²⁵

(ii) the Department for Business, Energy & Industrial Strategy Principles for Economic Regulation document (the “**Principles for Economic Regulation**”);²⁶ and

(iii) the Better Regulation Taskforce’s Principles of Good Regulation document (the “**Better Regulation Framework**”).²⁷

(80) Pursuant to the Principles of Good Administration, public bodies are expected inter alia:

(i) to seek to get things right by “*acting in accordance with the law and with regard for the rights of those concerned*”, “*acting in accordance with [their own] policy and guidance (published or internal)*”, “*taking proper account of established good*

²⁴ *Firmus Energy (2017)*, para. 5.154(c). (SGN1_036)

²⁵ The Principles of Good Administration represent a strong set of guidance that, though not legally binding, outlines a set of standards that all public bodies should seek to abide by. (SGN1_039)

²⁶ The Principles for Economic Regulation. (SGN1_040)

²⁷ The Better Regulation Framework. (SGN1_041)

practice” and “*taking reasonable decisions, based on all relevant considerations... and ignor[ing] irrelevant ones*”; and

- (ii) to act fairly and proportionately by “*ensur[ing] that the measures taken are proportionate to the objectives pursued [and] appropriate in the circumstances*” and ensuring generally that “*decisions and actions are proportionate, appropriate and fair*”.
- (81) The Principles for Economic Regulation stipulate (among other things) that:
- (i) regulators “*should provide a stable and objective environment enabling all those affected to anticipate the context for future decisions and to make long term investment decisions with confidence*”;
 - (ii) regulators “*should not unreasonably unravel past decisions, and should allow efficient and necessary investments to receive a reasonable return, subject to the normal risks inherent in markets*”; and
 - (iii) interventions “*must be proportionate and cost-effective*” while “*decision making should be timely, and robust*”.
- (82) The Principles for Economic Regulation also refer (among other things) to:
- (i) the need to ensure that regulators “*deliver desired outcomes in the least burdensome way... imposing requirements only where necessary*”; and
 - (ii) the need to ensure that “*parties are able to challenge decisions taken by regulators through an appropriate and proportionate mechanism to an independent third party*”.
- (83) The Better Regulation Framework, finally, seeks to ensure “*that government regulates only where necessary*” and “*that government regulation is proportionate and is used only where alternative, non-regulatory approaches, will either not achieve the desired policy outcomes or will achieve them at disproportionate cost*”.
- (84) More generally, in *E.ON*, the Competition Commission (“**CC**”) found that GEMA had erred in its decision on the basis that it failed properly to have regard to the principle that regulatory activities must be transparent. This was because GEMA’s decision “*was not expressed in sufficiently clear and transparent terms*”.²⁸ It follows that section 4AA(5A) GA86 requires GEMA to express decisions in terms that are clear both as to the substantive effect that is proposed and the reasoning underpinning that decision.
- (85) The best practice principles are not upheld by employing disproportionate reductions, failing to consult in an appropriate manner, or applying flawed reasoning that creates perverse incentives and unjustified inconsistencies in approach (see Ground 1A para. (246), Ground 1B para. (351) and Ground 2 para. (470)).
- (ii) **Section 23D(4)(b) GA86: GEMA failed properly to give appropriate weight to the matters mentioned in section 23D(2) GA86**
- (86) GEMA will have failed to give appropriate weight to the obligations set out above where it has given insufficient or excessive weight to any of its obligations. The CC’s interpretation of the corresponding ground in *E.ON* is expressed similarly:

²⁸ *E.ON UK* (2007), para. 7.14. (SGN1_042)

*“In relation to section 175(4)(c), it is important to note the precise language of that section. Section 175(4)(c) provides that a decision may be wrong on the grounds that GEMA failed to give the appropriate weight to one or more of the matters or purposes referred to in subparagraphs (a) and (b). Subparagraph (c) is therefore concerned with the weight given by GEMA to the relevant matters and purposes.”*²⁹

(87) Accepting that there is “*an element of judgment or evaluation*”³⁰ to GEMA’s approach to its duties for the purposes of section 23D(4)(a) and 23D(4)(b) GA86, the High Court recently observed that the CMA is called upon “*to do more than assess whether GEMA has acted rationally*” and must ultimately make its own assessment of what is “*proper*” regard and the “*appropriate*” weight.³¹

(88) Further, the CMA must be cautious not to afford too much deference to GEMA. The question is not whether the alternatives advanced by the appellants are “*clearly superior*”,³² but whether these alternatives meet a lesser threshold. In Sheldon J’s words, all that is required for the CMA to find that GEMA was “*wrong*” is (emphasis added):

*“the alternative approach is ‘materially’ better than GEMA’s approach: that is, the alternative approach is one which, weighing up the pros and cons of the different approaches, offers something more than GEMA’s approach.”*³³

(89) These duties are not upheld where GEMA has failed to give appropriate weight to the required matters through or resulting in underfunding of key works and unevidenced allowance reductions, failure to allow recovery of efficient costs without proper justification, and the deployment of disproportionate, inconsistent or poorly targeted cost reductions and processes (see Ground 1A para. (261), Ground 1B para. (350), Ground 2 para. (469)).

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

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

“a clear jurisdiction in respect of factual errors, and we will exercise that jurisdiction where we conclude that GEMA has based its decision on a plain error of fact”.³⁴

(91) The High Court recently confirmed³⁵ that, in assessing whether there is an error of fact, the CMA will be guided by the test set out in *E v Secretary of State for the Home Department*:³⁶

“First, there must have been a mistake as to an existing fact, including a mistake as to the availability of evidence on a particular matter. Secondly, the fact or evidence must have been ‘established’, in the sense that it was uncontentious and objectively verifiable. Thirdly, the appellant (or his advisers) must not have been

²⁹ *E.ON UK (2007)*, para. 7.16. (SGN1_042)

³⁰ *WWU v CMA (2006)* at paras. 145-149. (SGN1_030)

³¹ *WWU v CMA (2006)* at para. 151. (SGN1_030)

³² *CMA RIIO-2 FD Vol 2*, para. 3.43. (SGN1_026)

³³ *WWU v CMA (2006)* at para. 158. (SGN1_030)

³⁴ *E.ON UK (2007)*, para. 5.16 (SGN1_042). See also *CMA RIIO-2 FD Vol 2*, para 3.69 (SGN1_026); *Northern Powergrid (2023)*, para. 3.55 (SGN1_044); *H7 (2023)*, para. 3.31-3.32 (SGN1_045); *Utilita (2024)*, paras. 3.44-3.45 (SGN1_046).

³⁵ See *WWU v CMA (2006)* at para. 142. (SGN1_030)

³⁶ *E v Secretary*, para. 66. (SGN1_047)

responsible for the mistake. Fourthly, the mistake must have played a material (not necessarily decisive) part in the tribunal's reasoning."

(92) In the RIIO-ED1 appeals, the CMA adopted the CC's reliance on the Court of Appeal's decision in *Assicurazioni Generali Spa v Arab Insurance Group*³⁷ where an arguable error of fact is alleged, the court must "*determine whether or not this is so.*" Accordingly, "*it is for us if necessary to make up our own mind about the correctness or otherwise of any findings of primary fact or inference from primary fact that the judge made or drew and which the claimants challenge.*"³⁸

(93) In the RIIO 2 appeals, the CMA noted that "*if we find that the Decision is based on a plain error of fact..., there is no room for a margin of appreciation.*"³⁹

(94) Consistent with this, the CMA held in *SONI (2017)* that the UR's failure to address errors in the calculation of the inflation adjustment arising from the use of incorrect data amounted to an error of fact.⁴⁰ Calculation errors were notably also considered by the CMA in *Firmus (2017)*. In that case, the CMA observed that the fact that there might be "*no single, correct value*" for a given target or parameter would not preclude it from finding that the UR had made a calculation error.⁴¹ The CMA then went on to state that:

*"In our view, as a point of regulatory principle, such data errors (and ensuing calculation errors) when making important decisions should generally be corrected. We would expect the UR to accept this as a matter of principle."*⁴²

(95) This approach is followed in practice. Thus, in the RIIO 2 appeals, GEMA conceded that it had made an error of calculation in relation to NGN.⁴³ The CMA accordingly allowed the appeal "*on the statutory ground that it was based wholly or partly on an error of fact*" and amended the price control accordingly.⁴⁴

(96) Errors in the use and application of data can also amount to an error of fact. Thus, in the RIIO 2 appeals, GEMA wrongly included large, atypical local transmission service rechargeable diversions projects in the economic regression model when these costs could not adequately be controlled for. The modelling was thus distorted and the results of the modelling were "*based wholly or partly on an error of fact*".⁴⁵

(97) Errors of fact are committed where data is incorrect or incorrectly interpreted, or where incorrect assumptions or classifications of GEMA's approach are made (see Ground 1A para. (261) and Ground 2, para. (473)).

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

(98) Under section 23(7)(b) GA86 GEMA must include in its decision to proceed with the making of licence modifications a statement regarding the effect of the modifications. Should those

³⁷ *Assicurazioni Generali Spa v Arab Insurance Group* (2003). (SGN1_050)

³⁸ *BGT* (2015), para. 3.30. (SGN1_051)

³⁹ CMA RIIO-2 FD Vol 3, para. 3.72. (SGN1_022)

⁴⁰ *SONI* (2017), para. 5.145. (SGN1_037)

⁴¹ *SONI* (2017), para. 5.107. (SGN1_037)

⁴² *Firmus Energy* (2017), para. 5.107. (SGN1_036)

⁴³ CMA RIIO-2 FD Vol 3, para. 11.14. (SGN1_022)

⁴⁴ CMA RIIO-2 FD Vol 3, para. 11.28 and 11.31. (SGN1_022)

⁴⁵ CMA RIIO-2 FD Vol 3, para. 9.99 and 9.119. (SGN1_022)

licence modifications fail to achieve, in whole or in part, the effect stated, then the decision may be overturned on appeal pursuant to section 23D(4)(d) GA86.

- (99) The CMA made it clear in BGT (2015), that it is “*appropriate to look beyond*” the licence modification decision itself “*in order to identify the effect that should be understood as relevant for the purposes of the statutory ground.*” The CMA added that:

“*We do not consider the absence of an identified effect in [the licence modification decision] should mean that the statutory ground under section 11E(4)(d) [(i.e. the equivalent provision to section 23(7)(b) GA86 in the Electricity Act 1989)] ceases to be applicable.*”⁴⁶

- (100) In *Utilita*, the CMA distinguished and treated separately arguments whether the measure under appeal achieved the effects stated by GEMA from other arguments alleging errors of law, failure to give due weight to GEMA’s statutory objectives and errors of fact.⁴⁷ The ground failed because GEMA had articulated a “*coherent theoretical basis*” for concluding that the measure would have the desired effect.⁴⁸
- (101) The High Court has recently confirmed that this ground may “*depending on the circumstances, call for the CMA to carry out its own investigation*”.⁴⁹
- (102) GEMA has failed to achieve its stated effect in whole or in part where its outcomes and methodologies do not achieve its stated position, outcome or approach (see Ground 1A, para. (246)), Ground 1B para. (354) and Ground 2 para. (473)).

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

- (103) The concept of ‘wrong in law’ includes matters of statutory construction and the full range of issues which would otherwise be subject of an application to the High Court for judicial review.⁵⁰ GEMA’s decisions will therefore be wrong in law where, *inter alia*, GEMA has: (i) acted *ultra vires*, i.e. outside powers and obligations, properly interpreted; (ii) made an unreasonable decision; (iii) failed to take into account relevant matters (or taken into account irrelevant ones); (iv) failed to carry out a reasonable investigation; (v) has failed to act in a proportionate manner; or (vi) acted with procedural unfairness.⁵¹ Such errors of law would also be available were a judicial review standard to apply, and the case law addressing them reflects that higher standard. Given the other grounds available to SGN, as explored in the preceding sections, it is not necessary for SGN to demonstrate an error of law for its appeal to succeed, however it is nonetheless sufficient.

- (104) **Ultra vires:** As explained by Lord Diplock in *Council of Civil Service Unions v Minister for the Civil Service* [1985] AC 374, 410:

“*the decision-maker must understand correctly the law that regulates his decision-making power and must give effect to it. Whether he has or not is par excellence a*

⁴⁶ BGT (2015), para. 6.130. (SGN1_051)

⁴⁶ *Council of Civil Service Unions v Minister for the Civil Service* (1985). (SGN1_052)

⁴⁷ *Utilita* (2024), para. 3.57. (SGN1_046)

⁴⁸ *Utilita* (2024), para. 4.26. (SGN1_046)

⁴⁹ See *WWU v CMA* (2024) at para. 143. (SGN1_030)

⁵⁰ *Northern Powergrid* (2023), para. 3.66 (SGN1_044); *H7* (2023) para. 3.39 (SGN1_045) and *Utilita* (2024) at 3.54 (SGN1_046), citing *E v Secretary* (2004), para. 42 (SGN1_047) and *Mohamoud v Birmingham* (2014), para. 23 (SGN1_048). See also *WWU v CMA* (2024) at para. 144 (which provides the specific examples of irrationality and conclusions not otherwise open on the evidence) (SGN1_030).

⁵¹ See *Northern Powergrid* (2023), para. 3.66 (SGN1_044); *H7* (2023), para. 3.39 (SGN1_045) and *Utilita* (2024), para. 3.54 (SGN1_046) citing *RB (Algeria) v Secretary* (2008), paras 62 and 73 (SGN1_053) and *James v Hertsmere* (2020), para. 31 (SGN1_049). See also *R (Iran)* (2005), para. 9 (SGN1_066).

justiciable question to be decided, in the event of dispute, by those persons, the judges, by whom the judicial power of the state is exercisable.”

- (105) In *RIIO 2 Appeals*, the CMA found that certain self-modification provisions were unlawful including because they lacked clarity as to their operation.⁵² Since the relevant statutory provision required the self-modification provisions to be specific as to their operation, they were *ultra vires*.
- (106) **Unreasonableness/Irrationality:** GEMA acts unlawfully where its decision is unreasonable or irrational. As the Court of Appeal stated in *SCOP v CMA*, there is an error of law where: “*the CMA has... reached an irrational conclusion on the facts.*”⁵³ The question whether a decision is unreasonable is an objective test.⁵⁴ A decision can be unreasonable where no reasonable authority could have come to it or where there is a demonstrable flaw in the reasoning.⁵⁵ This has also been characterised as ‘*a decision which does not add up - in which, in other words, there is a error of reasoning which robs the decision of logic.*’⁵⁶
- (107) A decision is also unreasonable where there is no adequate evidential foundation on the basis of which the decision-maker could reasonably have come to its decision (either because there is no evidence at all or because the evidence did not provide a basis for the decision-maker to reach the decision reasonably).⁵⁷ The CMA upheld numerous grounds of appeal on this basis in the *RIIO 2 Appeals* and *H7*.⁵⁸
- (108) The CMA has adopted a position in other regulatory decisions that a decision based on flawed reasoning is not wrong provided that it can be supported on any other basis (even if not the basis GEMA relied upon).⁵⁹ This is not an accurate statement of the law. If GEMA’s decision is vitiated by materially flawed reasoning (in the sense of material to the decision made by GEMA) then it is vitiated by an error of law and the CMA should determine as much under s.23D(4). The mere fact that GEMA’s decision *could* have been sustained by alternative reasoning does not mean that GEMA *would* have reached the same outcome had it not erred. Having found an error under s.23D(4), the CMA may then substitute its own decision for GEMA’s using its power under s.23E(2)(c). The CMA’s approach conflates the exercises required by these separate statutory provisions. Whilst, under s.23E(2)(c), the CMA may ultimately reach the same outcome as GEMA for different reasons, it must approach that exercise with an open mind. It would be wrong in principle to prefer a decision because it led to the same outcome as GEMA’s flawed decision.
- (109) **Relevant and irrelevant considerations:** GEMA acts unlawfully where it takes into account matters irrelevant to its decision or refuses or fails to take account of matters relevant to its decision.⁶⁰ The matters to which regard must (and must not be) had can be identified by interpretation of the relevant statute:

⁵² CMA *RIIO-2 D Vol 2*, para. 8.112, 8.123, 8.129, 8.160-8.171, 8.174-8.178, 8.180, 8.182 8.184, 8.186-8.188, 8.192-8.194 see also FN 1481 (SGN1_026)

⁵³ *SCOP* (2015), para. 108 (SGN1_054). See similarly: *R (Royal College of Nursing)* (2011), para. 104 (SGN1_055), also confirming that an irrational decision amounts to an error of law.

⁵⁴ *Re W* (1971), para. 718B (SGN1_056).

⁵⁵ *R (Law Society) v Lord Chancellor* (2018) at 98. (SGN1_057)

⁵⁶ *R v PCA Ex p. Balchin* (1997). (SGN1_058)

⁵⁷ *Stagecoach* (2010) at 42 and 45. (SGN1_059)

⁵⁸ CMA *RIIO-2 D Vol 2*, para. 6.181 (outperformance wedge), paras 7.802-7.807 (innovation uplift) (SGN1_026); *H7* (2023), para. 7.305 (index linked premium) and para. 9.299 (shock factor). (SGN1_045)

⁵⁹ CMA *RIIO-2 FD Vol 1*, para. 3.51 (SGN_043); *H7*, paras 3.28(b) and 3.42 (SGN1_045).

⁶⁰ *R (Alconbury Developments Ltd)* (2001). (SGN1_060)

*“If, in the statute conferring the discretion, there is to be found expressly or by implication matters which the authority exercising the discretion ought to have regard to, then in exercising the discretion it must have regard to those matters. Conversely, if the nature of the subject matter and the general interpretation of the Act make it clear that certain matters would not be germane to the matter in question, the authority must disregard those irrelevant collateral matters.”*⁶¹

- (110) In *Northern Powergrid*, GEMA relied on irrelevant considerations by using aspects of NPG’s submitted costs to allocate funding when GEMA had determined aspects of those costs were inefficient.⁶² In *H7*, the CAA omitted a relevant consideration by failing to take into account the impact of the pandemic in its design of the so-called AK factor.⁶³
- (111) **Duty to investigate:** GEMA also acts unlawfully where it fails to take reasonable steps to acquaint itself with the information to enable itself to correctly answer the relevant question.⁶⁴ The duty to investigate is seen as a wider part of the doctrine of unreasonableness, such that there is an error of law if the decision-maker’s approach was not one open to a reasonable decision-maker.⁶⁵ The wider the discretion conferred on GEMA, the more important it is that GEMA has all relevant material to enable it properly to exercise that discretion.⁶⁶
- (112) In *H7*, the CAA failed to properly assess and validate calculations provided by Heathrow, such that the CAA’s reliance on them was *“without adequate foundation in the evidence”*.⁶⁷
- (113) **Proportionality:** whereas proportionality has not yet been finally recognised as an independent ground of judicial review, proportionality (i) is expressly part of the statutory considerations under GA 1986,⁶⁸ (ii) is an implicit feature of the assessment on appeal to determine whether GEMA has had ‘proper regard’ and given ‘appropriate weight’ to the matters mentioned in section 23D(2),⁶⁹ and, (iii) in any event often yields the same outcome as a test of reasonableness.⁷⁰
- (114) The role of proportionality is recognised in the CMA’s decision-making practice in energy appeals. In *BGT (2015)* the CMA stated that a decision would be wrong in law where:
- “the effect of the recalibration... went beyond what GEMA was seeking to achieve... and/or was disproportionate to the aim of the recalibration.”*⁷¹
- (115) GEMA’s decision is therefore wrong in law where it acts unreasonably in failing to allow efficient costs, fails to make reasonable enquiries, takes account of irrelevant considerations or fails to take account of relevant considerations, reaches conclusions not supported by / inconsistent with the evidence and applies flawed reasons and unevidenced assumptions where it fails to act in accordance with its duties (Ground 1A para. (256), Ground 1B para. (354), and Ground 2 para. (473)).

⁶¹ *Wednesbury* (1948), para. 228. (SGN1_061)

⁶² *Northern Powergrid* (2023), para. 4.144. (SGN1_044)

⁶³ *H7* (2023), paras 10.61-10.67. (SGN1_045)

⁶⁴ *Tameside MBC* (1977) at 1065B. (SGN1_062)

⁶⁵ *R (Balajigari)* (2019) at 70, i.e. it is not enough to show that further inquiries would have been sensible or desirable. (SGN1_064)

⁶⁶ *R v SSHD Ex p. Venables* (1998) at 466. (SGN1_067)

⁶⁷ *H7* (2023), para. 9.134. (SGN1_045)

⁶⁸ Section 4AA(5A) GA86.

⁶⁹ Section 23D(4) GA86.

⁷⁰ *R (Youssef)* (2016) at 57. (SGN1_063)

⁷¹ *BGT* (2015), para. 6.134. (SGN1_051)

3.4 Standard of review

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

3.4.1 Merits review

(117) The CMA has consistently made clear that the applicable standard of review is a merits review, going beyond judicial review, stating in the RIIO-ED1 appeals that:

*"We agree that we are not limited to reviewing the decision on conventional judicial review grounds and that we are not only able, but required by EA89, to consider the merits of the decision under appeal, albeit by reference to the specific grounds of appeal laid down in the statute."*⁷²

(118) The CMA's determinations in the RIIO-ED1 and RIIO-2 appeals also refer to the government's response to the Department of Energy and Climate Change's ("DECC"s) consultation on the 'Implementation of the Third Internal Energy Package' (which led to the introduction of the appeals regime), stating the government's intention that the appeals regime should "*enable the appeal body to take into account the merits of the case*".⁷³

(119) Thus the grounds for a merits appeal differ in substance from judicial review principles: for instance, whereas under public law principles, weight is classically a matter for the decision maker, section 23D(4)(b) GA86 requires the CMA to consider whether GEMA gave the appropriate weight to specific factors.

(120) Noting the approach of the Supreme Court in *BT v Telefonica O2 UK*⁷⁴ concerning the relevant appeals regime in the Communications Act 2003, the CMA also confirmed in the RIIO-ED1 appeals that it had the power to make "*certain factual judgments*"⁷⁵ and should not limit itself to considerations of errors of law or judicial review.

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

(122) In *H7*, the CMA stated that in a regulatory appeal the burden of proof is borne by the appellant to establish on the civil standard (i.e. the balance of probabilities) that the regulator has erred.⁷⁶

3.4.2 Regulatory discretion

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

"there has to be, in our view, a limit to the discretion of regulators to make adjustments... in setting the price control where the consultation process has failed

⁷² *BGT (2015)*, para. 3.24 (SGN1_051); *NPG (2015)*, para.3.23 (SGN1_038). See also *SONI (2017)*, para 3.35 (SGN1_037); CMA RIIO-2 FD Vol 1, para 3.26-3.28 (SGN1_043); *Northern Powergrid (2023)*, para 3.27 (SGN1_044); *H7* para 3.24 (SGN1_045); *Utilita (2024)*, para 3.21 (SGN1_046).

⁷³ DECC, Implementation of the EU Third Internal Energy Package: Government Response (January 2010), para 2.24 (SGN1_068). See *NPG (2015)*, para 3.23 (SGN1_038) and *BGT (2015)* para 3.24 (SGN1_051) and CMA RIIO-2 FD Vol 1, para 3.26 (SGN1_043).

⁷⁴ *BT v Telefonica O2 UK (2014)*. (SGN1_065)

⁷⁵ *BGT (2015)*, para 3.41 (SGN1_051); *NPG (2015)* para 3.40 (SGN1_038).

⁷⁶ *H7 (2023)*, para 3.26. (SGN1_045)

to demonstrate evidence in support of those adjustments... the exercise of regulatory discretion remains bounded and subject to legal principles".⁷⁷

- (124) The CMA held on the facts that the requisite evidence in support was not present, concluding that:

*"[I]n the absence of evidential support for the judgement, GEMA's discretion cannot, in our view, be treated as sufficient to justify the adjustment to NPG's totex that it made".*⁷⁸

- (125) The principle that regulatory discretion can only be exercised within certain bounds and that decisions must be supported by evidence was also recognised by the Court of Appeal in *BT v Ofcom*,⁷⁹ a case cited by the CMA in BGT and NPG.

- (126) The CMA's approach is reflected in H7 where the CMA stated that it would find an error of discretion, including where a regulator made one choice (even if rational) and another choice would "*clearly have been superior in light of the [regulator's]... regulatory duties and all the relevant circumstances*".⁸⁰

- (127) Further, as above, the CMA must be cautious not to afford too much deference to GEMA. The question for the CMA, in considering whether the CMA has had proper regard to or given appropriate weight to relevant factors, is not whether the alternatives advanced by the appellants are "*clearly superior*",⁸¹ but whether these alternatives meet a lesser threshold. In Sheldon J's words, all that is required for the CMA to find that GEMA was "*wrong*" is (emphasis added):

*"the alternative approach is 'materially' better than GEMA's approach: that is, the alternative approach is one which, weighing up the pros and cons of the different approaches, offers something more than GEMA's approach."*⁸²

- (128) GEMA therefore errs where it undertakes decisions which are not compatible with the evidence and where a materially better approach alternative was available (see Ground 1A, para. (253), Ground 1B para. (341) and (347), Ground 2 para. (474)).

3.4.3 Materiality

- (129) The CMA will only interfere with a decision where an error is material (as opposed to insignificant or negligible) to the overall level of the price control. In the RIIO-ED1 appeals, the CMA stated that:

"We understand that it was common ground between the parties that we [the CMA] should only interfere with the Decision if we consider that the error identified is material, and this approach is obviously correct.

⁷⁷ *NPG (2015)*, para 4.142. (SGN1_038)

⁷⁸ *NPG (2015)*, para 4.140. (SGN1_038)

⁷⁹ The Court of Appeal noted in this case that (a) "*In considering whether the regulator's decision on [a] specific issue is wrong, the Tribunal should consider the decision carefully, and attach due weight to it, and to the reasons underlying it...*" and (b) "*When considering how much weight to place upon those matters... the duration and intensity of the investigation carried out by [the] specialist regulator [is] clearly [an] important factor, along with the nature of the particular issue and decision, the fullness and clarity of the reasoning and the evidence given on appeal*" (see *BT v Ofcom (2014)* at para 87(c)-(d)). (SGN1_069)

⁸⁰ *H7 (2023)*, para 3.46 (SGN1_045), citing *CMA RIIO-2 FD Vol 1*, paras 3.43 and 3.77 (SGN1_043).

⁸¹ As set out in *CMA RIIO-2 FD Vol 1*, para 3.43 (SGN1_043).

⁸² *WWU v CMA (2024)* at para 158. (SGN1_030)

... an error will not be a material error where it only has an insignificant or negligible impact in relative terms on the overall level of price control that has been set by GEMA.”⁸³

- (130) A similar approach has been followed in subsequent decisions.⁸⁴
- (131) None of the matters raised in this appeal could reasonably be characterised as insignificant or negligible and each of the Grounds advanced by SGN raises matters which are clearly material.
- (132) The CMA has also been clear that materiality is about more than size alone.⁸⁵ In *NPG (2016)* it stated that:

“...Whether an error is material must be decided on a case-by-case basis taking into account the particular circumstances of each case. Relevant factors would include the impact of the error on the overall price control, whether the cost of addressing the error would be disproportionate to the value of the error, whether the error is likely to have an effect on future price controls, and whether the error relates to a matter of economic or regulatory principle. This list is not intended to be exhaustive.”⁸⁶

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

“[S]ome issues may be low value but, if they are... clear and unambiguous factual errors, then they should be corrected... [i]n other cases, what appears to be a large error may only arise due to the presentation of an aggregation of smaller and potentially immaterial errors.”⁸⁷

- (134) Further, the CMA concluded in *Firmus, Energy (2017)* that:

“FE’s evidence has shown that there was a clear data error in the model used by the UR in setting the GD17 connection target. In our view, as a point of regulatory principle, such data errors (and ensuing calculation errors) when making important decisions should generally be corrected. We would expect the UR to accept this as a matter of principle.”⁸⁸

- (135) Finally, where a series of errors is found which are on their own immaterial, the CMA will consider whether they collectively amount to a material error.⁸⁹

3.4.4 Interlinkages

- (136) SGN’s understanding of the position with regard to interlinkages is as follows:

- (i) Interlinked parts of a price control are those aspects of the control that cannot rationally be considered in isolation from other aspects – that is to say that they are not “in practice a separable decision”. Whether there are sufficient links between two or more parts of a price control such that they might reasonably be treated as

⁸³ *NPG (2015)*, paras 3.58-3.60 (SGN1_038); *BGT (2015)*, paras 3.60-3.62 (SGN1_051).

⁸⁴ CMA RIIO-2 FD Vol 1, paras 3.89-3.92 (SGN1_043) and *H7 (2023)*, paras 3.47-3.51 (SGN1_045); *Utilita (2024)*, para 3.60-3.64 (SGN1_046).

⁸⁵ *SONI (2017)* para 3.39 (SGN1_037); *Firmus Energy (2017)* para 3.22 (SGN1_036); *BGT (2015)* paras 3.58-3.60 (SGN1_051).

⁸⁶ *NPG (2015)*, para. 3.58 (SGN1_038). See also *Firmus Energy (2017)*, para. 3.25 (SGN1_036).

⁸⁷ CMA Letter: Statutory Appeals Mechanism, para. 5. (SGN1_071)

⁸⁸ *Firmus Energy (2017)*, para 5.107. (SGN1_036)

⁸⁹ CMA RIIO-2 FD Vol 1, paras 3.94-3.97 (SGN1_043); *H7 (2023)*, para 3.52-3.55 (SGN1_045); *Utilita (2024)*, para 3.65-3.66 (SGN1_046).

interconnected is a matter that needs to be considered in each case having regard to all the relevant circumstances. Where a part of a price control package that is under appeal is not interlinked to any other parts of the package, however, the CMA need only review the discrete elements of the package in respect of which the appeal has been brought.

- (ii) Should GEMA wish to argue that changes to one aspect of the price control package under appeal might necessitate changes to other aspects, it is incumbent on GEMA to clearly identify and explain the relevant interlinkages.⁹⁰
- (iii) When reaching its determination on the parts of a price control that have been appealed, the CMA can, where appropriate and on a case-by-case basis, take into account the interlinked parts of a price control raised by GEMA in its response.⁹¹

(137) This approach by the CMA is consistent with its observation in its open letter of 30 October 2019 that:

“The overall price control set by a regulator is the combination of a number of individual decisions, and we do not accept that it can be beyond the CMA’s powers to review these individual decisions, on the basis that they need to be considered “in the round” with decisions that are otherwise unconnected parts of the regulatory settlement.”⁹²

(138) SGN agree with the CMA that *“in the round”* assessment is neither appropriate nor necessary where unconnected components of the price control package are concerned, noting that in NPG and BGT the CMA rejected the argument that it was required to review price controls *“in the round”* or on a *“global basis”*.⁹³ Where two or more decisions are, in practice, separable decisions, it is clear that they are capable of being – and should be – considered separately.

⁹⁰ CMA Letter: Statutory Appeals Mechanism, para 14. (SGN1_071)

⁹¹ CMA RIIO-2 FD Vol 1, para 3.86. (SGN1_043)

⁹² GEMA Letter: Statutory Appeals Mechanism, para 16. (SGN1_070)

⁹³ *NPG* (2015), at para 3.49 (SGN1_038), *BGT* (2015) at para. 3.50 (SGN1_051).

4 Ground 1 – Totex Model Allowances

4.1 Introduction

- (139) GEMA has approved £4bn of baseline total expenditure allowances ('totex') for SGN. This is a £733m reduction compared with SGN's submitted Business Plan. This downward adjustment represents a total cut of 16% for SGN (comprising 13% for Scotland and 17% for Southern), against an average of 13% for the rest of the sector.⁹⁴
- (140) SGN submits that GEMA has made a number of methodological errors in setting totex allowances for GD3. While SGN has identified a range of issues that could be raised in this Notice of Appeal, it has focused on two of the most material given the short time available to consider GEMA's proposed licence modification – the underlying models for which are still going through an ongoing error correction process, with ultimate allowances therefore as yet unclear. The targeted totex modelling issues which SGN asks the CMA to consider are:
- (i) **Ground 1A:** GEMA has overwritten GDNs' Tier 1 Mains repex forecasts. In particular, GEMA has normalised the forecast mix of repex workloads, which underpins GEMA's repex cost allowances, for all GDNs based on the assumptions of one GDN, WWU. This change was implemented without adequate consultation, leading to further errors in its implementation, and has been applied to SGN despite the absence of any defect in SGN's forecasts. The change results in an arbitrary reduction to SGN's cost allowances and is untargeted, disproportionate and contrary to best regulatory practice.
 - (ii) **Ground 1B:** GEMA's approach to individual cost drivers in setting a combined cost driver (the Composite Scale Variable ("CSV")). GEMA has applied fixed uniform weights using industry average expenditure over GD1-3 which is inconsistent with the workloads which GEMA has approved for each GDN. As a result, GEMA's approach is inconsistent with the operational realities which individual GDNs face and does not reflect legitimate differences in the cost structures between GDNs. It also fails to account for industry-wide changes in workload over time.
- (141) The aggregate impact of these errors is a material reduction in SGN's modelled allowances of [REDACTED]
- (142) SGN proactively engaged with GEMA during the GD3 process, providing robust engineering evidence in its Business Plan submission. However, GEMA has applied its own assumptions that do not reflect the operational reality facing SGN today.⁹⁵ This disconnect between accepted engineering evidence and econometric modelling materially underfunds SGN's delivery of safety-critical workloads to meet its statutory obligations in GD3.⁹⁶
- (143) It is clear from SGN's experience in GD2 that allowances derived through GEMA's modelling approach were inadequate and did not adequately fund the real-world costs of delivering critical network expenditure. It is critical that the GD3 settlement is grounded in operational reality and that clear modelling errors are corrected.⁹⁷

⁹⁴ GD Annex, Table 15. (SGN1_010)

⁹⁵ DH1, Sections A, D and E.

⁹⁶ DH1, Para 15-20; SK1, para. 69.

⁹⁷ DH1, Section C; SK1, paras. 67-72.

4.2 Background to the cost assessment process

(144) GEMA's cost assessment process employs a combination of regression analysis, non-regression benchmarking, and technical assessment to determine efficient totex allowances for GDNs. The vast majority of costs (83%) are assessed using the regression analysis.⁹⁸

4.2.1 Business Plan Submission

(145) GDNs submit Business Plans to GEMA, setting out how they intend to operate and invest over the upcoming price control period. Totex proposals are underpinned by engineering analysis and assessment based on GDNs' Investment Decision Packs ("IDPs") and Engineering Justification Papers ("EJPs"), alongside wider engagement with the regulatory framework, such as the annual Regulatory Reporting Pack ("RRP"), consultation responses and independent reports.

4.2.2 GEMA Cost Assessment

(146) GEMA's cost assessment methodology is described in detail in the Frontier Totex Report.⁹⁹ In summary, the process comprises the following steps:

- (i) **Step 1 (Starting Point):** GEMA takes as its starting point the workloads and costs submitted by GDNs in their Business Plans.
- (ii) **Step 2 (Pre-Modelling Adjustments):** GEMA applies pre-modelling adjustments to submitted costs to account for: (a) regional adjustments (i.e., adjustments to cost data to account for regional differences between GDNs); (b) cost exclusions (i.e., removal of costs that are assessed separately or passed-through); and (c) volume-related adjustments (i.e., in cases where GEMA has disallowed forecast workloads prior to the regression, it also reduces GDN requested costs accordingly).
- (iii) **Step 3 (Efficiency Assessment via Regression):** GEMA assesses the relative efficiency of **forecast** GD3 costs using a single totex regression model and a composite scale variable (CSV). The CSV combines multiple cost drivers into a single variable **by applying weights to the individual drivers within it**.
- (iv) **Step 4 (Modelled costs prediction):** The regression model estimates the relationship between **GDNs'** totex costs and the cost driver, which is then used to predict modelled costs for each GDN over the GD3 period.
- (v) **Step 5 (Efficiency score calculation):** Modelled costs are compared to each GDN's forecast costs over **the** GD3 period to calculate the efficiency score for each GDN.
- (vi) **Step 6 (Catch up Efficiency Challenge):** GEMA determines the benchmark efficiency level by applying a glide path between the upper quartile efficiency score and the 85th percentile efficiency score. GEMA applies the upper quartile score in Year 1 of GD3 and the 85th percentile score in Years 4 and 5 of GD3, with a straight-line path between the scores for Years 2 and 3. Both the upper quartile and the 85th percentile efficiency scores are determined by the GDNs ranked second and third by the model.

⁹⁸ FD Overview, para. 5.61. (SGN1_009)

⁹⁹ FE1/1, paras 3.1-3.10.

- (vii) **Step 7 (Ongoing Efficiency):** As the final step in its cost assessment, GEMA applied a compounding 1% per annum ongoing efficiency challenge from the 2024/25 year to all costs.
- (147) Broadly speaking, the difference between a GDN’s efficiency score and the benchmark efficiency score determines the catch-up efficiency reduction applied to that company’s forecast costs. These are costs that GEMA deems to be inefficient. However, importantly for both of SGN’s appeal grounds 1A and 1B, the GD3 cost allowances are also directly dependent on the level of the GD3 forecast CSV itself.
- (148) Against that backdrop, SGN brings a targeted appeal, concerning three specific steps of GEMA’s cost assessment process:
- (i) The pre-modelling adjustment applied to SGN’s repex workload mix forecasts at FD, which overwrites those forecasts based on a new proxy approach (“**Ground 1A**”)
 - (ii) The weights applied to individual cost drivers when combining them to create the Composite Scale Variable (CSV) (“**Ground 1B**”)
 - (iii) The setting of the OE challenge at 1% (“**Ground 2**”)

5 Ground 1A – Overwriting of Repex Forecasts

5.1 Overview

- (149) The largest component of GDNs’ totex in GD3 is work associated with the Health and Safety Executive’s mandatory Iron Mains Risk Reduction Programme (“**IMRRP**”), which involves the decommissioning and replacement of metallic Tier 1 Iron Mains with new polyethylene (“**PE**”) mains (“**repex**”) to be completed by December 2032.
- (150) In the FD, GEMA found that NGN and Cadent’s forecast Tier 1 Mains commissioned workloads (“**repex forecasts**”) showed a material shift from smaller to larger diameter bands in GD3, without a clear engineering or economic justification.¹⁰⁰ In response to this issue, GEMA applied a novel industry-wide pre-modelling adjustment to all GDNs’ repex forecasts that combined Wales & West Utilities’ (WWU) Tier 1 decommissioning and lay assumptions (“**decommission-to-lay assumption**”) with each GDN’s own open-cut and insertion assumptions (“**technique assumption**”).
- (151) SGN submits that the application of this pre-modelling adjustment to SGN constitutes an unnecessary intervention, both from a technical engineering standpoint and an economic modelling perspective, and a disproportionate response to the issue that GEMA has identified. The adjustment is a blunt instrument that arbitrarily penalises SGN in the cost assessment process, in circumstances where GEMA identified no concerns with its repex forecasts. The adjustment is also flawed in its implementation.
- (152) More specifically, SGN submits that GEMA has erred by:
- (i) **Error 1:** Applying its “normalisation adjustment” to GDN repex forecasts which, in the case of SGN, was unnecessary, disproportionate, and flawed; and
 - (ii) **Error 2:** Misapplying the adjustment and failing to fully “normalise” SGN repex forecasts, but applying a ‘mix and match’ approach to assumptions (i.e., combining

¹⁰⁰ GD Annex, para. 5.314-5.329. (SGN1_010)

WWU decommission-to-lay assumptions with SGN-specific technique mix assumptions).

- (153) SGN requests that the CMA have regard to the following expert report and witness statements in support of these errors. The key evidence which they contain are incorporated into this ground of appeal:
- (i) Frontier Economics Technical Report on Assessment of two aspects of GEMA's Issues in RIIO-GD3 cost assessment methodology (3 February 2026) (“**FE1/1**”)
 - (ii) First Witness Statement of Simon Kilonback (“**SK1**”)
 - (iii) First Witness Statement of David Handley; (“**DH1**”)
 - (iv) First Witness Statement of Jeremy Deveney; (“**JD1**”) and
 - (v) First Witness Statement of Daniel Brennan; (“**DB1**”).
- (ii) Material that GEMA did not have access to in relation to Ground 1A at the time of its FD, includes: the Frontier Totex Report,¹⁰¹ Banding Mix Profile Comparison (i.e. SGN's network pressure and capacity analysis)¹⁰² the Banding Mix Workings (i.e. SGN's decommission-to-lay banding matrices split by technique and SGN's assessment of GEMA's ratio of volume laid to volume decommissioned analysis),¹⁰³ and Decon Consulting Reports.¹⁰⁴
- (154) GEMA's reasoning is set out in the GD Annex at para. 5.314 to 5.329.

5.1.1 Legal consequences

- (155) In light of the above errors, SGN submits that GEMA's decision is wrong within the meaning of Section 23D(4) of the GA86.
- (156) In particular, the SGN submits that:
- (i) Section 23D(4)(a) and (b): GEMA failed properly to have regard to, and to give appropriate weight to, its statutory duties including:
 - (a) (Principles of best regulatory practice, including that regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed) GEMA applied an industry-wide adjustment without consultation that was not appropriately targeted to those companies where GEMA identified a problem and where there is precedent for company-specific errors directly.
 - (b) (Consumer duty, security of supply, finance duty) GEMA's adjustment is incompatible with consumers' interests in security of supply of gas. SGN is materially underfunded to deliver workloads necessary to meeting these duties
 - (ii) Section 23D(4)(c): GEMA's decision was based on errors of fact. In particular:
 - (a) GEMA incorrectly assumes that WWU's decommissioning-to-lay ratio constitutes a “*reliable proxy*” for industry standards that could be applied to

¹⁰¹ FE1/1.

¹⁰² JD1/1/009.

¹⁰³ JD1/1/011.

¹⁰⁴ DH1/1/020, DH1/1/021, DH1/1/022.

- SGN, as it is inconsistent with the operational requirements of SGN's network
- (b) GEMA's analysis of GDNs' ratio of commissioned to abandoned volumes appears to rely on incorrect data.
- (iii) Section 23D(4)(d): GEMA's decision failed to achieve its stated effect. In particular:
- (a) GEMA's stated intention in implementing the pre-modelling adjustment was to "*protect both customers from unjustified cost increases and networks from being disadvantaged in the benchmarking process and being underfunded*".¹⁰⁵ However, the effect of GEMA's approach is to arbitrarily disadvantage SGN and underfund it in the delivery of its statutory obligations.
 - (b) GEMA failed to correctly implement WWU's methodology by applying a common assumption only to the decommission-to-lay ratio while retaining GDN-specific technique assumptions, which are interdependent from an engineering perspective.
- (iv) Section 23D(4)(e): GEMA's decision was wrong in law. In particular:
- (a) GEMA acted irrationally and/or unreasonably by applying WWU's assumptions to SGN in circumstances where this produces a workload mix that would not deliver sufficient pressure to the end customer in line with SGN's statutory obligations.
 - (b) GEMA has taken account of irrelevant considerations including the supposed robustness of WWU's method, which does not render it suitable as means of forecasting the repex workload mix for SGN's network.
 - (c) GEMA failed to make appropriate inquiries or to consult on its methodology between DD and FD, depriving stakeholders of the opportunity to identify and address the key flaws in its approach.
 - (d) GEMA's rationale for using WWU's decommissioning-to-lay assumptions is irrational and wrong, including that this represented "*a reliable proxy for expected industry standards*"¹⁰⁶ when combined with GDN-specific technique assumptions

5.1.2 Materiality

- (157) The costs associated with the IMRRP are the single largest component of the GD3 cost model. As such, the errors identified above have a material impact on SGN's ability to recover adequate allowances to deliver its statutory obligations under the IMRRP.
- (158) Correcting the error by removing GEMA's overwriting adjustment for SGN (but retaining it for the other GDNs) would increase SGN's allowances by █████ over the GD3 period.
- (159) Alternatively, if the CMA forms the view that GEMA was correct to apply the normalisation across the industry but addresses the implementation errors, and applies a consistent set of assumptions (i.e. both WWU decommission-to-lay and technique assumptions), SGN

¹⁰⁵ GD Annex, para. 5.325. (SGN1_010)

¹⁰⁶ GD Annex, para. 5.326. (SGN1_010)

estimates that this would increase its allowances by approximately [REDACTED] over the GD3 period.

5.1.3 Relief sought

- (160) SGN respectfully request that the CMA grant the following relief:
- (i) Allow the appeal.
 - (ii) removes GEMA's overwriting adjustment for SGN and substitutes its own decision to the effect that:
 - (a) GEMA's overwriting adjustment is not applied to SGN; or
 - (b) in the alternative, if the CMA considers it appropriate to apply the normalisation then ensure a consistent set of assumptions are used by ensuring a consistent set of assumptions are used by applying both WWU's decommission-to-lay assumption and technique assumptions.
- (b) Further details on implementing the specific relief sought is set out in SGN1_072.

5.2 GEMA's Determination on Repex Forecasts

5.2.1 Background to Repex Forecasts

- (161) As explained in paragraph (150), the costs associated with Tier 1 Mains repex workloads are the largest component of GDNs' totex, accounting for approximately a third of anticipated costs.
- (i) GDN Tier 1 Repex Workloads**
- (162) Repex workloads consist of two principal activities: decommissioning and laying.
- (163) **Decommissioning** involves taking an existing iron mains out of service by isolating it, disconnecting it from the live network, and ensuring it can no longer carry gas.
- (164) **Laying** involves installing new replacement PE mains. The diameter and configuration of replacement mains laid do not need to match those of the main being decommissioned. The size of the new main diameter depends on a range of engineering factors, such as current and future network capacity requirements and pressure management requirements.¹⁰⁷
- (165) GDNs use two main techniques to lay new mains. First, a GDN can 'insert' new PE mains into an existing metallic main. This requires the new PE main to be of a smaller diameter, so that it can fit inside the existing main. Insertion is the preferred method to replace existing mains where possible, because it is more efficient for SGN's network and reduces the time, costs and disruption required to complete work, particularly in urban areas. This is feasible in many cases because gas demand is generally decreasing over time, driven by the transition from town gas to natural gas (which is denser and requires less capacity) in the 1970s.¹⁰⁸
- (166) Alternatively, a GDN may lay new PE mains using the "open cut" technique, which involves excavating a trench along the entire pipe route. Open cut is used where: (a) the replacement main is of an identical or larger diameter, which may be necessary to meet current or future

¹⁰⁷ JD1, para. 53.

¹⁰⁸ JD1, para. 57, 59.

capacity requirements and to manage pressure; (b) the existing main is obstructed, blocking replacement mains from being inserted; (c) the geometry of the main prevents insertion (e.g. due to sharp bends); or (d) the physical location of the existing main makes it preferable to move to a new location.¹⁰⁹

(ii) SGN Repex Workload Mix Forecasts

- (167) SGN’s repex workload mix forecasts for GD3 were developed using core profiles of each asset, including length laid, diameter, material and replacement technique. This was derived from a historical average of 10.5 years of Tier 1 repex activity, based on decommissioned mains from 2013/14-2023/24 (up to September 2023).¹¹⁰
- (168) From this data, a matrix can be derived for each year of delivery showing the total decommissioning length for each band (Diameter Band A through to Diameter Band D) and the associated length (‘lay length’) and diameters (‘lay diameter’) of each PE Main (lay PE Bands 1-8) to be laid.¹¹¹ Table 1 below shows pipe diameter ranges for the different band sizes and the relationship between the decommissioning metallic bands (A-D) and the lay PE bands (1-8).

Table 1 Diameter ranges for Tier 1 main decommissioning bands and main lay bands

Decommissioning Bands	Band A	Band B	Band C	Band D				
	≤3" (0-76mm)	4"-5" (101-127mm)	6"-7" (152-178mm)	8" (200mm)				

Lay Bands	Band 1	Band 2	Band 3	Band 4	Band 5	Band 6	Band 7	Band 8
	≤75mm	>75mm to 125mm	>125mm to 180mm	>180mm to 250mm	>250mm to 355mm	>355mm to 500mm	>500mm to 630mm	>630mm

Source: JD1, Table 3

- (169) Each year’s data was aggregated to provide an overall matrix for Southern and Scotland networks with lay lengths converted into percentages by band. The summary matrix and abandonment to lay ratio were used to produce the decommission-to-lay mix for GD3.¹¹²
- (170) Note that SGN did not calculate different decommission-to-lay matrices for the insertion and open cut technique, nor was it a requirement within Ofgem’s guidance to provide this level of information. From an engineering perspective it did not have a robust basis from which to assume a change in its ratio of insertion to open cut work to change in GD3 relative to historical trends, and therefore it was not necessary to forecast workloads for each technique separately (working instead on the basis of a single matrix combining both open cut and insertion work).

(iii) Repex cost driver

¹⁰⁹ JD1, para. 57, 69.

¹¹⁰ JD1, para. 72

¹¹¹ Note that GEMA use A-D for decommissioning Bands and A-G for lay bands. To reduce the risk of confusion, SGN refers to 1-8 for lay bands.

¹¹² JD1, paras. 72-74.

- (171) As explained in Frontier’s Totex Report (and outlined at paragraph (144) above), GEMA determines final cost allowances for repex using a single totex regression model that combines multiple cost drivers into a single Composite Scale Variable (CSV).¹¹³
- (172) Within the CSV, GEMA uses the “repex synthetic” variable as its cost driver to explain repex costs. This is calculated by multiplying each GDN’s accepted workload volumes in GD3 (measured in kilometres of main laid) by the average industry unit cost (calculated across all GDNs over the period 2014–2031) (measured in £ per kilometre) for each type of main band (i.e., Bands 1-8). Each main band has a different unit cost, with workloads in larger diameter bands typically incurring higher unit costs due to the greater quantity of material required and the increased complexity of installation. Accordingly, the ‘repex synthetic’ driver reflects the costs to deliver the GDN’s lay workloads at the average industry unit cost for each band.
- (173) As illustrated in Table 2 below, the design of the repex synthetic driver means that the CSV is directly informed by each GDN’s forecast mix of repex workloads. Accordingly, changes to volume forecasts for each type of main will influence the total value of the cost driver. For example, if SGN Southern proposes to increase the volume of Band 5 to be delivered from 21km to 40km, the repex synthetic cost for Band 5 will increase from [REDACTED] (resulting in a total repex synthetic cost for Southern [REDACTED]). The mix of diameters to be laid by a GDN therefore plays an important role in determining a GDN’s overall allowances.



5.2.2 GD3 Business Plan Submissions

- (174) As part of their GD3 Business Plan Data Tables (“**BPDT**”), each GDN submitted information to GEMA on the amount and mix of Tier 1 repex work to be delivered during the price control period. The methodology set out in paragraphs (167) - (169) above explains the decommission and lay data that SGN submitted as part of its GD3 Tier 1 repex plan.

¹¹³ FE1/1, para. 4.3.

- (175) Following the release of the GD3 BPDTs, SGN reviewed the data provided by other GDNs. SGN observed that the submitted forecast lay workload mix showed a shift from smaller diameter bands to larger diameter bands for some GDNs, which was materially different to their historical delivery of Tier 1 repex workloads.¹¹⁴ SGN had also observed the same issue in the GD2 price control, which it had raised with GEMA at the time.¹¹⁵
- (176) SGN raised its concerns in relation to Cadent and NGN's decommission-to-lay forecasts specifically with GEMA ahead of the DD.¹¹⁶ SGN put forward three possible approaches that GEMA could take to resolve the issue and ensure comparability between networks, including aligning all networks to their historically delivered mix of workloads, a full resubmission of workload mix across networks, or resubmission of SGN and WWU to align with the assumptions of other companies.¹¹⁷ It is understood that WWU also engaged with GEMA on this point.

5.2.3 GEMA's approach at DD

- (177) In the DD, GEMA expressed concerns regarding certain GDNs' banding mix forecasts. It observed that *"for some GDNs, there is a marked shift from smaller diameter bands to larger diameter bands between historical (i.e., 'actuals') and forecast years, the rationale for which has not been set out in their business plans. It is also notable that there is not a corresponding shift in the forecast diameter band mix for mains decommissioned."*¹¹⁸
- (178) GEMA indicated that it would engage with GDNs further ahead of the FD to determine whether their forecasts were justified and would consider making adjustments to repex workload mix forecasts based on: (a) historical relationships between Tier 1 Mains commissioned and decommissioned diameter band mixes; (b) historical average Tier 1 Mains commissioned diameter band mixes; or (c) other methodological approaches that are robust and follow engineering logic.¹¹⁹
- (179) Following the release of the DD, GEMA gathered further evidence on each GDN's repex forecasts through Supplementary Questions (SQs), data requests, the Cost Assessment Working Groups ("**CAWG**") and bilateral discussions.¹²⁰ In response, SGN explained that its plans were a continuation of the GD1/GD2 delivered activity, and that it could not identify an engineering rationale that would lead to a significant deviation from historical lay banding mix delivery.¹²¹
- (180) In its DD Response, SGN set out its concerns that GDNs could submit an elevated banding mix in their forecasts, which undermines the robustness of the cost assessment. SGN noted it could *"identify no engineering rationale for large changes for the historic lay-mix for an individual network"*,¹²² and that a robust engineering review of the banding mix was

¹¹⁴ SGN-GD3-DD-OD, para. 100-102. (SGN1_016)

¹¹⁵ SGN first identified issues regarding banding mix forecasts during the GD2 price control process and engaged with GEMA extensively on this issue at the time, given the material impact it had on the allocation of allowances. See DH1, para. 25c.

¹¹⁶ DB1, para. 18(a). Information was provided to GEMA through CAWG.

¹¹⁷ DB1, para. 18(b). SGN notes that these proposals were made at a point in time when GEMA had not confirmed whether it agreed with SGN's concerns regarding the forecasts of other companies. SGN did not have access to the full information available to GEMA. SGN's proposals at this time (and throughout) were therefore pragmatic in nature rather than principled - and were generally put forward on the assumption that GEMA (and the sector) would need to investigate whether the approaches would generate reasonable outcomes from an engineering and economic perspective.

¹¹⁸ RIIO-3 DD GD Annex, para. 5.221. (SGN1_013)

¹¹⁹ RIIO-3 DD GD Annex, para. 5.224. (SGN1_013)

¹²⁰ GD Annex, para. 5.317. (SGN1_010)

¹²¹ DB1, para. 18 (d) and (e).

¹²² SGN-GD3-DD-OD, para. 107. (SGN1_016)

necessary, as the differences between network business plans were causing material impacts to the cost modelling determination.¹²³

- (181) SGN proposed the following remedies to GEMA:¹²⁴
- (i) Use a mix of work based on historical averages 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;
 - (ii) Require networks to restate their forecasts in line with good engineering design efficiency and provide an engineering rationale to any variation; or
 - (iii) Networks that have maintained a high level of design efficiency should be allowed to recalibrate to align with the other networks.
- (182) This issue was also raised by WWU in its DDR,¹²⁵ noting that some GDNs BPDT workload submissions included higher lay diameter bands for Tier 1 than was operationally justifiable. WWU suggested:
- (i) Adjusting Cadent and NGN lay diameters back to historic actuals
 - (ii) Adjust all GDNs using an industry standard practice for insertion diameters.
- (183) It further noted that there were “*clear pros and cons of each option; either option would serve to materially correct the position back to a fair and equitable position for WWU*” (emphasis added).¹²⁶

5.2.4 GEMA's approach at FD

- (184) In the FD, GEMA concluded that NGN's and Cadent's repex forecasts showed a material shift in the banding mix from smaller diameter mains (Bands A and B) to larger diameter mains (Bands C and D), without any clear supporting economic or engineering evidence.¹²⁷
- (185) GEMA stated that NGN's and Cadent's “*forecasts are clearly inconsistent with the forward-looking expectations around network growth... which could lead to material adverse outcomes from our cost assessment process*”.¹²⁸ However, GEMA raised no issues with WWU and SGN's forecasts, which it found showed a moderate increase and remained flat, respectively, over the period.¹²⁹
- (186) GEMA further stated that each company “*takes a different approach to forecasting Tier 1 mains forecasts for RIIO-GD3, resulting in varying degrees of uncertainty within the submitted data. Some networks rely significantly more on bottom-up approaches, while others utilise a combination of bottom-up and more holistic top-down approaches.*”
- (187) GEMA determined to apply a pre-modelling “normalisation” adjustment to all GDNs Tier 1 Mains repex volumes, to “*ensure that a consistent set of assumptions was applied across*

¹²³ SGN-GD3-DD-GD, para. 528. (SGN1_018)

¹²⁴ SGN-GD3-DD-GD, para. 562. SGN notes that none of these remedies involved applying a GDN-specific assumption to other GDNs or on an industry-wide basis. (SGN1_018)

¹²⁵ SGN-GD3-DD-GD. (SGN1_018)

¹²⁶ WWU DDR, p. 91. (SGN1_021)

¹²⁷ GD Annex, para. 5.316. (SGN1_010)

¹²⁸ GD Annex, para. 5.324. (SGN1_010)

¹²⁹ GD Annex, para. 5.320. (SGN1_010)

the industry".¹³⁰ It considered that this approach "*protects both customers from unjustified cost increases and networks from being disadvantaged in the benchmarking process and being underfunded*".¹³¹

- (188) GEMA's overwriting adjustment was based on the methodology underpinning WWU's Tier 1 Mains repex forecasts, which GEMA considered to be "*a reliable proxy for expected industry standards*" on the basis that it was "*the most robust, built bottom-up and informed by highly detailed network models... [and] demonstrated strong historical accuracy across its RIIO-GD2 forecasts, with only very limited variation in its outturn Tier 1 diameter band mix to date*".¹³²
- (189) As explained in detail in the Frontier Totex Report, GEMA's normalisation of Tier 1 Mains repex forecasts involved the following steps:¹³³
- (i) **Step A** – GEMA discarded GDNs' lay workload forecasts as submitted in their Business Plans. GEMA then imposed its own forecast lay workload mix assumption on each GDN as follows:
 - (ii) **Step B** – GEMA started with GDN forecast decommissioning volumes (by diameter band) from their Business Plans. GEMA considered decommissioning forecasts to be the most reliable starting point because of the limited time remaining for the Tier 1 repex programme.¹³⁴
 - (iii) **Step C** – GEMA split the decommissioning volumes by lay technique, producing separate volumes for open cut work and insertion work. At this step, GEMA used each GDN's own forecast technique assumptions (as reported in the BPDT). It applied the same GDN-specific percentage to all diameter bands.
 - (iv) **Step D** – GEMA converted the decommissioned main volumes into lay volumes using a "decommission-to-lay matrix", which sets out the assumptions on the diameter of the replacement mains that is installed when a given main diameter is removed. At this step, GEMA applied WWU's decommission-to-lay matrices to all GDNs. Applying WWU's decommission-to-lay matrices to the volumes derived from Step C produced the lay volumes split by technique.
 - (v) **Step E** – GEMA aggregated the lay volumes delivered via open cut and insertion techniques to produce total volumes in each diameter band for each GDN. These adjusted lay volumes replace each GDN's original repex forecast volumes in the benchmarking model.
- (190) These "normalised" repex volumes were then used to calculate each GDN's repex synthetic cost driver, which was run through the regression model to determine cost allowances.
- (191) Additionally, GEMA made a pre-modelling adjustment to submitted costs. GEMA states that this adjustment allowed it to maintain unit costs unchanged for each type of work. It achieved this by multiplying the unit costs implied by each GDN's original Business Plan submission

¹³⁰ GD Annex, para. 5.325. SGN also notes S MacMahon subsequent email which confirms that the

¹³¹ GD Annex, para. 5.325 (SGN1_010)

¹³² GD Annex, para. 5.326 (SGN1_010)

¹³³ FE1/1, para 4.14; also see GD Annex, para. 5.326-5.329 (SGN1_010).

¹³⁴ GD Annex, para. 5.327. (SGN1_010)

by the new repex volumes. The resulting costs were then applied in GEMA's regression model.¹³⁵

5.3 Errors in GEMA's approach

(192) Details on each of the errors in GEMA's approach are set out below in respect of its overwriting adjustment of SGN's repex forecast.

5.4 Error 1 – GEMA erred in applying an industry-wide normalisation to all GDNs, which, in the case of SGN, was unnecessary, disproportionate and flawed.

5.4.1 Overview

(193) GEMA's decision to apply an overwriting adjustment to SGN's forecast repex workload mix was untargeted and disproportionate in the circumstances, given that no concerns were identified with the repex forecasts submitted as part of SGN's Business Plan.¹³⁶ The effect of the adjustment is to unreasonably and arbitrarily reduce SGN's allowances.

5.4.2 GEMA's Approach

(194) As set out at paragraphs (185) and (186) above, GEMA identified material issues with Cadent's and NGN's Tier 1 forecasts. GEMA noted that these GDNs were forecasting a "marked shift from smaller to larger diameter bands between historical years (actuals) and forecast years", with no clear rationale provided in their Business Plans.¹³⁷

(195) This issue is illustrated in Figure 1 and Figure 2 below. Figure 1 shows a significant change in NGN's and Cadent's historical (GD2) and forecast (GD3) lay volumes for Band 1 (which shows a large decrease) and Band 3 (which shows a large increase) (Figure 2), compared with the changes to SGN and WWU's lay volumes for Band 1 and Band 3.

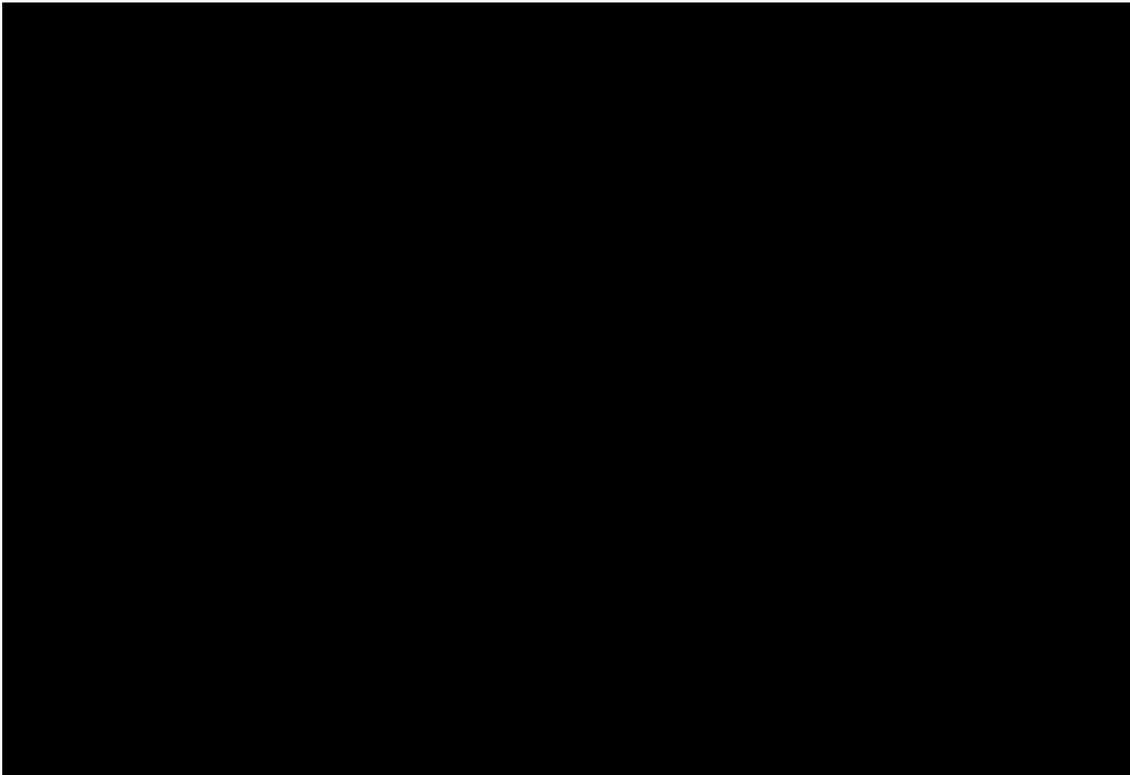
¹³⁵ GD Annex, para. 5.329. (SGN1_010)

¹³⁶ See GD Annex, para. 5.316 (SGN1_010). For completeness, SGN notes that there is a difference between the open-cut and insertion figures utilised to generate the detailed km lengths commissioned and decommissioned, and the lengths identified in the specification lines in its BPDT. As set out in the DB witness statement, these were due to different calculation methodologies. These specification lines were not used at the time of submission. See Fn 21 of DB1 for more details.

¹³⁷ GD Annex, para. 5.316. (SGN1_010)



(196) Over the same period, GDNs' corresponding decommissioning mix across Bands A and C remains broadly consistent (Figure 2).¹³⁸ While some variation may be attributable to network-specific and geographical factors, SGN agrees with GEMA's overall conclusion that there is "*no clear engineering or economic rationale*" for this material change.¹³⁹ This strongly suggests that changes in the lay mix are not driven by the decommissioning mix.



¹³⁸ Similar discrepancies can be seen when comparing outturn data for GD2 with work actually delivered during GD2, which shows GDNs delivering more workloads in Band 1 and fewer in Band 3 than forecast. See Para 4.28 of FE1/1.

¹³⁹ GD Annex, para. 5.321 (SGN1_010)

(197) Based on this observation, GEMA overwrote GDN's Tier 1 Mains repex forecasts by applying WWU's decommissioning-to-lay ratio (Step D above). WWU's decommission-to-lay assumption was applied to all GDNs on the basis that it was considered to be "a *reliable proxy for expected industry standards*". This occurred without consultation on the suitability or consequences of such a remedy.

5.4.3 Result of GEMA's Approach

(198) Applying WWU's decommissioning-to-lay assumption (Step C) with SGN's technique assumptions (Step D) produces a substantially different decommission-to-lay banding mix for SGN. This shifts SGN's lay volumes from larger diameter bands to smaller diameter bands while the overall volume (in km) remains consistent (see Table 3 below).¹⁴⁰

Table 3 Tier 1 GD3 forecast volumes (km) for SGN (Southern and Scotland) – Before and after GEMA's overwriting adjustment

Diameter band	Before GEMA's overwriting adjustment (km)	After GEMA's re- overwriting adjustment (km)	Difference (km)
Less than 75mm (Band 1)			
Greater than 75mm to 125mm (Band 2)			
Greater than 125mm to 180mm (Band 3)			
Greater than 180mm to 250mm (Band 4)			
Greater than 250mm to 355mm (Band 5)			
Greater than 355mm to 500mm (Band 6)			
Greater than 500mm to 630mm (Band 7)			
Greater than 630mm (Band 8)			
Total			

Source: FE1/1, Table 1

5.4.4 GEMA's Errors

(199) SGN submits that the application of a normalisation to SGN's repex forecast was unnecessary, disproportionate and flawed, in its application to SGN. SGN had no opportunity to point out these errors prior to FD as GEMA did not consult on its approach.

(i) WWU is not a "reliable proxy for expected industry standards"

(200) As noted at paragraph (197) above, GEMA adopted WWU's decommission-to-lay assumption on the basis that it constitutes "a *reliable proxy for expected industry standards*" and is "the most robust, built bottom-up and informed by highly detailed network models..."

¹⁴⁰ JD1, para. 85.

[and] demonstrated strong historical accuracy across its RIIO-GD2 forecasts, with only very limited variation in its outturn Tier 1 diameter band mix to date". SGN submits that this reasoning is flawed for the reasons set out below.

- (201) First, while GEMA considers WWU's methodology to be "robust", this does not establish that WWU's decommission-to-lay assumption is an appropriate basis for the work which SGN needs to do and therefore for calculating SGN's cost allowances. This is reflected by the fact that applying WWU's decommission-to-lay assumption to SGN's network would lead to unacceptable supply risks on SGN's network.¹⁴¹
- (202) GEMA's approach assumes significantly higher volumes of lay workloads into smaller diameter mains compared to the mix originally proposed by SGN, which is inconsistent with SGN's network analysis and historical practice. The impact of this is illustrated in Table 3 above, which shows a substantial increase in SGN's volumes of the smallest-diameter mains (Band 1) compared with SGN's submitted forecast (██████████) with a corresponding reduction across almost all larger diameter bands. To put it another way, the revised lay workload mix shifts volumes towards lower-cost, smaller-diameter mains.
- (203) SGN's network modelling¹⁴² suggests that the concentration of mains within the lowest bands would, if implemented for SGN, result in a reduction in network capacity of ██████████ (beyond what was assumed in SGN's Business Plan). This is a ██████████ reduction in the volume of pipe that SGN had proposed to lay. If implemented, it would result in increased incidences of low pressure at the extremities of the network. Failure to maintain the required pressure (21 mbar) across the network could compromise the safe and reliable operation of consumer appliances and lead to additional interventions to avoid disconnecting customers.¹⁴³ For example, SGN network testing indicates that, in the regions sampled, ██████████ of customers would fall below the minimum design pressure threshold, with the figure rising as high as ██████████ in some parts of the network.¹⁴⁴

¹⁴¹ JD1, para. 79-103.

¹⁴² JD1/009.

¹⁴³ JD1, para 90-92.

¹⁴⁴ JD1, para. 93.



- (204) Implementing GEMA’s proposed workload mix would therefore amount to a breach of licence obligations to provide a safe and resilient network.¹⁴⁵ To maintain supply, SGN would need to undertake an increase in strategic reinforcement on their network over and above SGN’s original network plan position, which would not be in customer interests, and is not currently funded as part of GD3.¹⁴⁶
- (205) SGN acknowledges that it is not strictly required to deliver the specific lay banding mix assumed by GEMA’s model under the regulatory framework. However, as noted at paragraph (172) above, the repex synthetic cost driver is calculated by multiplying the forecast volumes in each diameter band by GEMA’s benchmark unit cost. Accordingly, changes to the repex forecast volumes have a direct impact on the value of the cost driver, which in turn directly reduces SGN’s allowances. The net effect is a [redacted] reduction in SGN’s total repex synthetic cost, compared to SGN’s submitted volumes (see Table 4 below)
- (206) As the repex synthetic driver is used to estimate the efficient allowed costs of each GDN, the flawed reduction in the cost driver flows directly through to a lower totex allowance for SGN. GEMA’s overwriting of GDNs workload mix therefore has a material and disproportionate impact on SGN. This ultimately results in SGN being underfunded to undertake the work which it is required to deliver in GD3.

Table 4 Repex synthetic cost driver for SGN (Southern and Scotland) – Before and after GEMA’s overwriting adjustment (£m)

¹⁴⁵ Standard Special Condition A9.

¹⁴⁶ JD1, para. 99.



- (207) Second, GEMA’s analysis of the ratio of commissioned to abandoned volumes (“**RCAV**”) does not support the conclusion that WWU is a “*reliable proxy*”.¹⁴⁷
- (208) In the FD, GEMA stated that WWU’s RCAV “*exhibits a moderate increase*” of 14% (mostly in the final year of the forecast data) and that SGN’s forecasts are flat over the period.¹⁴⁸ GEMA also states that “*in principle, we would expect these relationships to be broadly stable over time*”.¹⁴⁹ Accordingly, WWU forecasts are not aligned with GEMA expectations as to RCAV over time.
- (209) Further, it does not appear that GEMA has tested whether the overwritten workloads deliver a RCAV that is “*broadly stable over time*”. It is unclear how GEMA has calculated the figures set out in the FD (including its Figure 8), since GEMA did not share its data or calculations with SGN. However, SGN’s analysis of the underlying data¹⁵⁰ indicates that (a) GEMA may have miscalculated WWU’s RCAV change over time and (b) even after applying the workload adjustment, SGN’s RCAV would materially fall over time – which is contrary to GEMA’s stated expectation that the RCAV should be “*broadly stable over time*”. SGN’s analysis of the RCAV, and the impact of GEMA’s adjustment, are set out in the table below.

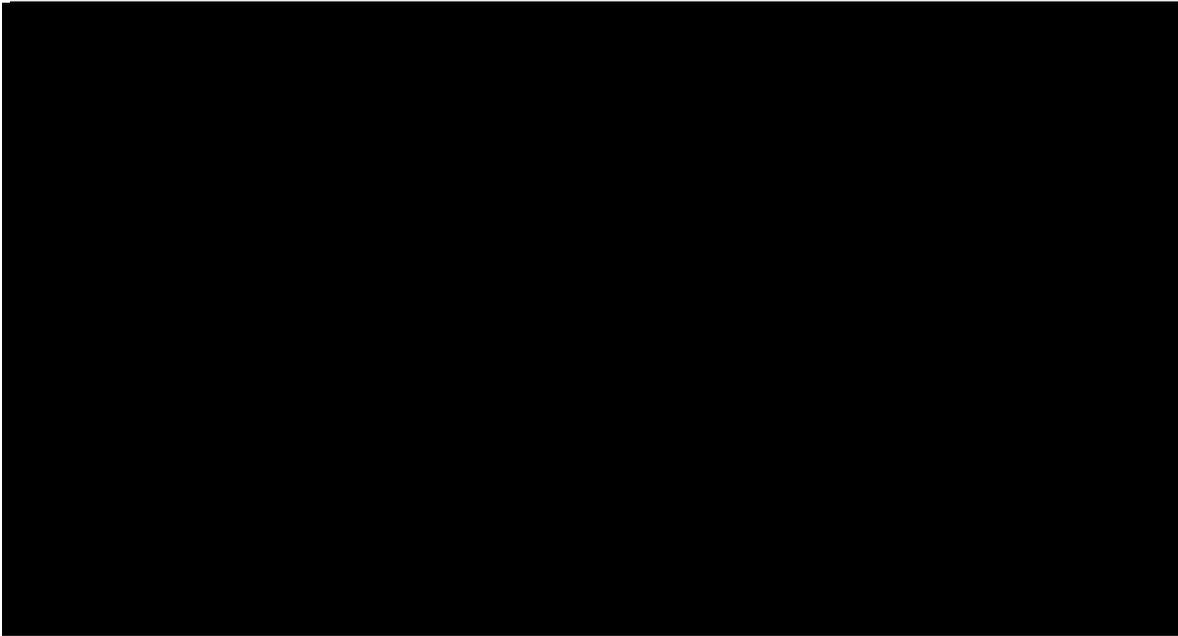
Table 5 Recreation of GEMA’s analysis – RCAV (m3) for both submitted and adjusted workload view

¹⁴⁷ See GEMA analysis in GD Annex, para. 5.320. (SGN1_010)

¹⁴⁸ GD Annex, para. 5.320-5.321. (SGN1_010)

¹⁴⁹ GD Annex, para. 5.318. (SGN1_010)

¹⁵⁰ This analysis is recreated using workload data available within GEMA’s cost modelling suite. The volume (m³) assumed per diameter band (of decommission and of lay mains) is determined based on SGN standard view of installed volume by diameter band.



Source: BD1, Table 2

(210) SGN makes the following observations based on this analysis:¹⁵¹

- (i) Cadent networks (Lon, EoE, NW and WM) and NGN have a [REDACTED] [REDACTED] from GD2 data and submitted forecasts. Post-normalisation, Cadent's RCAV [REDACTED], and NGN has a [REDACTED].
- (ii) SGN Scotland ([REDACTED]) and Southern ([REDACTED]) are the only networks whose RCAV are "broadly stable" between GD2 data and submitted forecasts, consistent with GEMA's stated expectation. This reinforces that the overwriting adjustment was inappropriate in the circumstances, as SGN forecasts are in line with historical delivery.
- (iii) Following the adjustment, SGN Southern has the largest decrease in its RCAV ([REDACTED]), and Scotland also experiences a decline ([REDACTED]). The material change implies a larger decline in overall network capacity for SGN than submitted, and does not align with industry average or historical trends. This decrease is also contrary to GEMA's expectation that the relationship should remain "broadly stable".
- (iv) WWU's RCAV shows [REDACTED] between GD2 data and submitted forecasts, which GEMA's overwriting adjustment only reduces [REDACTED].¹⁵² This is contrary to GEMA's analysis in the FD that states WWU's RCAV increases by only 14% (an increase which occurs mostly beyond the GD3 period). GEMA's conclusion that WWU's methodology constitutes a "reliable proxy" therefore appears to be based on an error of fact.

(211) Third, GEMA's conclusion that WWU's methodology is "built bottom-up and informed by highly detailed network models... [and] demonstrated strong historical accuracy" is not a sufficient justification for using it as a proxy that is applied to all networks.¹⁵³

¹⁵¹ DB1, para. 44.

¹⁵² See DB1, Table 2.

¹⁵³ FE1/1 para. 4.38.

- (212) SGN's GD3 workload mix – which has not been questioned by GEMA – reflects detailed network planning that has been delivered. A network's decommission-to-lay banding matrices are informed by network-specific engineering knowledge and the needs of customers (including requirements to maintain supply and resilience).¹⁵⁴ Even within a GDN group, with the same management teams and operating procedures, variations in the decommission-to-lay banding mix would be expected. This is evidenced by comparing the banding mix for SGN's Scotland and Southern networks (see Table 6 and Table 7 below).¹⁵⁵
- (213) While GEMA concludes that WWU's methodology is informed by detailed network models, it overlooks a critical point: that its models and forecasts are designed **for WWU's network**. Similarly, as explained in paragraph (161) above, SGN's BPDT submission for Scotland and Southern was derived from 10.5 years of asset-level repex activity. This analysis is strongly aligned with SGN's network and historical repex delivery, which SGN sees no reason to depart from in GD3.
- (214) Taken together, WWU's decommission-to-lay assumption cannot properly be regarded as a valid proxy to determine SGN workload mix.
- (215) Given that GEMA's proposed workloads are incompatible with SGN's network from a technical engineering standpoint, and were unnecessary from an economic modelling perspective, it is notable that GEMA did not consult on the proposed remedy prior to the FD.
- (216) As set out at paragraph (178) above, GEMA indicated that it would engage with GDNs to develop an appropriate remedy. GEMA did not propose making pre-modelling adjustments on an industry-wide basis, nor did it consult on the specific remedy ultimately adopted in the FD.
- (217) GEMA's approach lacked transparency. Had it made reasonable inquiries regarding the design of the remedy, these clear methodological flaws and data errors would have been identified and addressed prior to implementation.

(ii) GEMA identified issues solely in relation to Cadent's and NGN's banding mix data

- (218) In the FD, GEMA noted that "*NGN and Cadent have submitted forecasts which could lead to material adverse outcomes from our cost assessment process, given the relative share [of] Tier 1 mains within the repex synthetic cost driver and totex CSV*".¹⁵⁶ (emphasis added)
- (219) GEMA's findings in the DD and FD relate solely to Cadent's and NGN's Tier 1 Mains forecasts. No concerns were raised at any stage of the GD3 process in relation to SGN's submitted repex forecasts. The robustness of SGN's approach is clear from the following:
- (i) GEMA's analysis of GDNs' forecast RCAV, which indicated that SGN's forecasts remained "flat" across the GD3 period and were consistent with historical data.¹⁵⁷
- (ii) Figure 1 and Figure 2 above, which demonstrate a substantially smaller shift between the lay and decommissioning volumes between Band 1 and Band 3 mains for SGN. These figures are broadly consistent with SGN's historical data, in contrast with those of Cadent and NGN.

¹⁵⁴ JD1, para. 63-65.

¹⁵⁵ JD1, para. 78.

¹⁵⁶ GD Annex, para. 5.324. (SGN1_010)

¹⁵⁷ GD Annex, para. 5.321. (SGN1_010)

- (220) Taken together, SGN considers that this constitutes strong evidence that SGN’s repex forecasts—which are underpinned by historical data and detailed projections of workload volumes and costs—provide a robust and accurate basis for determining its own repex workloads and cost allowances.
- (221) Notwithstanding the absence of any identified issues with SGN’s forecasts, GEMA applied the volume adjustment set out at paragraph (189) above on an industry-wide basis.
- (222) There is clear precedent for GEMA applying targeted adjustments to individual GDNs where company-specific issues are identified. In GD2, GEMA identified a material issue with WWU’s reported forecast and adjusted WWU’s cost driver on a company-specific basis, without extending that adjustment to the wider industry.¹⁵⁸ SGN considers, in the circumstances, that a similar approach would have been proportionate and consistent with past practice, given concerns related solely to Cadent and NGN.

(iii) GEMA’s approach is not necessary for effectively cost benchmarking

- (223) GEMA observed that there were “*varying levels of uncertainty and differences in assumptions, confirmed by the GDNs themselves, that underpin these forecasts*”¹⁵⁹ and justified overwriting repex forecasts “*to ensure a consistent set of assumptions are applied across the industry*”¹⁶⁰ It also noted that the normalisation process would “*protect both customers from unjustified cost increases and networks from being disadvantaged in the benchmarking process and being underfunded*”.¹⁶¹
- (224) SGN recognises, in principle, that the purpose of cost benchmarking is to protect customers from overpaying. SGN also agrees that, when applying benchmarking (and in general), GEMA should seek to ensure that networks are not underfunded.
- (225) However, it does not follow that this objective requires a uniform assumption to be applied across the industry. As Frontier explains in the Totex Report:¹⁶²
- (i) The fundamental purpose of the benchmarking process is to assess whether different assumptions included in Business Plans might lead to overall relative efficiency or inefficiency. Benchmarking operates by comparing differences between GDNs. It is therefore reasonable for companies to adopt different forecasts, and normalising these differences in repex workloads removes the very basis upon which the benchmark is designed to compare GDNs.
 - (ii) GDNs have different repex workload mixes based on their specific network requirements. This is accepted by GEMA elsewhere in the cost assessment approach, as discussed further in relation to the CSV ground of appeal. There is no logical reason why GDN’s forecasts should be based on a common engineering assumption.
 - (iii) GEMA’s approach is inconsistent with its typical approach to normalisation, which is implemented to adjust for exogenous differences between companies. Instead, this issue relates only to the controllable forecasts of NGN and Cadent.

¹⁵⁸ FE1/1, para. 4.43.

¹⁵⁹ GD Annex, para. 5.324. (SGN1_010)

¹⁶⁰ GD Annex, para. 5.325. (SGN1_010)

¹⁶¹ GD Annex, para. 5.325 (SGN1_010)

¹⁶² See FE1/1, para. 4.38.

- (226) Accordingly, SGN submits that there is no reasonable justification for GEMA's decision to normalise repex forecasts across all GDNs. GEMA should instead have focused on the overall net effect of each GDN's assumptions on overall relative totex efficiency.

5.4.5 Conclusion on Error 1

- (227) In summary, SGN notes that GEMA has reduced its allowances in circumstances where:
- (i) As noted in SGN's network analysis, applying GEMA's proposed workload mix would reduce network capacity for SGN and therefore pressure to customers in certain areas. This would pose an unacceptable increase in risk that customers would have to be disconnected to avoid breaching key safety thresholds, unless network reinforcements were made;
 - (ii) WWU does not constitute a reliable proxy for expected industry standards when its GD3 forecast data (in particular, its RCAV) is considered more closely;
 - (iii) GEMA has raised no concerns that SGN's forecast workload mix lacked robustness; and
 - (iv) as noted by Frontier, there was no econometric rationale to impose a uniform workload mix on the sector;
- (228) SGN submits that there was no reasonable basis for overwriting SGN's repex forecast. GEMA's approach was not appropriately targeted to remedy the identified issue and this has a significant, unintended and disproportionate impact on SGN. This is inconsistent with GEMA's stated objective of normalising volumes to ensure that *"networks are not disadvantaged in the benchmarking process"*.¹⁶³

5.5 Error 2 – GEMA has misapplied the adjustment, and failed to fully “normalise” SGN’s repex forecasts by combining WWU decommission-to-lay assumptions with SGN-specific technique assumptions

5.5.1 Overview

- (229) SGN submits that GEMA also erred in the implementation of its “normalisation” adjustment. As such, GEMA's methodology is flawed and fails to “normalise” SGN forecasts appropriately.
- (230) GEMA has failed properly to address the inconsistency between GDN repex forecasts by combining WWU's the decommission-to-lay assumption with SGN's technique assumptions. In doing so, GEMA has not recognised that technique and decommission-to-lay matrices are interrelated and that combining different assumptions for each results in an unworkable banding mix for SGN. This outcome would have been avoided had GEMA applied an internally consistent assumption to both the decommission-to-lay and technique split.

5.5.2 GEMA's Approach

- (231) GEMA's methodology for applying the volume adjustment is set out in paragraph (189) above.
- (232) While GEMA has applied a common decommission-to-lay assumption across GDNs by adopting WWU's methodology (Step D above), it has relied on each GDN's existing

¹⁶³ GD Annex, para. 5.325. (SGN1_010)

technique assumptions (Step C above). In effect, GEMA's approach means that each GDN volumes are calculated using WWU decommission-to-lay assumption weighted by their own forecast technique mix.

5.5.3 SGN Decommission-to-Lay Banding Matrices

- (233) To enable comparison with WWU data provided by GEMA following the FD, SGN has prepared the decommission-to-lay matrices split by technique (see Table 6 and Table 7 below), that supported the BPDT submitted lay workload.¹⁶⁴
- (234) SGN's decommission-to-lay banding mix tables indicate the proportion of each decommissioned main diameter band that will be replaced by mains of the same or different diameter bands for Scotland and Southern. For example, for SGN Southern, 27.6% of Band B mains will be replaced with Band 2 mains using the insertion technique. Similarly, 0.9% of Band B mains will be replaced by Band 3 mains using the open cut technique.¹⁶⁵

Table 6 Decommission to lay banding mix proposed for SGN Southern network

SGN Southern Decommissioning to Lay Matrices (%)		Insertion Technique				Open-Cut Technique			
		Band A	Band B	Band C	Band D	Band A	Band B	Band C	Band D
Diameter		<=3"	4-5"	6-7"	8"	<=3"	4-5"	6-7"	8"
Lay Band	Band 1 <=75mm	72.2%	67.9%	4.8%	1.5%	19.7%	1.3%	0.2%	0.3%
	Band 2 >75 - 125mm	2.4%	27.6%	71.9%	11.1%	4.8%	2.2%	4.2%	0.5%
	Band 3 >125 - 180mm	0.0%	0.0%	11.6%	64.8%	0.8%	0.9%	4.8%	9.9%
	Band 4 >180 - 250mm	0.0%	0.0%	0.1%	0.2%	0.2%	0.1%	2.3%	7.5%
	Band 5 >250 - 355mm	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	3.9%
	Band 6 >255 - 500mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	Band 7 >500 - 630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Band 8 >630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: JD1, Table 5.

Table 7 Decommission to lay banding mix proposed for SGN Scotland network

SGN Scotland Decommissioning to Lay Matrices (%)		Insertion Technique				Open-Cut Technique			
		Band A	Band B	Band C	Band D	Band A	Band B	Band C	Band D
Diameter		<=3"	4-5"	6-7"	8"	<=3"	4-5"	6-7"	8"
Lay Band	Band 1 <=75mm	82.0%	72.0%	6.8%	2.3%	12.4%	2.3%	0.4%	0.5%
	Band 2 >75 - 125mm	1.8%	21.3%	67.7%	13.6%	2.8%	2.6%	5.3%	0.7%
	Band 3 >125 - 180mm	0.2%	0.3%	12.1%	62.3%	0.8%	1.3%	4.1%	9.6%
	Band 4 >180 - 250mm	0.0%	0.0%	0.3%	0.8%	0.0%	0.1%	2.9%	6.5%
	Band 5 >250 - 355mm	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.3%	3.4%
	Band 6 >255 - 500mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Band 7 >500 - 630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Band 8 >630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: JD1, Table 6.

5.5.4 GEMA's Errors

- (235) GEMA's overwriting adjustment produces a combined view of repex workloads for each GDN (via Step E of the process set out in para. (189) above, i.e. the aggregated open cut and insertion figures). As a result, SGN's overall decommissioning workloads (by km) remain unchanged following the overwriting adjustment (i.e. 4,275km in total), but the forecast

¹⁶⁴ JD1, para. 78.

¹⁶⁵ JD1, para. 79.

workloads shift to lower-cost, smaller-diameter mains relative to submitted forecasts (as discussed in more detail in relation to Error 1 above).

- (236) Having focused its original analysis on whether GDNs' capacity changed over time based on total lay mix workloads (i.e. aggregating open cut and insertion), it is inconsistent for GEMA to then adopt an approach that combines GDN-specific technique assumptions with WWU's decommission-to-lay assumption. This creates an internally inconsistent hybrid that is not grounded in the network models of either company.
- (237) This approach fails to recognise the relationship between the decommission-to-lay matrices and the technique of workload delivery from an engineering perspective.
- (238) In reality, these assumptions are interdependent components of the engineering design process, both derived from a common set of environmental and network-specific factors. The decommission-to-lay banding mix is a function of the inherent design and asset base of the existing network and design efficiency, informed by network-specific engineering knowledge and the needs of the customer base, so as to deliver a cost-efficient mix of work while ensuring that future capacity, pressure and safety requirements are met. Similarly, the technique employed is driven by the feasibility of the environment for open-cut or insertion delivery, the capacity requirements of customers in the locality, and the impacts at the extremes of the network¹⁶⁶.
- (239) These factors produce different decommission-to-lay matrices for each network, as illustrated by the variation between SGN's Southern and Scotland networks.
- (240) Taking SGN as an example, its default approach is to lay new mains using insertion wherever possible. As discussed above, this is because insertion is more cost effective, takes less time to complete, and is feasible due to declining gas demand over time. Given that SGN delivers a higher proportion of its workload by insertion, this necessarily results in smaller-diameter replacement mains, as the new PE main must fit within the existing main. Conversely, open cut tends to result in replacement with mains of equivalent or higher diameter bands, and is the only option available where a larger main diameter is required (relative to the existing main). SGN will use open cut where necessary to meet existing and future capacity and management pressure requirements, and/or where there are practical barriers to insertion.¹⁶⁷ Decisions regarding technique and band diameter are therefore interrelated.
- (241) Applying WWU's decommission-to-lay banding mix to SGN's technique assumption produces the banding mix tables set out below.

¹⁶⁶ JD1, paras. 65, 83.

¹⁶⁷ JD1, para. 69.

Table 8 Decommission to lay banding mix awarded to SGN Southern at FD

SGN Southern FD Decommissioning to Lay Matrices (%)		Insertion Technique				Open-Cut Technique				
		Band A	Band B	Band C	Band D	Band A	Band B	Band C	Band D	
Diameter		<=3"	4-5"	6-7"	8"	<=3"	4-5"	6-7"	8"	
Lay Band	Band 1	<=75mm	95.8%	90.7%	0.8%	0.5%	4.0%	0.0%	0.0%	0.0%
	Band 2	>75 - 125mm	0.0%	5.1%	94.2%	1.0%	0.2%	3.7%	0.0%	0.0%
	Band 3	>125 - 180mm	0.0%	0.0%	0.9%	94.3%	0.0%	0.4%	3.6%	0.0%
	Band 4	>180 - 250mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.5%	3.8%
	Band 5	>250 - 355mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%
	Band 6	>255 - 500mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Band 7	>500 - 630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Band 8	>630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: JD1, Table 7.

Table 9 Decommission to lay banding mix awarded to SGN Scotland at FD

SGN Scotland FD Decommissioning to Lay Matrices (%)		Insertion Technique				Open-Cut Technique				
		Band A	Band B	Band C	Band D	Band A	Band B	Band C	Band D	
Diameter		<=3"	4-5"	6-7"	8"	<=3"	4-5"	6-7"	8"	
Lay Band	Band 1	<=75mm	93.7%	88.7%	0.8%	0.5%	6.0%	0.0%	0.0%	0.0%
	Band 2	>75 - 125mm	0.0%	5.0%	92.1%	1.0%	0.3%	5.6%	0.0%	0.0%
	Band 3	>125 - 180mm	0.0%	0.0%	0.8%	92.2%	0.0%	0.5%	5.4%	0.0%
	Band 4	>180 - 250mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.8%	5.7%
	Band 5	>250 - 355mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.5%
	Band 6	>255 - 500mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Band 7	>500 - 630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Band 8	>630mm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: JD1, Table 8.

- (242) This produces a materially different result to SGN's submitted workload volumes. For example, for Southern, the proportion of Band A replaced by insertion with Band 1 increases from around 72.2% (in table 6) to 95.8% (in table 8) and the proportion replaced via open cut decreases from 19.7% to 4%.
- (243) Information on the technique split was not relevant in previous price controls.¹⁶⁸ While GDNs submitted data on their forecast share of work to be undertaken by open cut or insertion in their BPDTs, this was not used in the benchmarking process and had no direct impact on the outcome. However, under GEMA's approach, SGN's forecast repex volumes (and, by extension, allowances) are directly determined by technique assumptions in the BPDTs – albeit combined with WWU's own engineering assumptions on lay mix for each technique.
- (244) These assumptions are not consistent and combining them has real impacts. Ultimately, SGN still needs to deliver the appropriate Band 1 workload for its network, according to the appropriate technique. Therefore, applying a 'mix and match' approach to 'explain' the work SGN needs to do, both distorts SGN's workload mix and underfunds its delivery.

5.6 Legal Consequences

- (245) In light of the above errors, SGN submits that GEMA's decision is wrong within the meaning of Section 23D(4) of the GA86.

¹⁶⁸ Technique assumptions vary significantly across the industry. For example, [REDACTED] SGN is not aware of GEMA having scrutinised or validated these figures in any detail, or of GEMA having assessed how GDNs' GD3 technique forecasts compare to their respective historical delivery.

(246) In particular, the SGN submits that:¹⁶⁹

- (i) Section 23D(4)(a) and (b): GEMA failed properly to have regard to, and to give appropriate weight to, its statutory duties including:
 - (a) (Principles of best regulatory practice, including that regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed) GEMA applied an industry-wide adjustment without consultation that was not appropriately targeted to those companies where GEMA identified a problem and where there is precedent for company-specific errors directly.
 - (b) (Consumer, security of supply and finance duty) GEMA's adjustment is incompatible with consumers' interests in security of supply of gas. SGN is materially underfunded to deliver workloads necessary to meeting these duties
- (ii) Section 23D(4)(c): GEMA's decision was based on errors of fact. In particular:
 - (a) GEMA incorrectly assumes that WWU's decommissioning-to-lay ratio constitutes a "reliable proxy" for industry standards that could be applied to SGN, as it is inconsistent with the operational requirements of SGN's network
 - (b) GEMA's analysis of GDNs' ratio of commissioned to abandoned volumes appears to rely on incorrect data.
- (iii) Section 23D(4)(d): GEMA's decision failed to achieve its stated effect. In particular:
 - (a) GEMA's stated intention in implementing the pre-modelling adjustment was to "*protect both customers from unjustified cost increases and networks from being disadvantaged in the benchmarking process and being underfunded*".¹⁷⁰ However, the effect of GEMA's approach is to arbitrarily disadvantage SGN and underfund it in the delivery of its statutory obligations.
 - (b) GEMA failed to correctly implement WWU's methodology by applying a common assumption only to the decommission-to-lay ratio while retaining GDN-specific technique assumptions, which are interdependent from an engineering perspective.
- (iv) Section 23D(4)(e): GEMA's decision was wrong in law. In particular:
 - (a) GEMA acted irrationally and/or unreasonably by applying WWU's assumptions to SGN in circumstances where this produces a workload mix that would not deliver sufficient pressure to the end customer in line with SGN's statutory obligations.
 - (b) GEMA has taken account of irrelevant considerations including the supposed robustness of WWU's method, which does not render it suitable as means of estimating costs for SGN's network.

¹⁶⁹ SGN further refers the CMA to Section 3 above.

¹⁷⁰ GD Annex, para. 5.325. (SGN1_010)

- (c) GEMA failed to make appropriate inquiries or to consult on the use of the WWU methodology between DD and FD, depriving stakeholders of the opportunity to identify and address the key flaws in its approach.
- (d) GEMA's rationale for using WWU's decommissioning-to-lay assumptions is irrational and wrong, including that this represented "*a reliable proxy for expected industry standards*"¹⁷¹ when combined with GDN-specific technique assumptions

5.7 Materiality

- (247) The costs associated with the IMRRP are the single largest component of the GD3 cost model. As such, the errors identified above have a material impact on SGN's ability to recover adequate allowances to deliver its statutory obligations under the IMRRP.
- (248) Correcting the error by removing GEMA's overwriting adjustment for SGN (but retaining it for the other GDNs) would increase SGN's allowances by █████ over the GD3 period.
- (249) Alternatively, if the CMA forms the view that GEMA was correct to normalise volumes across the industry but addresses the implementation errors, and applies a consistent set of assumptions (i.e. both WWU decommission-to-lay and technique assumptions), SGN estimates that the adjustment would increase allowances by approximately █████ over the GD3 period.

5.8 Conclusion and relief sought

- (250) SGN submits that there is no reasonable basis for GEMA to overwrite SGN's Tier 1 repex forecasts. Applying the overwriting adjustment to SGN is not targeted in a manner that best resolves the issues identified at FD and is wholly inappropriate, given that the mix of work assumed for the purposes of benchmarking does not deliver sufficient pressure to the end customer in line with SGN's statutory obligations, and therefore cannot be applied to SGN's network.¹⁷²
- (251) SGN asks that the CMA correct this issue by removing the overwriting adjustment for SGN. This would reinstate SGN's submitted repex workload mix. SGN's repex workload mix was not challenged by GEMA at any point in the GD3 process¹⁷³ and reflected the workload mix necessary to ensure security of supply and safety requirements of the network. This is SGN's preferred remedy, as it best reflects the engineering requirements for SGN's network.
- (252) Alternatively, to the extent that GEMA considers it necessary for all GDNs' repex forecasts to be adjusted (i.e. WWU's decommission to lay assumption continues to be applied to SGN), the current approach fails to correctly normalise repex forecasts according to WWU's methodology. As the decommission-to-lay assumption and technique assumption are closely linked engineering decisions, the CMA should apply WWU's assumptions for both to ensure normalisation is done on a consistent basis (i.e. it should apply WWU's decommission-to-lay assumption and technique assumption). This ensures that the assumptions are internally consistent, and provides SGN with sufficient funding to continue to operate its network safely.

¹⁷¹ GD Annex, para. 5.326. (SGN1_010)

¹⁷² JD1, para. 101.

¹⁷³ JD1, para. 99.

- (253) SGN considers both of these remedies to be materially better than GEMA's approach to overwriting repex forecasts, for the reasons set out above.
- (254) SGN respectfully requests that the CMA grant the following relief:
- (i) Allow the appeal.
 - (ii) Quash GEMA's decision to apply an overwriting adjustment to SGN and substitute its own decision to the effect that:
 - (a) removes GEMA's overwriting adjustment for SGN; or
 - (b) in the alternative, if the CMA considers it appropriate for GDNs' repex forecasts to be normalised, ensure a consistent set of assumptions are used by applying both WWU's decommission-to-lay assumption and technique assumptions.
- (255) Further details on how to implement the specific relief sought is set out in SGN1_072.

6 Ground 1B – Composite Scale Variable

6.1 Overview

- (256) GEMA uses a totex regression model to set GDNs' modelled cost allowances in GD3. As part of its modelling approach, GEMA: (i) identifies "cost drivers" (both measures of scale and types of workload) that it deems to be appropriate to "explain" differences in GDN costs, with a cost driver mapped to each of seven cost categories; and (ii) applies a weighted average of seven cost drivers into a single variable which it calls the Composite Scale Variable ("**CSV**"). It is (ii) which SGN disputes.
- (257) The weights placed on each of the cost drivers which make up the CSV are based on the average share of industry cost for the associated cost category, calculated over 2014-2031. GEMA refers to these weights as representing the "*cost structure*" for a "*notional*" company. The weights are applied uniformly - i.e. the same weights are used for every GDN in every year. Accordingly, the CSV assumes that the cost structure of GDNs is uniform across the industry and remains constant over time.¹⁷⁴
- (258) SGN submits that this assumption does not hold and is incompatible with the technical and engineering assessment which GEMA carries out pre-modelling. This is because the weights which GEMA uses do not reflect the workloads which GEMA has already approved to be appropriate on the basis of its technical assessment. For the purposes of the cost assessment, GEMA's "notional" company should reflect the workloads that GEMA has approved and which a GDN is required (under its licence) to deliver during the price control. This would be consistent with GEMA's objective to assess the efficient level of costs to enable GDNs to carry out "*their activities*" in GD3.¹⁷⁵
- (259) This misspecification creates distortions in the benchmarking model which have the effect of penalising SGN, by driving unjustified reductions to its cost allowances. In relation to repex, the allowances resulting from GEMA's CSV weights have the effect of either disallowing the cost of work that GEMA has intended to allow or applying an excessive unit cost challenge to those workloads. At the totex level (i.e. across the whole cost base), the distortions arising from GEMA's approach materially underfund SGN (relative to an internally consistent approach).¹⁷⁶
- (260) SGN identifies three principal errors in GEMA's approach to CSV weights:
- (i) GEMA's approach fails to reflect genuine differences between GDNs' cost structures (**Error 1A**) and, by applying average weights to cost drivers, its approach is logically inconsistent with the workloads it has approved (**Error 1B**).
 - (ii) GEMA has placed undue weight on historical data and has failed to account for exogenous structural changes to spending (**Error 2**).
 - (iii) GEMA's reasons for adopting its top-down method and rejecting SGN's proposed bottom-up method are flawed (**Error 3**).

¹⁷⁴ FE1/1, para. 5.9-5.12.

¹⁷⁵ DD GD Annex 5.1 (SGN1_013)

¹⁷⁶ FE1/1, paras. 5.16(f)(i) and 5.54-5.57.

6.1.1 Legal Consequences

- (261) In light of the above errors, SGN submits that GEMA's approach is wrong within the meaning of Section 23D(4) GA86. In particular, the SGN submits that:
- (i) Section 23D(4)(a) and (b): GEMA failed properly to have regard to/give appropriate weight to, its statutory duties. In particular:
 - (a) (Consumer duty and Financing duty) – Underfunding SGN to deliver necessary workloads is incompatible with GEMA's duty to consider current and future customers and contrary to the finance duty.
 - (b) (Principles of best regulatory practice, including that regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed) – GEMA's approach is inconsistent with the principles under which regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed, as well as other principles of best regulatory practice. In particular, GEMA's approach to CSV weights is inconsistent with its engineering assessment (and effectively applies an unnecessary and/or disproportionate step in determining efficient costs). GEMA applied the alternative approach in other comparable regulatory price controls, notably ED2 (where a bottom-up CSV approach to CSV weights was used) and ED3 (where such an approach has been proposed).
 - (ii) Section 23D(4)(d): GEMA's decision failed to achieve, in whole or in part, the effect stated by GEMA to be intended by the decision. In particular:
 - (a) By taking a "notional" company approach to cost driver weightings, GEMA has failed to assess the efficient level of costs that will enable GDNs to carry out "*their activities and deliver an appropriate level of service for consumers*" (emphasis added) a primary objective in GD3.¹⁷⁷
 - (b) GEMA's approach fails to fund workloads that it has assessed and accepted through pre-modelling engineering assessments, effectively underfunding SGN to deliver workloads it deemed necessary and therefore, implicitly intended to fund.
 - (iii) Section 23D(4)(e): GEMA's decision was wrong in law. In particular:
 - (a) GEMA's approach is irrational and/or unreasonable given that it fails to allow SGN the efficient cost of the workload which it must carry out and which has been approved by GEMA itself
 - (b) 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*";
- (262) 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).

¹⁷⁷ DD GD Annex 5.1 (SGN1_013)

6.1.2 Materiality

- (263) The errors in GEMA's approach to CSV weights have a material impact on SGN's totex allowances as determined through the benchmarking model. The estimated impact of these errors is approximately █████ million over the GD3 period and is therefore clearly material, representing █████ of SGN's total GD3 allowances and therefore well within the scale of error considered material by the CMA in previous price control appeals.

6.1.3 Relief Sought

- (264) SGN respectfully requests that the CMA:
- (i) Allow the appeal.
 - (ii) Quash GEMA's decision in respect of the CSV weights.
 - (iii) Adopt SGN's proposed bottom-up approach to CSV weightings.
- (265) Further details on how to implement the specific relief sought is set out in SGN1_072.

6.1.4 Supporting Evidence

- (266) SGN requests that the CMA have regard to the following expert report and witness statements in support of these errors. The key evidence which they contain are incorporated within this ground of appeal:
- (i) Assessment of two aspects of GEMA's RIIO-GD3 cost assessment methodology" (02 February 2026) ("**Frontier Totex Report**")
 - (ii) First Witness Statement of Simon Kilonback ("**SK1**");
 - (iii) First Witness Statement of David Handley ("**DH1**");
 - (iv) First Witness Statement of Jeremy Deveney ("**JD1**"); and
 - (v) First Witness Statement of Daniel Brennan ("**DB1**").
- (ii) Material that GEMA did not have access to in relation to Ground 1B at the time of its FD, includes, the Frontier Totex Report.¹⁷⁸
- (267) GEMA's reasoning in relation to CSV weights is set out in the FD GD Annex at para. 5.344 to 5.352.

6.2 GEMA's Approach

- (268) A general overview of GEMA's cost assessment process is set out in Section 6.1 above. GEMA's approach to CSV forms the basis of the regression element of the cost assessment process (**Step 3** above).
- (269) One of GEMA's primary objectives in GD3 is "*to assess the efficient level of costs that will enable GDNs to carry out their activities and deliver an appropriate level of service for consumers*" (emphasis added).¹⁷⁹
- (270) GEMA seeks to achieve this through a totex regression model with a weighted combination of seven individual components (or 'cost drivers') to form the composite driver, or the CSV. The individual cost drivers which make up the CSV are: Repex Synthetic Cost, Modern

¹⁷⁸ FE1/1.

¹⁷⁹ RIIO-3 SSMC, para 5.1. (SGN1_015)

Equivalent Asset Value (“**MEAV**”), Maintenance MEAV, Total External Condition Reports, Emergency CSV, Connections Capex Synthetic Cost, and Mains Reinforcement Synthetic.

- (271) These categories comprise a mix of ‘scale’ drivers (i.e., MEAV, customer numbers, and network length), which capture the overall size of a GDN, and ‘workload’ drivers, which capture the underlying level of activity (e.g., External Condition Reports or the Repex Synthetic Cost).
- (272) Each cost driver ‘explains’ costs and workloads associated with specific individual components of totex. For example, the Repex Synthetic Cost explains a GDN’s repex activity. As a workload driver, repex synthetic cost driver will vary over time and across networks for the activity that is accepted. Scale drivers, such as MEAV, will not move materially with changes in workload.
- (273) The weights applied to each cost driver component of the CSV are calculated using the average share of industry cost for the associated cost category, for the period 2014–2031. The specific weights applied to each CSV component in the FD are set out in Table 10 below and are applied uniformly across the sector. Taken together, GEMA refers to these weighting as representing the “cost structure” for a “notional” company. GEMA defines the notional company as a theoretical GDN with “*a cost structure equivalent to the industry average*” across the GD1 to GD3 period.¹⁸⁰

Table 10 CSV Component Weights

Cost Activity	Cost Driver	Driver type	CSV Weight
Repex	Repex synthetic cost	Workload	39.4%
Other	MEAV	Scale	37.0%
Maintenance	Maintenance MEAV	Scale	7.5%
Repairs	Total external condition reports	Workload	6.0%
Emergency	Emergency CSV	Mixed	4.8%
Connections	Connections capex synthetic cost	Workload	4.0%
Mains reinforcement	Mains reinforcement synthetic cost	Workload	1.3%
			100%

Source: FE1/1 Table 10.

- (274) GEMA refers to the approach outlined above as a “top-down” approach. This largely replicates the model that was used for the first time in GD2.¹⁸¹ GEMA states that this approach is preferred because:¹⁸²

¹⁸⁰ GD Annex, para. 5.345. (SGN1_010)

¹⁸¹ DH1, para. 25.

¹⁸² GD Annex, para. 5.345. (SGN1_010)

- (i) It is consistent with the objective of determining efficient costs for a “notional” company with a cost structure equivalent to the industry average;
 - (ii) It has a strong engineering and economic rationale, is transparent and well understood by industry, is statistically robust, and is consistent with previous price controls; and
 - (iii) Alternative approaches either depart from the idea of a “notional” company, increase the risk of controlling for endogenous factors, or cannot be robustly implemented with the available data.
- (275) During the GD3 process, both SGN and Cadent challenged this approach and proposed alternatives.¹⁸³
- (276) Cadent proposed what it called a “bottom-up” modelling approach that determined GDN-specific weights on an annual basis and incorporated individual cost elasticities for each component, to provide a more granular representation of the relationship between changes to specific cost drivers and totex. GEMA rejected this approach stating that it:¹⁸⁴
- (i) does not improve model quality and results in a lower adjusted R-squared;
 - (ii) relies on coefficients from statistically weak models; and
 - (iii) introduces a degree of endogeneity, which undermines the concept of identifying the “notional” company relative to exogenous drivers.
- (277) SGN also highlighted concerns with GEMA’s proposed approach to weightings early in the GD3 planning process, at CAWG and in bilateral discussions with GEMA.¹⁸⁵ SGN also proposed a different bottom-up CSV approach to assess efficient costs based on one of the models used by GEMA in ED2.¹⁸⁶ An explanation of SGN’s approach is set out in detail in paragraph (280) below, but in summary this involves (a) multiplying the median ratio of each cost category over each cost driver across all GDNs by the GDNs own cost driver and (b) summing each cost driver together. This was rejected by GEMA stating that it:¹⁸⁷
- (i) resulted in a lower adjusted R Square, indicating a weaker statistical fit;
 - (ii) has a weaker economic and engineering rationale, as average industry weights are more representative of the “notional” company. In a scenario where there was a highly skewed distribution in cost structures, the cost structure for the median GDN could be very different from the average cost structure and from the cost structure of the GDN at the extreme end of the distribution; and
 - (iii) the median approach was not consulted on at the DD stage and GEMA’s top-down approach was supported by the other three GDNs.

6.3 GEMA’s errors in its approach to the CSV weights

- (278) SGN submits that GEMA erred in its approach to CSV weights for the reasons set out below.

¹⁸³ SGN-GD3-DD-GD, paras. 485-493 (SGN1_018); RIIO-3 DD GD Annex, paras. 5.323-5.237 (SGN1_013).

¹⁸⁴ RIIO-3 DD GD Annex, paras. 5.231 to 5.328. (SGN1_013)

¹⁸⁵ DB1, para. 55.

¹⁸⁶ SGN-GD3-DD-GD, paras. 275-285 and 485-493. (SGN1_018). While the same naming convention was used for both Cadent’s and SGN’s proposals, they represented quite different methodologies (SGN follows the naming convention and method established by GEMA in RIIO-ED2).

¹⁸⁷ GD Annex, para. 5.349. (SGN1_010)

6.4 Error 1A: GEMA's approach fails to reflect genuine differences between GDN cost structures

6.4.1 Overview

- (279) SGN submits that GEMA has mis-defined the "notional" company when calculating the CSV. For the purposes of the cost assessment, a "notional" company should reflect a "notional" company carrying out the workloads that GEMA has agreed that company should deliver. The incorrectly defined notional company creates distortions in the benchmarking model which have the effect of penalising SGN by disallowing efficiently incurred costs.

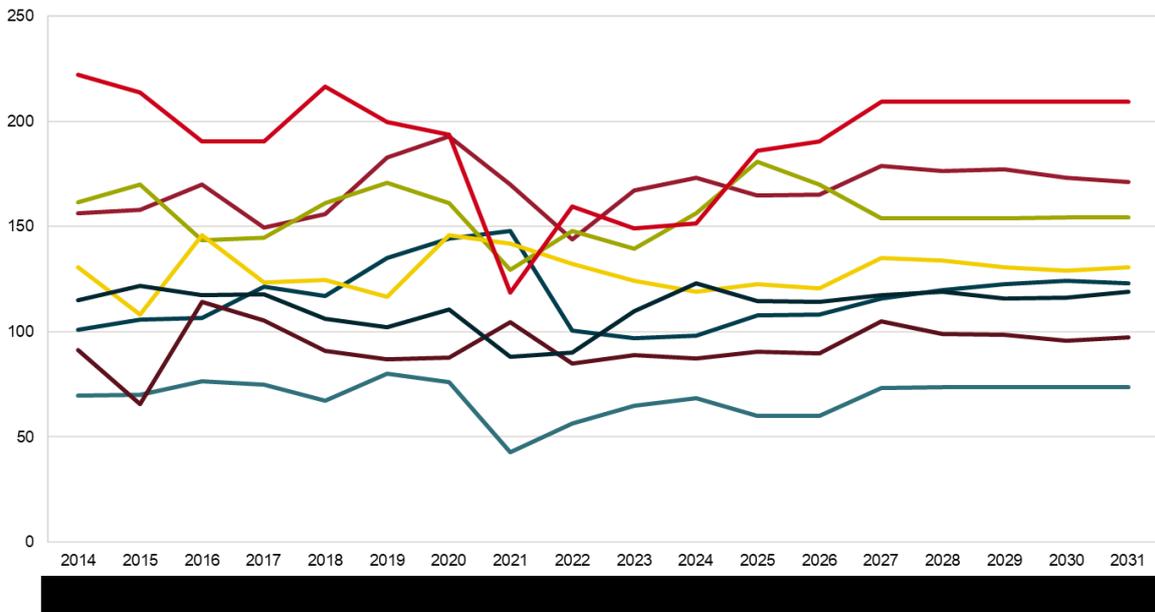
6.4.2 Variations in cost structures across GDNs

- (280) Each network has different asset characteristics and geographical conditions that give rise to unique operational challenges. The number of assets, mix of asset types, age of assets, technical specifications and deterioration rates vary significantly between regions. This variation is largely attributable to historical factors: gas networks were constructed at different times over the decades and are a product of government policy, local geography, population density, supply requirements and the engineering standards and best practices employed regionally and locally at the time of construction. The manner in which the network was built creates differences between regions for the workload that needs to be delivered today.¹⁸⁸
- (281) As a result, and as explained in Frontier's expert report, there are material variations between companies in accepted workloads. This can be illustrated by the variation over time for the repex synthetic and connections capex synthetic workload variables, as set out in Figure 4 and Figure 5 below. Importantly, the repex synthetic and connections capex synthetic costs reflect volumes that have been validated and accepted by GEMA, multiplied by an average industry unit cost. This means that they already control for differences over time and between GDNs, so variations between companies are solely due to differences in the **underlying volumes of work accepted by GEMA** rather than differences in unit cost efficiency between GDNs.¹⁸⁹

¹⁸⁸ JD1, para 30-35.

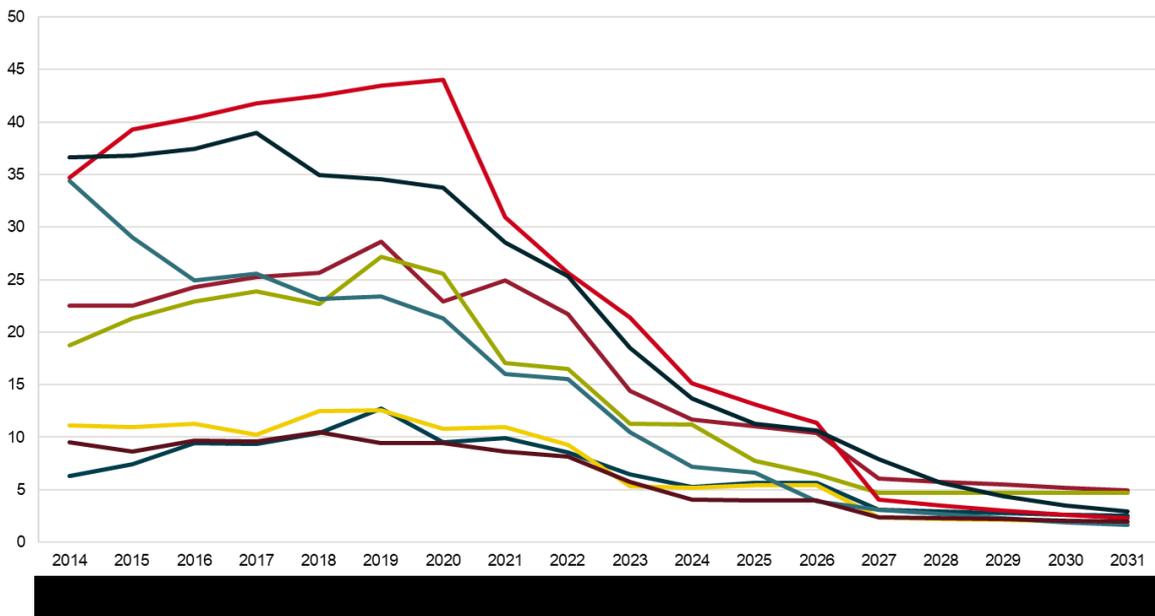
¹⁸⁹ FE1/1, para. 5.21.

Figure 4 GEMA's repex synthetic cost driver (£m)



Source: FE1/1, Figure 11.

Figure 5 GEMA's connections capex synthetic cost driver (£m)

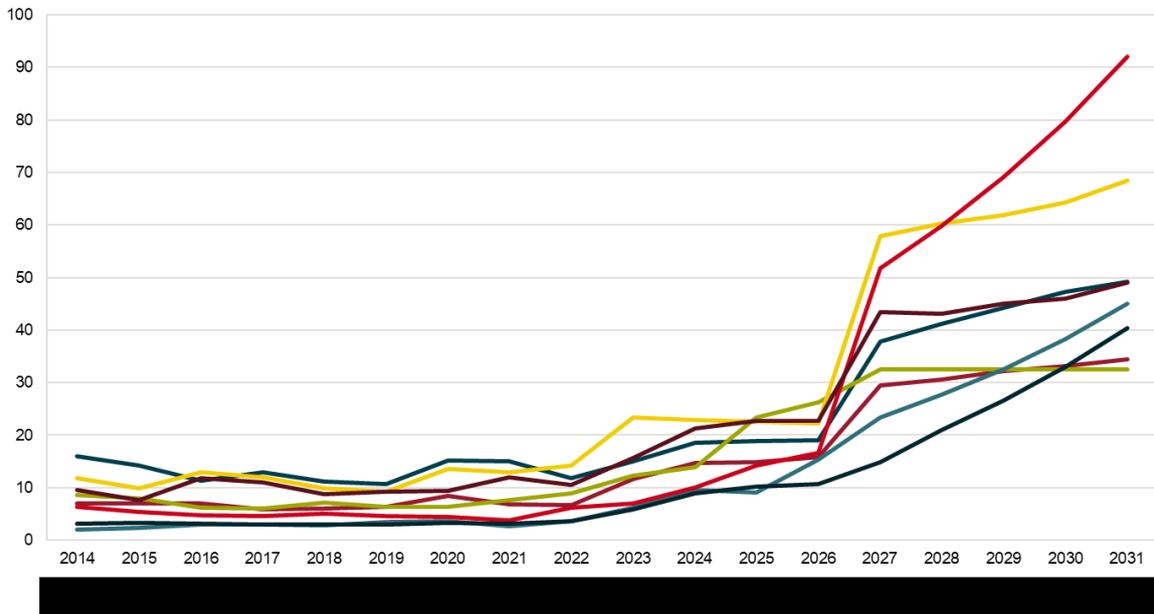


Source: FE1/1, Figure 12.

(282) This variation between GDNs' accepted workloads can also be illustrated by the relationship between the repex synthetic and connections capex synthetic drivers across the industry. The ratio between these two drivers varies materially across GDNs, with some GDN's

spending up to 68x more on repex than connections in GD3, while others spend 24x more on repex than connections.¹⁹⁰

Figure 6 Ratio of repex synthetic cost to connections capex synthetic cost



Source: FE1/1, Figure 13.

(283) This divergence is also clear when comparing SGN’s two networks. For example, the share of repex costs and associated workloads for SGN Southern (47% of totex) is significantly higher than the sector average across GD1–GD3 (39%), whereas the share for SGN Scotland (30%) is lower. As Figure 7 below shows, these differences do not average out over time.¹⁹¹

Figure 7 Repex cost share for SGN Southern and Scotland vs industry average



Source: FE1/1, Figure 15.

¹⁹⁰ FE1/1, para. 5.23.

¹⁹¹ FE1/1, para. 5.25-5.26.

- (284) From an engineering perspective, differences in workloads reflect variations in the condition and composition of each GDN's inherited asset base.¹⁹²
- (285) The Southern network comprises a higher proportion of metallic mains in densely populated urban areas, resulting in a higher overall risk profile (measured through pipe risk scores which take account both of the condition of the asset but also complementary risk factors, such as whether the main is laid in open ground, proximity to cellars etc), which results in a greater volume of assets requiring replacement and more extensive replacement activity for those assets. By comparison, the Scotland network has a lower proportion of higher-risk iron mains, resulting in a lower replacement requirement.¹⁹³
- (286) By contrast, the Scotland network has more activity associated with MEAV (45% of totex) compared with the sector average across GD1–GD3 (37%). This is primarily because the Scotland network has a higher proportion of Local Transmission System (“LTS”) assets than other networks. LTS assets operate at higher pressures, require more complex planning and control procedures, and are subject to more stringent safety, inspection and isolation requirements. Any work relating to LTS infrastructure requires more rigorous engineering design, extensive risk assessment, and enhanced supervision. These factors increase the volume of activity associated with the MEAV compared with other GDNs.¹⁹⁴
- (287) Accordingly, each GDN's asset base starts GD3 in an inherently different position. The factors outlined above, many of which are outside of management control, directly determine the nature and scale of work required in GD3 to maintain- safe and reliable operations.¹⁹⁵

6.4.3 GEMA's approach accepts this genuine variation

- (288) GEMA's approach to cost modelling already recognises that these factors create genuine variation in the cost structures of GDNs.
- (289) As part of its pre-modelling adjustments (**Step 2** of the cost assessment process), GEMA undertakes a technical and engineering assessment of each GDN's submitted volumes and costs to establish “*whether licensees' requests represented an economic and efficient arrangement for consumers*”.¹⁹⁶ GEMA reviews each GDN's Investment Decision Packs (“IDPs”) and Engineering Justification Papers (“EJPs”), and considers the annual Regulatory Reporting Pack (“RRP”), consultation responses, and independent reports. Any workloads that GEMA deems unnecessary for the GD3 period following this review are eliminated or reduced.¹⁹⁷
- (290) The engineering and technical assessment is guided by several considerations, including the need to maintain asset condition to provide safe and reliable supplies to customers. Accordingly, one of GEMA's key considerations is asset condition data and the economic case for intervention. On several occasions GEMA rejected proposals to replace assets with good asset health scores.¹⁹⁸
- (291) The workloads that remain following the pre-modelling engineering assessment are those that GEMA has agreed are **necessary and required** for a GDN to deliver in GD3 pursuant

¹⁹² JD1, paras. 46.

¹⁹³ JD1, para. 37.

¹⁹⁴ JD1, para. 34.

¹⁹⁵ JD1, para. 31.

¹⁹⁶ RIIO-3 DD GD Annex, para. 5.20. (SGN1_013)

¹⁹⁷ DH1, para. 18.

¹⁹⁸ GD Annex, para. 5.37. (SGN1_010)

to Special Conditions in its licence (for example, as part of the Price Control Deliverables (PCDs) or as part of the Network Asset Risk Metric (NARMs) mechanism) and under the IMRRP.¹⁹⁹ These accepted workloads therefore reflect the engineering and operational realities facing each GDN and are intended to ensure that the network operate efficiently and safely and maintains resilience for the future.²⁰⁰ Importantly, this assessment is made **prior to inputting these workloads into the regression model** for then determining efficient costs.

- (292) GEMA therefore implicitly accepts that cost structures vary between GDNs before it regresses these accepted workloads using the CSV. However, applying the regression model using a common set of cost structures applied to all GDNs contradicts this earlier part of GEMA's assessment.
- (293) The data set out in paragraph (283) above underscores the internal inconsistency in GEMA approach: having accepted the distinct relationships between the cost drivers for each GDN, GEMA then applies weights to the cost drivers that assume an entirely different relationship – GEMA assumes that the notional GDN spends 10x more on repex than connections – but GEMA's accepted workloads imply that the GDNs spend 24x or 68x.²⁰¹

6.4.4 GEMA's central error

- (294) It is clear from the inherent structural differences between GDNs' asset bases, and the framework of GEMA's comparative benchmarking process, that GDNs genuinely have different cost structures. **The implication is that 'notional' cost structures should be company-specific.**²⁰²
- (295) It is also clear in the data that the validated work represents a different proportion of totex for each GDN in GD3. GEMA's framework therefore appears to accept that it is valid for GDNs have different mixes of workload and therefore different valid "cost structures".
- (296) However, inconsistently with this, GEMA then applies uniform weightings to the CSV drivers based on industry-average cost shares. This means that, for a given GDN, the "repex synthetic" driver is attributed a 39% weighting in the CSV calculation, even if GEMA's pre-validated workloads imply that repex should actually be a higher/lower share of the notional cost base. This creates a mismatch between the workloads GEMA has validated, and the cost structure GEMA assumes to calculate a CSV.²⁰³
- (297) This variation between the accepted workloads and the notional CSV weights ultimately distorts the efficiency assessment. As Frontier explains in the Totex Report,²⁰⁴ this approach can produce different efficiency scores for GDNs even in circumstances where GDNs have identical unit cost efficiency. This discrepancy occurs because of the difference in workloads that are validated by GEMA.

¹⁹⁹ See JD1, para. 27. For example, PCDs relating to Special Condition 3.27 South London Medium Pressure, Special Condition 3.28, Special Condition 3.10, Special Condition 3.11, Special Condition 9.3. Additionally, the Network Asset Risk Metric (NARM) framework, Special Condition 3.1, Special Condition 9.2, and the NARM handbook. Funding adjustment and penalties will be calculated in accordance with the NARM's handbook. Additionally, SGN has statutory obligations to complete its Tier 1 mains replacement by 2032 under the IMRRP, including in connection with Regulation 13 of the Pipelines Safety Regulations 1996 (PSR).

²⁰⁰ DH1, para. 19.

²⁰¹ FE1/1, para. 5.24.

²⁰² FE1/1, para. 1.24.

²⁰³ FE1/1, para. 5.16(b)-(c).

²⁰⁴ FE1/1, paras. 5.16-5.31.

- (298) The value of the disallowance arises solely from fixing the CSV weighting at the industry-average rather than reflect the company-specific workloads that GEMA has accepted. SGN submits that this is an unjustified reduction in its allowances that has a material impact on its ability to fulfil its regulatory obligations.²⁰⁵
- (299) The distortion arising from GEMA's approach will apply across the cost base; and will have multiple interacting effects (since some drivers will be overweighted and others underweighted, and the resulting distortion to the regression results will be different for each GDN).²⁰⁶
- (300) When this alternative is used, SGN Southern's efficiency score improves relative to the catch-up efficiency benchmark, and SGN's total allowances increase by [REDACTED]. The differing impact for Southern versus Scotland is driven by the net effect of differences in their actual cost structures relative to the industry average shares across the seven key cost categories (for example, under GEMA's top-down approach, the repex synthetic was under-weighted for Southern, and 'over-weighted' for Scotland).
- (301) The overall statistical performance of the model remains broadly comparable under the bottom-up specification.²⁰⁸ This indicates that the revised weighting approach does not materially weaken the explanatory power or robustness of the model, but there is a material impact on allowances for SGN as a result of correcting the CSV weighting error.
- (302) Taking repex workload as an example again, in order for SGN Southern to deliver the repex volumes that GEMA has accepted as necessary within 39% of its totex allowance (i.e. the CSV weighting on repex), it must work within lower repex unit costs.
- (303) SGN ability to reduce or reallocate workload is very limited under the regulatory framework. Workload is validated by GEMA and output is agreed in the licence (e.g. NARMs output).²⁰⁹ As such, any non-delivery will result in a shortfall against agreed NARMs deliverables.
- (304) Therefore, the only option to achieve modelled costs is to achieve further reductions in unit costs (which represents an additional unit cost challenge).
- (305) The scale of this additional challenge is significant. GEMA's uniform CSV weights assume that 39% of a GDN's totex will be spent on repex workloads. Frontier estimates that, for SGN Southern, this implies [REDACTED] (pre-catchup adjustment in step 3) would be allocated to repex workloads, under GEMA's 'notional' cost structure. This compares with SGN Southern's normalised submitted repex costs of [REDACTED] to deliver the implied repex workloads, SGN would need to achieve unit costs approximately [REDACTED] lower than GEMA's benchmark unit cost used to calculate the repex synthetic cost; or to reduce other areas of totex activity. SGN considers this to be unrealistic.²¹⁰
- (306) It follows that a **39% weighting on repex cannot be an appropriate notional cost structure for SGN Southern**. GEMA's approach to CSV weights therefore imposes an

²⁰⁵ FE1/1, para. 5.42.

²⁰⁶ FE1/1, paras. 5.54-5.57.

²⁰⁷ See FE1/1, Annex E, Figure 33.

²⁰⁸ See FE1/1, Annex E for details on efficiency scores, allowances and statistical results.

²⁰⁹ JD1, para. 27-28. See footnote 197.

²¹⁰ FE1/1, paras. 5.58-5.65; DH1, paras. 39-41. [REDACTED]

excessive and unjustified unit cost challenge on SGN and disallows workloads that GEMA itself has determined should be funded.

6.5 Error 1B: GEMA's approach is logically inconsistent because it effectively disallows workloads it has approved as part of the engineering process

- (307) As has been explained, GEMA's framework accepts that GDNs have valid differences in workload mix and therefore valid differences in different "cost structures".
- (308) However, having accepted that each GDN will deliver a particular mix of workloads over the GD3 period on the basis of this engineering assessment, GEMA then applies CSV weights derived from industry-average cost shares. This notional weighting assumes that each GDN will undertake a materially different workload mix from what GEMA has itself approved.
- (309) This gives rise to a fundamental internal inconsistency. Since the CSV incorporates workload variables, the 'notional' company cannot have cost shares which are uniform across the sector. GEMA has accepted that each GDN has a specific workload mix (based on its asset base and operational requirements), but then benchmarks all GDNs on the assumption that they will deliver a uniform, average workload.
- (310) As set out above, this is contradictory and distorts the relative efficiency scores of GDNs.

6.6 Error 2: GEMA has placed undue weight on historical data and failed to account for exogenous, industry-wide changes to efficient cost structures.

6.6.1 Overview

- (311) SGN submits that GEMA has placed undue weight on historical data from GD1 and GD2 in determining CSV weights, resulting in an outcome that is inconsistent with operational realities today. This is therefore also inconsistent with the stated objective of the cost assessment process: to set allowances for the "notional" company during the GD3 price control period. This is an example of the central error discussed under Error 1.

6.6.2 GEMA's Approach

- (312) In GD3, GEMA weights the components of the totex CSV based on the industry average submitted costs for each cost driver over the period 2014-2031.²¹¹

6.6.3 Errors in GEMA's approach

- (313) GEMA's reliance on GD1 and GD2 data to define the "notional" company in GD3 fails to place appropriate weight on, and is incompatible with, industry-wide developments that have materially altered efficient cost allocation over time.
- (314) GDNs' cost structures have changed over time due to exogenous policy factors and the risk profile of the asset base. For example, the UK Net Zero target has reduced the number of connections and associated reinforcement, and the removal of the domestic connections load allowance will increase the pace of change.²¹²
- (315) GEMA recognised this issue in its Sector Specific Methodology Consultation ("**SSMC**"), observing that "*In a recent CAWG, some GDNs argued that the use of historical costs in benchmarking of forecast costs should not be as relevant in RIIO-GD3, given changes to*

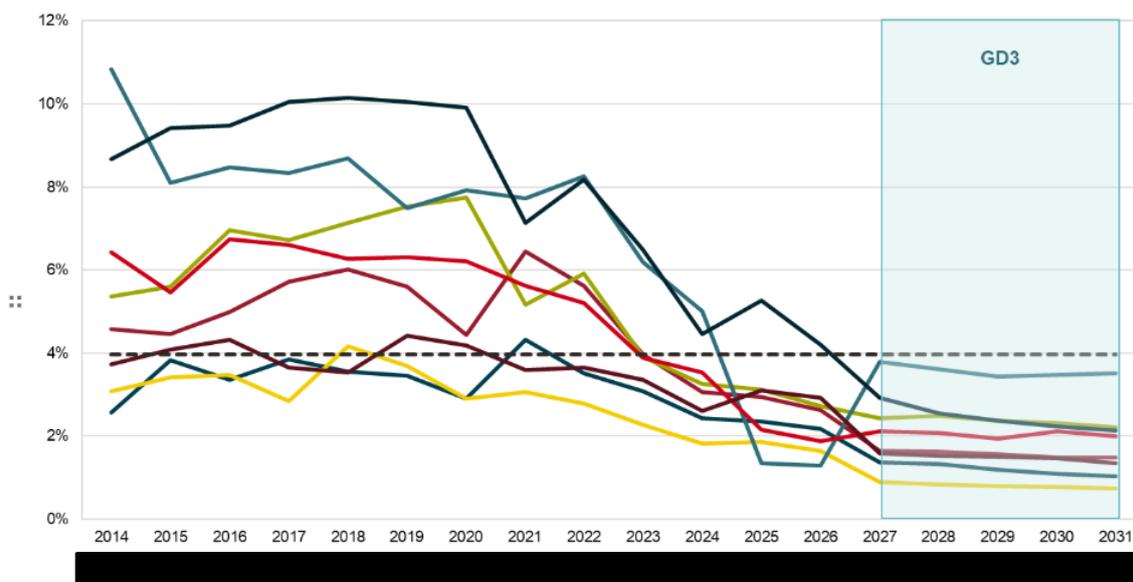
²¹¹ GD Annex, para. 5.345. (SGN1_010)

²¹² DH1, paras. 71 and 73.2(a); JD1, para. 48.

existing GDN activities and cost pressures. **We recognise that this is an important consideration** as we develop our cost assessment approach for RII0-GD3” (emphasis added).²¹³ Notwithstanding these concerns, GEMA has assigned the same weight to the first year of GD1 as to each year in GD3.

- (316) As GEMA is determining appropriate allowances for the “notional” company in GD3, SGN contends that a CSV that is predominantly weighted towards historical data from GD1 and GD2 distorts the average cost structure of GDNs. Accordingly, the “notional” company does not reflect the actual efficient cost structure of any GDN today.²¹⁴
- (317) This issue is most clearly illustrated by the weight that GEMA assigns to the connections cost driver. Over time, connections have been declining as a share of GDNs’ workload activity, primarily driven by declining gas demand resulting from government decarbonisation policies and the broader transition to net zero. This trend can be observed in Figure 8 below.
- (318) Based on GD1–GD3 data, connections are weighted at 4%, implying that the “notional” company should allocate 4% of totex to this cost driver in GD3. However, as Figure 8 shows, no GDN is forecasting its connection workloads to exceed this level over the GD3 period. It follows that the notional cost structure for GD3 should place a lower weight on connections relative to previous price control periods.

Figure 8 Share of totex attributable to connections by GDN



Source: FE1/1, Figure 16

- (319) Similarly, all GDNs except SGN Scotland are expecting repex workload activity to be higher than the notional CSV weight used by GEMA across most of GD3.²¹⁵ As with connections,

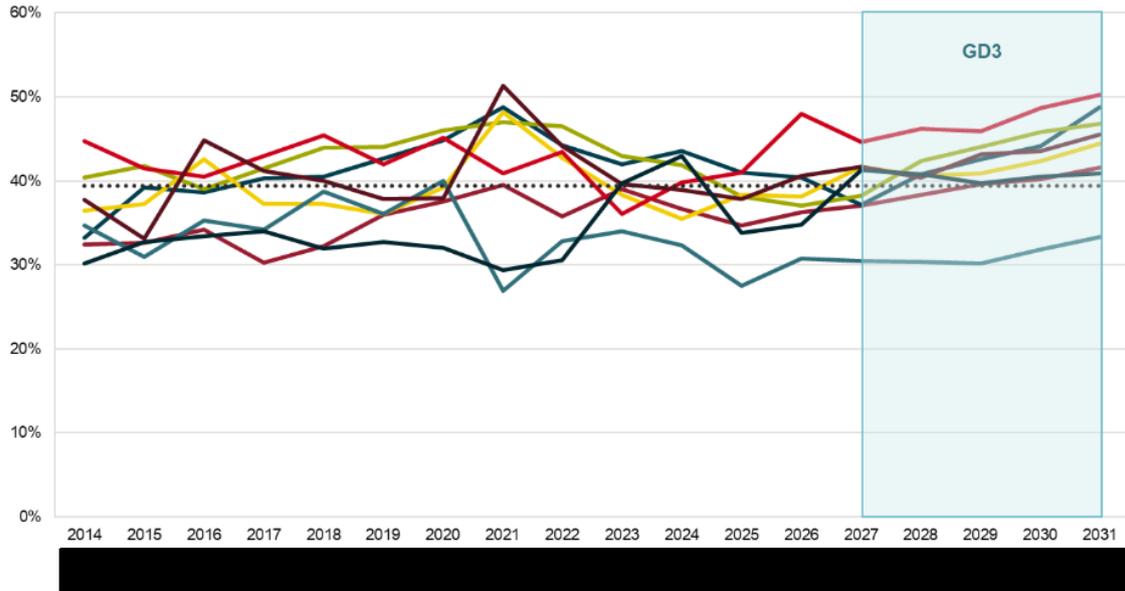
²¹³ RII0-3 SSMC, para. 5.22. (SGN1_015)

²¹⁴ FE1/1, para. 5.46.

²¹⁵ SGN notes that EoE forecasts a lower share than GEMA’s weighting in 2027–2028 only; and Lon and NGN in 2027 only (FE1/1, para. 5.52 (se FN 95)).

Figure 9 implies that the notional cost structure for GD3 should place a higher weight on repex relative to previous price control periods.

Figure 9 Share of spend on repex by GDN



Source: FE1/1, Figure 17

- (320) If the CSV weights used by GEMA overestimates GDNs' connection workloads or understate repex workloads, it follows that **all** CSV weights are incorrectly weighted because as the weights must sum to 100%. Even marginal changes to the cost driver weights arising from this reliance on historical data will have multiple interacting effects on the relative efficiency scores for all GDNs.²¹⁶
- (321) In light of the disconnect between forecast data and historical averages, SGN submits that it is unreasonable and/or irrational for GEMA to rely on data observed in GD1 and GD2 to inform its definition of the "notional" company in GD3.
- (322) The use of historical averages results in a benchmark cost structure that no network will deliver over GD3. As discussed in paragraphs (294) to (310) above, the incorrectly defined notional company creates distortions in the benchmarking model that have the effect of penalising SGN.
- (323) SGN's proposed bottom-up CSV weighting approach, as set out below, addresses this inherent flaw in GEMA's methodology.

²¹⁶ FE1/1, paras. 5.54-5.57.

6.7 Error 3: GEMA's reasons for adopting approach to CSV weights, and rejecting SGN's proposed alternative approach are flawed

6.7.1 Overview

- (324) SGN proposes a “bottom-up” approach to CSV weightings, whereby the CSV weights are calculated using the median ratio of each cost category to each cost driver (calculated over 2014 – 2031), applied to each GDN's individual cost driver volumes.²¹⁷
- (325) SGN submits that GEMA's justification for its approach to CSV weights, and its reasons for rejecting SGN's proposed bottom-up approach, are both flawed. SGN's bottom-up approach was materially better approach and GEMA erred in rejecting it.

6.7.2 GEMA's approach

- (326) GEMA's justification for rejecting SGN's approach and retaining the existing CSV weighting approach for GD3 is set out in paragraph (312) above. GEMA states that its approach:²¹⁸
- (i) is more consistent with determining efficient costs for a “notional” company;
 - (ii) has a stronger economic and engineering rationale;
 - (iii) is more statistically robust;
 - (iv) is more transparent and well understood by the industry;
 - (v) is consistent with previous price controls;
 - (vi) was not consulted on during GD3; and
 - (vii) “*increase the risk of controlling for endogenous factors, or cannot be robustly implemented with the available data*”.

6.7.3 GEMA's Errors

- (327) GEMA's arguments do not provide a reasonable justification for preferring its top-down model or for rejecting a bottom-up approach to CSV weights.
- (328) SGN address each of GEMA's criticisms of its proposed bottom-up CSV weighting approach in turn below. In each case, GEMA's justifications are either erroneous, unevicenced or inadequately supported by the available evidence:

(i) Determining efficient cost for the “notional” company:

- (329) As explained above GEMA's “notional” company does not account for significant, genuine differences in cost structures between GDNs or changes in cost structures over time. A bottom-up CSV approach does not depart from the concept of a “notional” company: GDNs would still be benchmarked through the regression model to ensure their costs are efficient. Rather, a bottom-up approach to CSV weights provides a more accurate representation of the “notional” company by more appropriately accounting for genuine differences in workloads.
- (330) GEMA's statement also contradicts comments made in the context of ED3 (in reference to the same model SGN proposed): “*we consider that the bottom-up CSV cost driver has as strong theoretical rationale... That helps to normalise each activity into a **notional***”

²¹⁷ FE1/1, para. 5.76.

²¹⁸ GD Annex, paras. 5.345 and 5.348. (SGN1_010)

*expenditure incurred... The driver identifies relative efficiency by comparing the **notional** company (evaluated at the median unit cost) in the bottom-up CSV) with the actual company expenditure as the dependent variable. DNOs that incur more expenditure than their **notional** counterparts are then flagged as inefficient by the totex model using the bottom-up CSV cost driver and vice versa.” (emphasis added)²¹⁹*

- (331) Further, GEMA states that the median expenditure share may be less representative of the “notional” company, for example where there was a highly skewed distribution in cost structures.²²⁰ This is a misunderstanding of SGN’s approach, which proposes weighted CSV components by the industry’s **median ratio of cost to cost driver** not share of spend. SGN’s approach is set out in Frontier’s Totex Report.²²¹

(ii) Stronger engineering and economic rationale:

- (332) SGN submits that there is no plausible engineering rationale for assuming that all GDNs have uniform cost structures. Using an 18-year simple sector average cost structure is misaligned to the engineering assessments that have occurred over this period (particularly within repex workloads for determining the repex synthetic cost drivers). As noted in paragraph (309) above, GEMA has accepted GDNs’ proposed workloads as part of its engineering assessment. It follows that there is a strong engineering rationale for GDNs to have different cost structures.

- (333) A mis-calibrated single top-down model risks either disallowing investment that drives value to customers or providing insufficient funding for the efficient delivery of essential outputs, including those relating to network safety and resilience. By contrast, a bottom-up CSV weighting approach facilitates an appropriate estimation of efficient cost allowances that is more closely aligned with the actual activities for each GDN’s network which have been approved through the inclusion within the component driver.²²² This ensures that operational realities are properly reflected in the benchmarking process and enables a more granular assessment of relative efficiency than a top-down weighting approach.²²³

(iii) Statistically robust:

- (334) GEMA concludes that SGN’s approach would result in a lower R-squared value. GEMA tested the bottom-up approach as presented by SGN to determine an R-squared value of 0.907 (compared with the December 25 FD R-squared value of 0.910).²²⁴ This difference is a negligible and both models generate high R-squared values that would satisfy any reasonable standard R-squared test. In any event, the objective of statistical testing is not to maximise statistical fit (as measured by R-squared) and high R-squared may indicate ‘overfitting’.
- (335) SGN has raised its concerns with GEMA on over-reliance of R-Squared throughout the GD3 process²²⁵ and notes the CMA’s comments in GD2 that “[a] reduced R-squared could reflect a genuine increase in the range of GDN efficiencies rather than an increase in the effect of exogenous factors not captured by the model – this is a matter of interpretation and as such

²¹⁹ ED3 SSMC Cost Annex, para. 2.80. (SGN1_025)

²²⁰ GD Annex, paras. 5.348-5.349. (SGN1_010)

²²¹ Also see FE1/1, para. 5.82

²²² DB1, para. 55(D).

²²³ DB1, para. 55; SGN-GD3-DD-GD, paras. 485-493.

²²⁴ DB1, para. 62.

²²⁵ See DB1, para. 12.

changes in the R-squared or the range in efficiency scores cannot be interpreted directly as indicators of the model's performance or robustness.²²⁶

(336) The R-squared test should only be treated as part of a broader range of assessment criteria, and must be balanced against proper consideration of the cost driver's underlying merits,

(337) SGN's proposed weighting approach therefore does not materially weaken the explanatory power or robustness of the model.²²⁷

(iv) Transparent and well understood:

(338) Importantly GEMA utilised a bottom-up model for CSV weighting in ED2 – that model forms the basis of SGN's alternative approach – to define the notional company.

(v) Consistency with previous price controls:

(339) SGN notes that GEMA has adapted its approach to CSV weighting in the past, as the current methodology was only introduced in GD2. In any event, the consistency with previous price controls is a weak justification for adopting a methodology that contains significant errors, as outlined in this chapter.²²⁸

(vi) No consultation:

(340) GEMA rejects SGN's approach on the basis that "*the median approach was not consulted on at DD, and [there is] support for our approach from the other three GDNs*".²²⁹ SGN makes the following points in this regard:

(a) This is inconsistent with GEMA's approach elsewhere in the DD and FD. For example, GEMA normalised repex workloads without prior consultation with, or support from, GDNs.²³⁰

(b) The absence of prior consultation does not constitute a valid justification for the choice of benchmarking approach, particularly where a materially better alternative is available to GEMA.

(341) This underscores more serious procedural concerns that SGN has in relation to GEMA's consultation on CSV weightings. SGN (and Cadent) raised concerns throughout the process that GEMA's approach in GD2 did not adequately reflect GDN's cost structures.²³¹ SGN provided detailed information in the form of stata code and model suites to implement the approach. GEMA has had ample time to engage with SGN's submissions and to consult on alternative approaches prior to the FD, but it failed to consider materially better alternatives or make reasonable inquiries at all stages of the process, instead relying on the GD2 approach by default.

(vii) endogenous factors

(342) GEMA's statement that alternative approaches either depart from the idea of a "*notional*" company, increase the risk of controlling for endogenous factors, or cannot be robustly implemented with the available data, is flawed.²³² This is inconsistent with other statements

²²⁶ CMA RIIO-2 FD Vol 3. (SGN1_022)

²²⁷ FE1/1.

²²⁸ FE1/1, para. 5.70

²²⁹ GD Annex, paras. 5.349 (SGN1_010).

²³⁰ See Ground 1A of the Notice of Appeal.

²³¹ Including at CAWG, in the RIIO-3 SGN SSMC Response (SGN1_020), and in response to SQs: see DB1.

²³² FE1/1, para. 5.81.

that GEMA has made on the bottom up approach to weighting in the course of ED3,²³³ where GEMA concluded that the bottom-up CSV cost driver has a strong theoretical rationale as a notional driver. As regards to endogeneity, the bottom-up CSV applies industry median cost-to-driver ratios to the GDN-specific workloads, and, as Frontier Economics notes, does not appear to entail any endogeneity concern. The bottom-up CSV can also be robustly implemented with the available data.²³⁴ We also note that GEMA stated in its ED3 SSMC that the “*top-down CSV is potentially less accurate than the bottom-up CSV*”²³⁵ albeit this appears to be for different reasons than the error identified in this appeal.

(viii) SGN’s approach cannot be robustly implemented with the available data:

- (343) SGN refers to the Frontier Totex Report, which describes in detail how a bottom-up approach can be implemented in GD3. SGN also provided all the necessary information as part of its response to the Draft Determination.²³⁶

(ix) Recent concerns raised in relation to narrow econometric modelling focus

- (344) Finally, SGN note that the recent experience in the water sector highlights material concerns with an approach that is too narrowly focused on econometric modelling.
- (345) The Independent Water Commission in its Final Report observed that “*there are fundamental limits to how precise and accurate a benchmarking framework and econometric tools can be.*”²³⁷ and that Ofwat had “*relied too heavily on a data driven, econometric approach, and has not taken sufficient account of company-specific conditions*”,²³⁸ with these findings later reinforced by the UK Government in the New Vision for Water White Paper.²³⁹
- (346) These comments are highly relevant to the present appeal. GEMA’s current cost assessment approach is too tightly constrained by the econometric model, which overlooks the specific issues relating to each GDN’s own network assets and geography, and places a greater focus on achieving the highest possible levels of statistical robustness. This is disconnected not only from the operational reality facing GDNs in relation to safety, resilience, and security of supply, but also from its own engineering and technical assessment of what GDNs should deliver in GD3.

6.7.4 SGN’s bottom-up approach to CSV weights is a materially better alternative

- (347) SGN submits that a bottom-up CSV approach represents a materially better alternative to GEMA’s methodology.
- (348) Frontier explains how SGN’s approach would be implemented in the Frontier Totex Report. In summary, the CSV weights would be calculated as follows:²⁴⁰
- (i) for each cost driver, calculate the median ratio of each cost category to each cost driver across all GDNs calculated over 2014 - 2031;

²³³ ED3 SSMC Cost Annex, para. 2.84. (SGN1_025)

²³⁴ See FE1/1, Annex E which shows that the statistical performance of the totex model using the bottom-up CSV is broadly comparable to GEMA’s FD model.

²³⁵ FE1/1, para. 5.82 and ED3 SSMC Cost Annex, para. 2.84 (SGN1_025).

²³⁶ SGN-GD3-DD-GD. (SGN1_018)

²³⁷ IWC Report. (SGN1_023)

²³⁸ IWC Report. (SGN1_023)

²³⁹ Water Government Report. (SGN1_024)

²⁴⁰ FE1/1

- (ii) for each GDN and each cost driver, multiply the GDN's own cost driver (which is accepted by GEMA) by the median ratio (which is common across all GDNs and time); and
- (iii) the CSV is then calculated as the sum, across cost categories, of each GDN's cost driver weighted by the relevant sector median unit cost.

A bottom-up CSV approach facilitates a more transparent allocation of allowances aligned to activities required within each region, ensuring that unique operational needs are reflected in the benchmarking process. This addresses the issues identified in Errors 1 and 2 above. It also satisfies GEMA's stated criteria for cost assessment (see paragraph (326) above).

- (349) The use of a top-down approach significantly distorts the efficiency scores across the industry. This distortion is corrected when a bottom-up approach is used.²⁴¹
- (350) Reliance on a single regression model to determine cost allowances increases the importance of ensuring that the CSV specification (and model specification more generally) are robust and accurate, as small errors within the CSV weightings can lead to greater inaccuracies across the broader cost model.²⁴² For the reasons set out in above, these inaccuracies are significant.
- (351) The distortive effect of GEMA's uniform CSV approach is demonstrated by a mathematical example in para. 5.29-5.41 of the Frontier Totex Report, which considers three hypothetical GDNs with different workload mixes that operate at identical efficient unit costs. It shows that GEMA's top-down approach (applying uniform industry average weights) results in divergent efficiency scores, despite identical underlying unit cost efficiency. Whereas a bottom-up approach (applying GDNs' own volumes of work multiplied by the median ratio of each cost category to each cost driver) correctly identifies when companies are operating at the efficient industry cost. This approach mitigates these distortions by accounting for the workloads that GEMA expects companies to deliver in calculating the CSV.
- (352) This distortion is clearly illustrated in the cost benchmark by changes to SGN's efficiency scores once a bottom-up CSV weighting approach is implemented. In particular, SGN Southern's efficiency scores improve relative to the catch-up efficiency benchmark (from [REDACTED]), which leads to an increase in allowances of [REDACTED]. Conversely, SGN Scotland's allowances are reduced by [REDACTED]. The changes to efficiency scores across the sector are set out in Figure 10 below.
- (353) More information on the impact that the bottom-up approach would have to efficiency scores for SGN and the rest of the sector is set out in the Frontier Totex Report.²⁴³

²⁴¹ FE1/1, Annex D.

²⁴² FE1/1, para. 3.13.

²⁴³ FE1/1, Annex E.

6.8 Legal Consequences

- (354) In light of the above errors, SGN submits that GEMA's approach is wrong within the meaning of Section 23D(4) GA86. In particular, SGN submits that:²⁴⁴
- (i) Section 23D(4)(a) and (b): GEMA failed properly to have regard to/give appropriate weight to, its statutory duties. In particular:
 - (a) (Consumer duty and Financing duty) – Underfunding SGN to deliver necessary workloads is incompatible with GEMA's duty to consider current and future customers and contrary to the finance duty.
 - (b) (Principles of best regulatory practice, including that regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed) – GEMA's approach is inconsistent with the principles under which regulatory activities should be consistent, transparent, proportionate and targeted only at cases in which action is needed, as well as other principles of best regulatory practice. In particular, GEMA's approach to CSV weights is inconsistent with its engineering assessment (and effectively applies an unnecessary and/or disproportionate step in determining efficient costs). GEMA applied the alternative approach in other comparable regulatory price controls, notably ED2 (where a bottom-up CSV approach to CSV weights was used) and ED3 (where such an approach has been proposed).
 - (ii) Section 23D(4)(d): GEMA's decision failed to achieve, in whole or in part, the effect stated by GEMA to be intended by the decision. In particular:
 - (a) By taking a "notional" company approach to cost driver weightings, GEMA has failed to assess the efficient level of costs that will enable GDNs to carry out "*their activities and deliver an appropriate level of service for consumers*" (emphasis added) a primary objective in GD3.²⁴⁵

²⁴⁴ SGN further refers the CMA to Section 3 above.

²⁴⁵ RIIO-3 SSMC, para 5.1. (SGN1_015)

- (b) GEMA's approach also fails to fund workloads that it has assessed and accepted through pre-modelling engineering assessments, effectively underfunding SGN to deliver workloads it deemed necessary and therefore, implicitly intended to fund.
- (iii) Section 23D(4)(e): GEMA's decision was wrong in law. In particular:
 - (a) GEMA's approach is irrational and/or unreasonable given that it fails to allow SGN the efficient cost of the workload which it must carry out and which has been approved by GEMA itself
 - (b) 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*";
- (355) 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).

6.9 Materiality

- (356) The errors in GEMA's approach to CSV weights have a material impact on SGN's totex allowances as determined through the benchmarking model. The estimated impact of these errors is approximately █████ million over the GD3 period and is therefore clearly material, representing █████ of SGN's total GD3 allowances and therefore well within the scale of error considered material by the CMA in previous price control appeals.

6.10 Conclusion and Relief sought

- (357) For the reasons set out above, the SGN submits that GEMA's approach to CSV weights is wrong, as it results in SGN being materially underfunded to deliver the workloads GEMA itself has itself assessed and accepted as necessary for the GD3 period. SGN is required to deliver repex workloads pursuant to its licence obligations and has no discretion to reduce or defer volumes in question.
- (358) The effect of GEMA's approach is to impose an unjustified and disproportionate unit cost challenge on SGN by requiring it to deliver repex workloads significantly below benchmark unit cost or to otherwise reduce other areas of totex activity. This is infeasible and does not reflect the reality facing SGN today.
- (359) SGN respectfully request that the CMA:
 - (i) Allow the appeal.
 - (ii) Quash GEMA's decision in respect of the CSV weights.
 - (iii) Adopt SGN's proposed bottom-up approach to CSV weightings.

7 Ground 2 – Ongoing Efficiency

7.1 Overview

- (360) GEMA applies an OE parameter to totex to “*reflect the productivity improvements that we consider even the most efficient company can achieve*”.²⁴⁶ GEMA has set the OE at 1.0% at RIIO-3, reducing pre-OE allowances in GD3 by £1.5bn for the industry and by c.£203m for SGN. A 1.0% parameter is not justifiable at GD3.
- (361) Post-Global Financial Crisis (“**GFC**”), UK productivity growth has averaged close to zero, and GEMA is wrong to assume that gas networks are insulated from key factors that have driven this. Independent pre-FD productivity growth forecasts by the Office of Budget Responsibility (“**OBR**”) (averaging 0.5% over 2024–2030) and the Bank of England (“**BoE**”) (averaging 0.1% in 2024-2027 and reaching just 0.3% in 2027) are likewise materially and consistently below 1.0% and have, since the FD, been further downgraded. GEMA has unjustifiably de-emphasised and committed material factual errors in its handling of forecast data. It has further relied on unevidenced qualitative factors to support selecting a 1.0% OE parameter as a mid-point of a “narrow plausible” range that is itself demonstrably upwardly skewed. Indeed, GEMA applied defective logic to establish a floor to the range that excludes strongly evidenced plausible outcomes, while including an upper bound that, in GEMA’s own DD reasoning, is described as not “reasonable”²⁴⁷.
- (362) SGN therefore contends that GEMA has erred in imposing an OE parameter of 1.0%. The available evidence does not support this rate, which is inconsistent with the prevailing macro-economic backdrop and GEMA’s reasoning is flawed.
- (363) More specifically, SGN contends that GEMA has erred in the following respects:
- (i) **Error 1:** GEMA erred in setting a 1.0% OE parameter that is incompatible with the rate of UK productivity improvement since 2008 and/or is incompatible with and misinterprets recent, independent forecasts. SGN notes that:
 - (a) a 1.0% parameter is incompatible with the past and future evidence of the UK’s sustained and ongoing structural productivity weakness; and
 - (b) GEMA’s consideration of future forecast-data has been based on incorrect, misinterpreted and incomplete data.
 - (ii) **Error 2:** GEMA’s expectation that gas networks are insulated from and therefore can materially outperform the economy wide slowdown is not supported by the evidence and is based on flawed reasoning.
 - (iii) **Error 3:** 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 notes that:
 - (a) GEMA’s reasoning that 0.7% is the minimum plausible OE level that all networks can be expected to achieve is based on a single data point and is demonstrably flawed;

²⁴⁶ FD Overview, para. 8.20. (SGN1_009)

²⁴⁷ RIIO-3 DD Overview, para. 8.34. (SGN1_012)

- (b) GEMA's 1.3% upper bound is incompatible with recent outturn and forecast data, and on its own DD reasoning, is not "reasonable"; and
 - (c) GEMA has effectively "aimed up" in setting its "narrow plausible" range, such that its "midpoint" in fact materially exceeds the upper bound considered credible by economic experts and data.
 - (iv) **Error 4:** GEMA's assertion that qualitative factors support a 1.0% OE assumption is unevicenced and is based on flawed reasoning.
 - (v) **Error 5:** GEMA has erred by disproportionately decreasing allowances by setting a higher OE on the basis that the OE should be applied to stretch and incentivise companies to deliver productivity improvements.
- (364) SGN requests that the CMA read the following evidence, which is relied on in SGN's submissions, in their entirety for submissions under Ground 2 (Ongoing Efficiency):
- (i) Frontier Economics Technical Report on Ongoing Efficiency for RIIO-3 dated 2 March 2026 ("**Frontier OE Report**");
 - (ii) First Statement of Simon Kilonback, SGN ("**SK1**"); and
 - (iii) First Statement of David Handley, SGN ("**DH1**").
- (365) GEMA had access to all information relied upon in Ground 2 at the time of its FD, save for a Bank of England ("**BoE**") forecast published in February 2026. While the Frontier OE Report is new, GEMA had access to its underlying material at the time of its decision, save for the BoE February 2026 forecast and monetary policy report. A CMA analysis on the relationships between investment, competition and TFP published on 10 December 2025 as well as certain articles contained within MR/1/2 on the impact of AI and so-called 'zombie firms' on productivity have also been published since 4 December 2025.²⁴⁸ GEMA would have been entitled to have regard to these matters if available.
- (366) GEMA's reasoning is set out in the FD Overview at paras. 3.11 and Section 8.20-8.61 in particular, as well as in the FD GD Sector Annex at para. 2.12.

7.1.1 Legal consequences

- (367) In light of the above errors, SGN submits that GEMA's conclusion on OE is wrong within the meaning of Section 23D(4) GA86.
- (368) In particular, and as explained in more detail in para. (473) below, the SGN submits that:
- (i) GEMA's decision was wrong as a matter of law within the meaning of Section 23D(4)(e) GA86 on the basis that it is irrational and/or unreasonable and/or fails to take into account relevant considerations and/or has regard to irrelevant considerations;
 - (ii) GEMA's decision was based wholly or partly on errors of fact within the meaning of Section 23D(4)(c) GA86;²⁴⁹

²⁴⁸ Please see: MR1/2/031, MR1/2/034, MR1/2/035, MR1/2/045, MR1/2/046, MR1/2/071, MR1/2/072, MR1/2/078, MR1/2/079, MR1/2/080.

²⁴⁹ In particular, in citing incorrect data and therefore wrongly concluding that independent forecast data sits at the top-end of its narrow range, as further detailed in Error 1.

- (iii) GEMA has failed to achieve its stated effect within the meaning of Section 23D(4)(d) GA86; and
- (iv) GEMA failed, within the meaning of Section 23D(4)(a) and (b) GA86 to have due regard/give appropriate weight to the performance of its duties under:
 - (a) Section 4AA(1-1A) (2) and (5) GA86 (including the consumer duty and in particular the efficiency duty and the duty to have regard to the need to secure that licence holders are able to finance their activities); and
 - (b) the principles under which regulatory activities should be proportionate, targeted only where action is needed, consistent and not create perverse incentives (Section 4AA (5A)).

7.1.2 Materiality

- (369) The OE ground is material to SGN. GEMA's approach wrongly reduces SGN's allowances by c. [REDACTED] relative to if SGN's requested relief (i.e. applying a 0.5% OE parameter) was granted.²⁵⁰ More broadly, Ground 2 addresses an important principle: the OE parameter (a feature of all price controls) must be sufficiently evidenced and properly reasoned to ensure that companies are not underfunded to meet their obligations.

7.1.3 Relief sought

- (370) SGN requests that the CMA quash GEMA's decision to impose a 1.0% OE parameter.
- (371) SGN submits that the CMA should substitute GEMA's decision with a decision to set OE at 0.5% p.a., which falls within the upper part of the plausible range determined by Frontier on the available evidence. This OE parameter is compatible with the evidence and economic realities within which networks operate. It therefore represents a materially better approach to ensuring that GEMA's duties, and the interests those duties protect, are upheld.
- (372) In the alternative, SGN submits that the CMA should substitute GEMA's decision to set OE at 1.0% p.a. with a decision to set OE at a level that falls in the appropriate range determined by Frontier (-0.1-0.7%)

7.2 GEMA's determination on OE

- (373) At SSMD, GEMA stated that it would "*consider whether the ongoing efficiency assumption of 1.0% per annum at the totex level implemented in RIIO-2 is still a reasonable starting point for RIIO-3*".²⁵¹
- (374) In its DDs, GEMA set OE at 1.0%. This was the midpoint of a "*plausible range*" identified by narrowing (to 0.7% to 1.3%) a "*broad range*" of 0.1% - 1.3% identified by Grant Thornton ("**GT**").²⁵²
- (375) At FD, GEMA retained its 1.0% OE assumption, stating that "*setting an OE target at 1% p.a. is consistent with setting a high level of ambition for network companies to operate as efficient businesses*".²⁵³

²⁵⁰ A 0.5% OE parameter reduces allowances by c. [REDACTED] at GD3 for SGN. For reference, a 0.7% OE parameter (the bottom-end of GEMA's plausible / narrow plausible range and the top-end of Frontier's range) reduces allowances by c. [REDACTED] at GD3 for SGN.

²⁵¹ RIIO-3 SSMD Overview, para. 9.31. (SGN1_014)

²⁵² RIIO-3 SSMD Overview, paras. 8.28-8.32 and para. 8.34. (SGN1_014)

²⁵³ FD Overview, para. 8.21-22. (SGN1_009)

- (376) In reaching its conclusion on OE, GEMA relied upon the following arguments, among others:
- (i) That EU KLEMS datasets for time periods 1970-1996, 1997-2007 and 2008-2019 are business cycles and can be used as a basis for setting OE.²⁵⁴
 - (ii) That the price-control framework insulates networks from the wider economic productivity slowdown and that GEMA “*expect regulated network companies to be able to outperform the average UK firm*” and therefore the economy-wide forecasts of the Office for Budget Responsibility (“**OBR**”) and Bank of England (“**BoE**”). GEMA stated that “*explicitly linking*” OE to independent forecasts would “*imply that the level of productivity challenge ... should be updated throughout RIIO-3*” which would “*lead to an unstable and uncertain regulatory framework*” such that OE “*must be set as an ex ante target*”.²⁵⁵
 - (iii) The bottom of GEMA’s “narrow plausible” range (0.7%) represents the “*highest estimate submitted by one of the network companies in its business plan*” which is the “*minimum level of annual OE improvement all network companies should be able to achieve, given the implicit incentives on them to ‘aim down’*”.²⁵⁶
 - (iv) A qualitative assessment of various factors supported a 1.0% parameter.
 - (v) Setting “a stretching but achievable OE” incentivises “*companies to continue to delivery productivity improvements overtime*” and it is important that networks are “*strongly challenged to continue driving cost efficiency through businesses over time*”.²⁵⁷
- (377) SGN’s business plan included an OE assumption of 0.5%, based on analysis by Economic Insight that an appropriate range would be 0.2-0.8% p.a. including in light of the evidence of low productivity growth being experienced across the UK economy.²⁵⁸ SGN maintained this position in its DD response, noting that 0.5% was an ‘ambitious target’ and that GEMA’s analysis seemed to “*[focus] on supporting not changing an existing theory rather than an assessment of the evidence*”²⁵⁹. Since DD, available evidence has shown forecasts for UK productivity has weakened.

7.3 GEMA’s errors in its approach to OE

- (378) GEMA states that setting an OE parameter is “*an exercise of regulatory judgment*”²⁶⁰ and SGN recognises that GEMA has a margin of discretion in setting an OE parameter. However, per paras. (123) to (124) above, the discretion of regulators is subject to limitations and the CMA has emphasised that evidential support must be demonstrated for the exercise of that discretion.
- (379) Further, the High Court has determined that GEMA’s margin of appreciation does not permit the CMA to defer to GEMA’s approach where there is a “materially” better alternative

²⁵⁴ FD Overview, para. 8.27-8.28. (SGN1_009)

²⁵⁵ FD Overview, para. 8.47 and 8.48. (SGN1_009)

²⁵⁶ FD Overview, para. 8.23. (SGN1_009)

²⁵⁷ FD Overview, para. 3.11, 8.22. (SGN1_009)

²⁵⁸ SGN GD3 Business Plan, p. 82. (SGN1_019). SGN submitted reported by Economic Insight with its Business Plan and in the Draft Determination Responses. See EI OE Report 2024 (SGN1_028) and EI DD Review 2025 (SGN1_029).

²⁵⁹ SGN-GD3-DD-OD, para. 121-122. (SGN1_016)

²⁶⁰ FD Overview. (SGN1_009)

approach available, with that being all that is “*required for the CMA to adjudge that GEMA got it ‘wrong’*”.²⁶¹

(380) SGN contends that GEMA has principally erred as the evidence does not support an OE parameter of 1.0% and GEMA’s reasoning is flawed and inconsistent with the prevailing macro-economic backdrop. GEMA has not met the evidential bar to support its 1.0% parameter.

(381) In particular, GEMA has made the following errors.

7.4 Error 1: GEMA erred in setting a 1.0% OE parameter that is incompatible with the rate of UK productivity improvement since 2008 and/or is incompatible with and misinterprets recent, independent forecasts

7.4.1 Overview

(382) There is overwhelming evidence of sustained and widespread productivity weaknesses in the UK lasting over 15-plus years. GEMA’s 1.0% OE parameter materially outstrips outturn productivity performance and is fundamentally inconsistent with this evidence.

(383) Independent forecasts by the BoE and OBR reflect that this structural weakness will persist. GEMA has failed to adequately account for forecast evidence, and its reasoning in relation to this evidence contains factual errors and relies on irrelevant considerations.

7.4.2 GEMA’s approach

(384) GEMA selected a 1.0% OE parameter as the mid-point of a “*plausible*” or “*narrow plausible range*” derived by GEMA from a report by GT.²⁶² As regards forecast data, GEMA states that it has “*given qualitative consideration*” to independent forecasts of the OBR and BoE but its approach “*does not tie the outcome directly to such forecasts*”.²⁶³

7.4.3 Errors in GEMA’s approach

(i) A 1.0% parameter is incompatible with the past and future evidence of the UK’s sustained and ongoing structural productivity weakness.

(385) A 1.0% OE parameter is incompatible with the evidence of sustained and widespread productivity weaknesses in the UK over the past 15-plus years.

(386) Section 3 and Section 4.1 of the Frontier OE Report detail the overwhelming qualitative and quantitative evidence of this sustained slowdown.

(387) First, the parameter is incompatible with the qualitative and quantitative evidence of past and current productivity. Qualitatively, numerous independent institutions have published commentary on the structural post-GFC productivity weaknesses in the UK (such as the Office for National Statistics (“**ONS**”), the BoE and OBR) as shown in paras 3.3 – 3.4 of the Frontier OE Report.

²⁶¹ *WWU v CMA* (2026), para. 158. (SGN1_030)

²⁶² FD Overview, para. 8.23. (SGN1_009)

²⁶³ FD Overview, para. 8.47. (SGN1_009)

- (388) Quantitative evidence of sustained and widespread low-productivity includes:
- (i) ONS data on UK TFP growth from 1970, which shows a clear structural break: post-GFC TFP is close to zero, compared to 1.3% pre-GFC (see Figure 11 below).
 - (ii) GT's own analysis of EU KLEMS data: which shows average GO TFP growth from 1997-2007 of 1.3%, but just 0.1% post-GFC for the comparator sectors it deems relevant for establishing a benchmark for energy networks.

Figure 11 UK market sector TFP since 1970

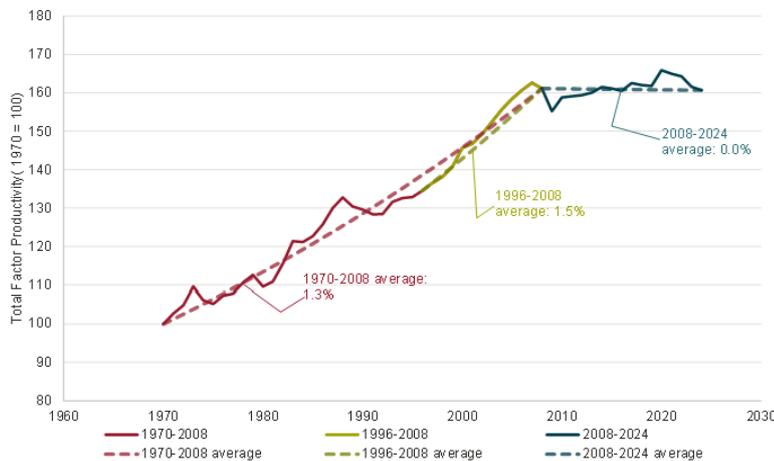


Figure 1, MR1/1

- (389) An OE of 1.0% therefore sits materially above the now sustained and persistent productivity levels which have been consistently and markedly lower since the GFC. It should be noted in this regard that per para. 4.9 of the Frontier OE Report, the 1.0% parameter is applied cumulatively at RIIO-3 beginning in financial year 2024/25 (i.e., prior to the start of the RIIO-3 period).
- (390) Second, the 1.0% rate is incompatible with independent forecast data from the BoE and OBR:
- (i) The most recent BoE forecast preceding GEMA's FD (February 2025) projected 0.1% average TFP growth from 2024-2027, and 0.3% TFP growth in 2027. Its recent post-FD forecast (February 2026) likewise projects average TFP growth of just 0.2% for 2026-2028 – which included downgrading the BoE's previous forecast for each of the individual years for which its 2025 and 2026 February forecasts overlapped (2026 and 2027).²⁶⁴
 - (ii) The OBR's most recent pre-FD forecast was issued in November 2025. Its central projection is for average TFP growth over 2024-2030²⁶⁵ of 0.5% (revised downward from 0.7%), with TFP growth only projected to reach 0.8% in as late as 2030. Notably, in downgrading its forecast in November, the OBR observed that '*[w]ith the passage*

²⁶⁴ MR1/1, para. 3.12(e) explains that the change from 0.1-0.2% is primarily due to 2024 dropping out of the BOE's forecast window. As above, the BoE's February 2026 forecast indeed downgraded its prior forecast for 2026 and 2027.

²⁶⁵ MR1/1, paras. 2.24 and 4.47 explain that it is appropriate to consider forecast data over a seven-year period from 2024 because GEMA applies the OE from year 4 (2024-2025) of RIIO-2, which is the first year of forecast data within company business plan submissions. The OE parameter therefore in essence starts applying from 2024/25 and continues through to 2025/2031. The productivity forecasts used to inform OE should cover this same period to reflect the period over which companies will be expected to achieve efficiency improvements.

of time, and several years after the Covid and energy price shocks, this continued weakness of productivity means it becomes less and less likely that the kind of substantial and rapid bounce back in productivity growth rates that the UK has witnessed in the wake of previous shocks is going to materialise over the medium term. In addition to recent data on economy-wide productivity, a number of underlying structural changes in the UK and global economy point to more persistent weakness in productivity growth relative to the period before the financial crisis.”²⁶⁶

(391) The stark delta between the FD’s OE and these forecasts is shown in **Figure 12** and **Figure 13** below:

Figure 12 Average of independent TFP growth forecasts and GEMA’s OE

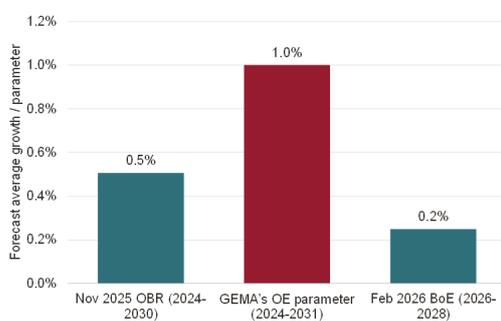


Figure 13 Independent TFP growth forecasts and GEMA’s OE parameter

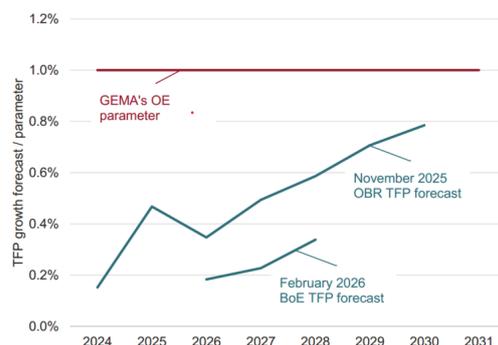


Figure 8 and Figure 9 MR1/1.

(392) The BoE and OBR central forecasts are consistent in showing: (i) average TFP growth of materially below 1.0%; and (ii) there are also no individual years where 1.0% is expected. While the OBR forecasts are somewhat higher, they remain materially below 1.0%, and per para. 3.9 of the Frontier OE Report, the Institute for Fiscal Studies have noted that OBR productivity growth forecasts have historically been over-optimistic.

(393) The above evidence clearly shows that a 1.0% OE is materially higher than and not compatible with independent evidence of both current and forecast TFP growth, which show a structural break in productivity levels post-GFC.

(ii) GEMA’s consideration of future forecast-data has been based on incorrect, misinterpreted and incomplete data

(394) GEMA’s reasoning in relation to the above forecast data is flawed.

(395) First, while GEMA states that it has given qualitative consideration to these forecasts, the reasoning it applies is misguided.

(396) GEMA firstly expects regulated networks to be able to outperform the average UK firm. SGN addresses this point in Error 2 below. It is flawed for the reasons that are given there.

(397) Secondly, GEMA states that “forecasts are uncertain” and “liable to change in the future”, meaning explicitly linking the OE parameter and independent forecasts “would therefore imply that the level of productivity challenge companies face should be updated throughout

²⁶⁶ Please see footnote 74 of the MR1/1, and additional commentary at para. 3.4.

RIIO-3” so that “OE must be set at an ex ante target at the start of the price control to support regulatory stability”²⁶⁷

- (398) Forecasts are, of course, predictions rather than certainties. However, they are independent expert predictions based on available data. A general observation that forecasts are “*liable to change*” is not a reasonable basis on which to materially diverge from the most recent available data, particularly where: (i) it reflects the continuation of long-running trends; and (ii) both the BoE and OBR agree productivity growth will be materially lower than 1.0%.
- (399) Similarly, GEMA’s reasoning for minimising its reliance on forecasts in setting the OE level is both flawed and inconsistent with the wider price-control framework. As explained in paras. 4.53 to 4.55 of the Frontier OE Report, GEMA does not need to mechanically apply forecast data when setting the OE parameter. It should however give appropriate weight to this evidence. Independent forecast downgrades provided important evidence that forward-looking productivity expectations had fallen and that should have properly informed the FD. While the most recent OBR forecast was released shortly prior to the FD, it was a continuation of the productivity downgrade the BoE had announced months prior (and had itself been widely trailed in the press per para. 4.55 of the Frontier OE Report).
- (400) More generally, multiple aspects of GEMA’s price control are informed by market data that vary over time but are not adjusted in the price control as that data changes. This includes GEMA’s RPI-CPIH ‘wedge’ used to calculate the risk-free rate in the allowed return on the cost of equity (which is based on RPI and CPIH forecasts – which change in-period), and GEMA’s cost benchmarking analysis (set at the start of the period, despite outturn data and refined forecasts becoming available in-period). Revised EU KLEMS data (used by GEMA to set the OE at RIIO-2) did not re-open the RIIO-2 OE. Setting an OE “*as an ex-ante target at the start of the price control to support regulatory stability*”²⁶⁸ does not, therefore, remove the need to place appropriate weight on forecast evidence when setting that ex-ante target or justify marginalising evidence of that type.
- (401) Second, GEMA’s assertion that these forecasts are in any event consistent with its 1.0% OE assumption, is demonstrably wrong and based on an error of fact. As explained by paras. 4.40 to 4.51 of the Frontier OE Report:
- (i) GEMA states that the OBR’s November 2025 forecast indicates “*Trend productivity growth is forecast to [...] reach 1% in 2030*”. This is a factual error. As detailed in paras. 4.44-4.46 of the Frontier OE Report, this figure is a labour productivity forecast not a TFP forecast.
 - (ii) GEMA states that “*we note that this forecast also sits within at [sic] the top-end of the narrow range we have used to set the OE*”.²⁶⁹ The opposite is, however, true. The average OBR TFP forecast in fact sits below the bottom-end of GEMA’s narrow range (0.5%) in only one individual year (2030) is the forecast higher than the lower bound (and then by only 0.1%).²⁷⁰

²⁶⁷ FD Overview, para. 8.48. (SGN1_009)

²⁶⁸ FD Overview, para. 8.48. (SGN1_009)

²⁶⁹ FD Overview, para. 8.49. (SGN1_009)

²⁷⁰ FD Overview, para. 8.49 cites OBR upside and downside scenarios of 1.5% to 0.5%. These are again factual errors, as they reference labour productivity forecasts, rather than TFP forecasts. It is noted that for its TFP estimate, the OBR additionally forecast upside/downside scenarios of 0.3% or 1.3% by 2030. However, these figures are upside/downside scenarios and apply to a single year (2030) – the OBR provides no statement of the envisaged average TFP growth in these scenarios. As such, these upside and downside scenarios are not directly comparable to GEMA’s 1.0% OE parameter. See footnote 147 of MR1/1.

- (iii) TFP captures the part of output that is not explained by changes in inputs to production, and covers all production inputs (e.g., labour, capital and intermediate inputs). It is wrong to sense-check a TFP-based estimate against labour productivity forecasts (as the latter could in principle only apply to the proportion of the cost base that is labour, rather than portions associated with capital or other intermediate goods).²⁷¹
 - (iv) In any event, leaving aside the incorrectness of the comparison, average OBR labour productivity forecasts do not support a 1.0% OE. GEMA made a calculation error as the average of the OBR's labour productivity growth forecast over 2024-2030 (the period over which OE will compound at GD3) is only 0.8%. This is below 1.0% and towards the bottom end of GEMA's 'narrow plausible range', as explained in para. 4.47 of Frontier's OE Report.
 - (v) Per paras. 4.48 to 4.51 of the Frontier OE Report, GT's report, upon which GEMA has relied to establish its range, also makes errors in its use of external forecasts by: (i) incorrectly using OBR labour productivity growth forecasts instead of TFP growth forecasts; (ii) incorrectly calculating averages over five rather than seven years (the latter being the period over which OE compounds at GD3); and (iii) incorrectly omitting the 2024 BoE TFP datapoint from its analysis. Correcting for these three errors gives an average TFP of 0.6% for 2024-2030 (or 0.4% if accounting for the OBR's November 2025 forecast downgrade – which was announced after the publication of GT's report).
- (402) To the limited extent that GEMA has considered forecast data, GEMA has therefore erred by relying on incorrect data points that do not accurately capture the actual independent productivity forecasts.

7.5 Error 2: GEMA's expectation that gas networks are insulated from and therefore can outperform materially the economy wide slowdown is not supported by the evidence and based on flawed reasoning

7.5.1 Overview

- (403) GEMA erred in its expectation that regulated energy network companies are insulated from economy-wide productivity trends that have persisted post the GFC slowdown. A 1.0% parameter implies that networks can deliver productivity improvements materially above the expectations and outturn performance of the wider economy and competitive benchmarks. There are no reasonable bases for these conclusions.

7.5.2 GEMA's approach

- (404) GEMA's FD referred (inter alia) to "*the protection afforded to regulated network companies against wider productivity slowdowns due to the predictability of the price control framework*", to the "*strong potential*" for energy network companies to outperform/deliver productivity improvements above the average firm in the wider economy, and to companies having "*greater potential*" to do so "*because they operate within the RIIO price control frameworks which we consider insulates them from the wider economic productivity slowdown due to higher certainty over revenues and returns*".²⁷²

²⁷¹ Please see paras. 2.17 - 2.20 of the MR1/1.

²⁷² FD Overview, paras. 8.23, 8.43. 8.50. (SGN1_009)

7.5.3 Errors in GEMA's approach

- (405) GEMA has set an OE parameter materially exceeding wider economy expectations. To meet it, regulated networks would need productivity growth at ten times the BoE's most recent pre-FD average TFP growth forecast for 2024-2027 (0.1%); more than four times the BoE's latest post-FD forecast (0.2% average TFP growth 2026-2028); and double the average OBR forecast (which, per para. (392) above, has been identified as producing over-optimistic forecasts historically). GEMA does not make out the case that energy networks are so materially insulated from the clear and persistent structural break in TFP growth post-GFC and its key drivers.
- (406) First, per paras. 4.16 to 4.17 of Frontier's OE Report, GEMA's assumption that better productivity outcomes can be expected by virtue of being in a regulated rather than competitive sector is inconsistent with standard economic theory that competitive markets drive the best long-term consumer outcomes (i.e., productively efficient outcomes).
- (407) Second, per para. 4.18 of Frontier's OE Report, GEMA has not provided evidence that regulated energy networks have historically delivered productivity improvements greater than the wider economy or relevant sector benchmarks.
- (408) Third, GEMA cites aspects of the regulated framework that allegedly support networks' insulation from or outperformance of economy-wide productivity, including predictability and revenue certainty and management focus and quality. GEMA's reasoning is flawed, unevicenced or fails to take account of relevant counter considerations.
- (409) Revenue predictability: GEMA refers to "*higher certainty over revenues*".²⁷³ Per para. 4.15 of the Frontier OE Report, the suggested link between revenue predictability and enhanced TFP growth is vague, unfounded and has not been elaborated by GEMA.²⁷⁴ In any event, revenues are not entirely predictable (given for example, periodic price control setting, indexed allowances and tools such as uncertainty mechanisms and price control deliverables, which can result in allowance adjustments). GEMA does not consider these factors, nor other features of the regulated framework (such as those in para. (411), (424) (425) below) that may inhibit productivity.
- (410) Management focus: GEMA states that "*higher certainty over revenues and returns than for companies operating in competitive sectors*" allows for "*greater management focus on cost savings and efficiencies*".²⁷⁵
- (411) The above position is assertion and GEMA provides no evidence to support it. Nor does GEMA consider countervailing factors such as the management time and cost required by regulated networks to engage with regulatory processes and meet their regulatory obligations or the regulatory limits on flexibility, which can in some instances reduce levers for finding wider productivity improvements.
- (412) For example, SGN refers the CMA to the evidence of SGN's Director of Strategy & Regulation, David Handley, who explains that as a regulated network of critical infrastructure, "*the management time and compliance monitoring, along with the cascading*

²⁷³ FD Overview, para. 8.50 (SGN1_009).

²⁷⁴ FD Overview, para. 4.15. (SGN1_009)

²⁷⁵ FD Overview, para. 8.50. (SGN1_009)

of new requirements, provide a regulatory drag that detracts from productivity that may otherwise be available to the rest of the economy.”²⁷⁶

- (413) The CMA noted and accepted company submissions in response to similar arguments advanced by GEMA in GD2.²⁷⁷ The same evidentiary gap persists in RIIO-3.
- (414) Investment and managerial standards: GEMA further cites “*record level of investment into UK energy networks*” allowed at RIIO-3, investment allowed in training at RIIO-1-RIIO-3 and an expectation for “*regulated network companies to drive high managerial standards*” in response to company arguments that companies are fully impacted by wider productivity slowdowns. GEMA’s reasoning on these points is likewise wrong, and fails to have regard to countervailing factors, for the reasons explained in para. (415) to (429) below.
- (415) Contrary to GEMA’s suggestions that operating “*within the RIIO price control frameworks ... insulates them from the wider economic productivity slowdown*”,²⁷⁸ key factors contributing to the wider slowdown are relevant to energy networks, as detailed in paras. 4.11 to 4.38 of the Frontier OE Report. A 1.0% OE which would require material outperformance of these factors is therefore wrong.
- (416) One such factor is Human Capital (see paras. 4.24 – 4.26 of the Frontier OE Report). Widespread UK workforce skills gap (including in science, technology, engineering and maths) and slow adoption of new technology and innovation due to low management quality are factors identified as contributing to the economy-wide slowdown.
- (417) GEMA cites training spend and its expectation for “*regulated network companies to drive high managerial standards, consistent with network companies being able to outperform the average ‘UK’ firm*”. While SGN will always strive for the highest managerial standards, GEMA has not adequately supported its assertion that factors relating to regulated companies inherently result in higher managerial standards that can translate into material productivity growth relative to the rest of the economy.
- (418) While GEMA references training spend, para. 73.1(b) of DH1 explains that: “*Our training objectives are focused on maintaining and building competency and instilling the required skills for safe operation; these are our primary concerns. A significant proportion of our training is ‘refresher’ training to ensure that competencies are maintained and to reinforce safety best practice. For our frontline employees, it can take 1 to 3 years, depending on role, before they have achieved the right competency levels to take on all the tasks they may encounter. It is not clear given this, on what basis Ofgem asserts that expenditure on training will result in increased opportunities for ongoing efficiency relative to other non-regulated firms.*” GEMA has not shown that training spend (when considering the context, size and skill requirements of their workforces) will be above and beyond that of other firms.
- (419) Nor has GEMA shown that energy networks are starting from a position where they do not already face larger skill gaps than the average firm. Energy networks are heavily reliant on skilled workers. For example, networks draw upon many of the same workforce, skills and

²⁷⁶ DH1, para. 71.

²⁷⁷ CMA RIIO-2 FD Vol 2, para. 7.441: “*GEMA provided no evidence to support its view that management would be able to place greater focus on driving higher efficiency gains because of the lack of competitive pressure. The lack of competitors for each network may imply that management does not have to engage in some common business tasks, for example advertising for new customers. While this could lead to lower costs since there is no advertising department, GEMA did not explain why this should result in higher productivity growth. Furthermore, the lack of competitive pressure could reduce the incentives to improve efficiency. We therefore accept this part of the appellants’ submissions on GEMA’s reasons for setting the level of core OE challenge.*” (SGN1_026)

²⁷⁸ FD Overview, para. 8.50. (SGN1_009)

contractors as the construction sector, which has (per para. 4.37 of the Frontier OE Report) been identified as experiencing particularly poor productivity levels.

- (420) Citing training spend and expectations around managerial standards therefore does not provide evidence to support a departure from economy-wide productivity trends.
- (421) A second such factor is Investment (see Frontier OE Report paras. 4.27-4.31). Long-term underinvestment is cited as a reason for economy-wide productivity slowdowns. Networks operate in the real economy and are, therefore, impacted by wider economic investment and underinvestment into sectors such as transport infrastructure, which networks use extensively to conduct their maintenance and construction activities.
- (422) Regarding the investments networks themselves make, while GEMA cites record levels of investment in the RIIO-3 FD²⁷⁹ Frontier's OE Report (paras. 4.30- 4.31) explains, the majority of network investment would (given the asset-intensive nature of their businesses) be expected to be in: (i) investments that increase output by proportionately increasing input (e.g., purchasing more raw materials to expand the network); or (ii) investments in tangible assets (e.g., machinery). The CMA has recently stated in relation to point (i) that the effects of capital investment on TFP is ambiguous and "*is not a convincing reason to expect productivity growth ... to diverge substantially from the wider economy*" in relation to a regulated sector (water).²⁸⁰ Meanwhile, research by the BoE suggests point (ii) would not be expected to improve TFP per para. 4.30 of the Frontier OE Report.
- (423) A third such factor is Regulatory Burdens (para. 4.32 of the Frontier OE Report). The UK regulatory burden has been identified as a potential factor weakening economy wide productivity growth. This is relevant to networks. First, Networks operate under UK laws and the regulatory framework does not exempt networks from these constraints – e.g., land and planning regulations increase project costs impacting network construction and maintenance activities. Second, networks face their own stringent sector-specific requirements (such as safety and cyber security etc.).
- (424) SGN refers the CMA to paras. 70 to 71 of DH1 which notes that: "*As a regulated network of safety critical infrastructure, SGN is subject to a series of investment requirements as a result of health and safety, local government and environmental requirements that are significantly more specific and inflexible when compared to firms within the economy as a whole. Given that we transport a dangerous substance and our compliance obligations restrict our ability to change our practices SGN has less discretion and flexibility in achieving ongoing efficiency opportunities. As practical examples we have increasing restrictions placed upon in terms of the times and practicalities of working within increasingly congested public spaces and roads by local authorities, tighter restrictions on how the excavated material has to be treated, and more stringent fatigue management practices that we need to have in place to ensure that our staff do not operate in conditions that could increase risk.*"
- (425) Limitations flow from the regulated and complex nature of GDN's work. Per DH1, para. 74: "*The Tier 1 repex programme accounts for 30% of our total expenditure. This substantive 30-year programme comes to an end in 2032 with activities in the programme becoming more complex as we reach the conclusion. As a result, the likelihood of, and any possible return on, any innovation deployed is constrained and compressed by the time remaining in which to realise the benefits.*"

²⁷⁹ FD Overview, para. 8.51. (SGN1_009)

²⁸⁰ PR24 PD Vol 1, para 4.166. (SGN1_027)

- (426) Paras. 4.35-4.36 of the Frontier OE Report further observes that drivers of low productivity growth are likely to interact with each other (eg. skills gaps that impact one group of firms, can in turn impact firms in their supply chain) making it unlikely that any particular sector could be insulated from these drivers.²⁸¹
- (427) Stepping back, networks operate in the real UK economy (drawing on UK supply chains, labour markets and infrastructure, and operate within its laws and regulations). As noted in DH1, para. 72, “SGN depend on the same supply chains as the wider economy, and these supply chains face the same productivity headwinds. Contractor costs make up a significant proportion of our repex and capex delivery costs, which together account for over half of our total cost base”.
- (428) An OE parameter that assumes outperformance and/or material outperformance of UK-wide measures due to the regulatory framework without adequate evidence or reasoning has no proper basis and falls firmly outside the bounds of GEMA’s regulatory judgment.
- (429) SGN refers the CMA to para. 67 of SK1, the evidence of SGN’s CEO, which observes: “In my view, there is no evidence to support the notion that the GD sector has the ability to significantly outperform the levels of productivity seen in the wider economy, and it is not clear, nor has it been set out by Ofgem, what levers or actions either I or other GDNs should take to achieve this level of ongoing productivity improvement.”

7.6 Error 3: 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

Overview

- (430) GEMA used the quantitative assessment undertaken by GT to derive “a broad feasible range” of 0.1-1.3%. GEMA narrowed this “to a plausible range of 0.7-1.3%”. GEMA chose the mid-point of this “narrow plausible range” for the OE parameter.²⁸² SGN notes that the natural meaning of plausible is reasonable or likely to be true.
- (431) As explained at para. 2.22 of the Frontier OE Report:
- (i) the lower end of GT’s range (0.1%) uses in its calculation EU KLEMS data from the 2008-2019 time period.
 - (ii) the top end of the GT range (1.3%) uses in its calculation EU KLEMS data from the 1997-2007 time period only.
- (432) The adjusted lower bound of GEMA’s “narrow plausible range” (0.7%) “represents the highest estimate submitted by one of the network companies in its business plan” which GEMA considers “the minimum level of annual OE improvement all network companies should be able to achieve, given the implicit incentive on them to ‘aim down’ in proposing OE targets”.²⁸³

²⁸¹ Additional causes of the widespread productivity slowdown have been identified in the Frontier OE Report. Para. 4.34 of MR1/1 observes that there are no clear reasons why energy networks in particular would be isolated from these drivers either.

²⁸² FD Overview, para. 8.23. (SGN1_009)

²⁸³ FD Overview, para. 8.23 (SGN1_009)

7.6.1 Errors in GEMA's approach

(i) Lower bound of GEMA's range

- (433) In setting the lower bound, GEMA has relied on a single data point (the highest estimate submitted by a network company in its business plan: 0.7%) and an assumption that this is the minimum that all network companies can achieve on the basis of incentives to aim down. This approach is neither credible nor adequately supported by GEMA's evidence and reasoning.
- (434) First, per paras 4.62 to 4.64 of the Frontier OE Report, this overrides the substantial possibility that TFP growth may be at or closer to zero in the relevant period as shown by evidence from multiple sources. In particular, a 0.7% floor excludes the following:
- (i) Both: (i) the "broad feasible range" within the GT report²⁸⁴ that has a lower estimate of 0.1% based also on post-GFC data; and (ii) GT's TFP estimate over the full EU KLEMS time series of 0.5%.²⁸⁵
 - (ii) The lower end of Frontier's analysis using the 2025 updated EU KLEMS data, which suggested that negative TFP growth could be feasible at -0.1%. Indeed (as a consequence of the top end of Frontier's range being applied by NGET in its business plan) almost the entirety of Frontier's analysis falls outside GEMA's range. It is noted that if GEMA had applied its GD2 experts (CEPA) methodology to this 2025 EU KLEMS dataset, this would have supported a range of -1.1% to 0.6%: (entirely below 0.7%).²⁸⁶
 - (iii) Independent forecasts, with 0.7% being six times the BoE's pre-FD 2024-2027 estimate, more than twice the BoE's 2027 pre-FD TFP forecast (and more than three times the BoE's latest average TFP forecast of 2026-2028 (0.2%)) and exceeding the OBR's average forecast for 2024-2030 of 0.5%.
- (435) Against this backdrop, GEMA has not evidenced that companies (or NGET) have aimed down. As above, NGET's figure was based on the top end of the reasonable range conducted by an external assessment by Frontier in 2024. The top end of that range allowed for the prospect of some reversion to pre-GFC trends, which as para. 4.62 of the Frontier OE Report explains, Frontier noted was unlikely given trends in the evidence. It provides no basis for GEMA's conclusion that this forecast represents the bottom end of a plausible range.
- (436) Moreover, NGET's business plan specifically states that their 0.7% OE commitment is "*challenging and bold*"²⁸⁷ (with NGET noting that their OE commitment is at '*the very top end of what evidence suggest is achievable*').²⁸⁸ Both NGET submission and the submission of SGN and all GDNs (which at 0.5% falls entirely outside GEMA's "*narrow plausible range*") were well within GT's broad feasible range.

²⁸⁴ While not cited in GEMA's FD reasoning, GEMA stated at DD that the bottom-half of its own experts report was not sufficiently challenging for a company in a regulated environment and would represent a significant departure from regulatory precedent (RIIO-3 DD Overview, para. 8.31). (SGN1_012). Error 2 explains why GEMA is wrong to assume that regulated companies can materially outperform the wider economy. Further, regulatory precedent is not sufficient reason to override a quantitative lower bound with an unevidenced data point.

²⁸⁵ It is noted that GT's range should (as highlighted by Frontier) actually be lower on their own methodology, as they have incorrectly excluded the 2008 TFP growth rate from its 2008-2019 (post-GFC) TFP average – which would decrease GT's lower bound OE estimate from 0.1% to 0.0%. See MR1/1 para. A13(b).

²⁸⁶ MR1/1, para. C.15.

²⁸⁷ NGET RIIO-3 Business Plan, p. 76. (SGN1_031)

²⁸⁸ NGET RIIO-3 Business Plan, p. 74. (SGN1_031)

- (437) Finally, GEMA's reasoning creates a direct link between the OE levels companies submitted in their Business Plans, and the minimum OE parameter set. This creates unnecessary perverse incentive effects, as companies that submit higher OE benchmarks are effectively penalised by having those figures treated as the minimum floor. Frontier at para. 4.64 of the Frontier OE Report correctly observes that embedding such an incentive is unlikely to be in consumer interests, and there is no evidence this has been considered by GEMA.
- (438) GEMA has therefore put significant weight on a single datapoint and deemed that datapoint (contrary to the submissions of NGET itself) to be the minimum achievable OE due to aiming-down incentives. A materially better approach to setting the floor of a "plausible" or "narrow plausible" range would have been to conduct a reasonable weighing of the quantitative and qualitative evidence in the round.

(ii) The higher bound of GEMA's range

- (439) As a starting point, in its DD, GEMA described a 1.3% OE as requiring an "*immediate return to the highest levels of average productivity growth observed historically ... While not impossible, given the inherent uncertainty about the future of the economy, we do not consider it reasonable as an OE target*".²⁸⁹ The natural meaning of the word "plausible" is reasonable or likely to be true. On GEMA's own reasoning, 1.3% therefore should not fall within a "plausible" range.
- (440) 1.3% has been derived by relying solely upon pre-GFC productivity data. This implies material weight has been placed on this data which is at least 19 years old, and which materially diverges from current, long-running and forecast productivity data, per Error 1 above. It is not reasonable for the upper-estimate of a "plausible" or "narrow plausible" range to so materially exceed both sustained outturn and forecast evidence of economy-wide productivity growth.
- (441) GEMA describes its approach to choosing the time series relied upon as "*maintaining regulatory precedent of method*" and that its "*overall methodology is consistent with regulatory precedent*".²⁹⁰ However, it is incorrect for GEMA to suggest that its approach is justified by regulatory precedent; in GD2, GEMA's upper estimate incorporated post-2008 data, using data from 1997 - 2016.
- (442) In any event, per para. 4.59 of the Frontier OE Report, regulators can and reasonably do update methodologies overtime to respond to changes in evidence. The passage of time has however only lent weight to the robustness of the post-2008 data, with more years showing sustained low-productivity growth now available and with the downward revision of both forecast and historical productivity data. There is no justification against this background for placing less weight on that data than in GD2, nor for placing greater weight on data that is now over 19 years old. A materially better approach in the face of the evidence would establish the top end of a plausible range as including pre and post-GFC data, such as that at para. 4.60 of the Frontier OE Report.
- (443) GEMA justifies its use of pre-GFC data on the basis that the pre-GFC period constitutes a complete business cycle. Para. A.21 of the Frontier OE Report notes that GT's analysis does not suggest this is the case, given that the UK output gap as a % of GDP does not change twice between 1996/97 and 2006/07 as would be expected in a business cycle. However, regardless, a reasonable OE parameter must be compatible with the real-world evidence of

²⁸⁹ RII0-3 DD Overview, para. 8.34. (SGN1_012)

²⁹⁰ FD Overview, paras. 8.28 and 8.55. (SGN1_009)

the economic context of the price-control period in question. That is most particularly the case when there is a material delta between datasets, and where recent data (as in this case) shows the continuation of sustained and persistent trends and which independent forecasts further indicate will persist.²⁹¹

- (444) GEMA's selection of 1.3% as the top end was therefore not compatible with GEMA's stated effect of establishing a "plausible" range for the OE parameter, is inconsistent with the evidence base, applies unjustified inconsistencies vs. its GD2 methodologies, and neglects to take the materially better approach of placing due weight on post-GFC data.
- (445) SGN notes that there is a major discrepancy in the stringency with which figures have been permitted to qualify for the upper and lower bounds of the narrow plausible range from which the midpoint has then been selected. The top of the range demands performance materially above outturn and forecast data (and on GEMA's own DD analysis, was based on assumptions it labelled as not reasonable i.e. an "*immediate return to the highest levels of average productivity growth observed historically*"). By contrast, the bottom end of the range excludes many outcomes that outturn and independent forecast data suggest are highly "*plausible*".
- (446) The range from which GEMA has drawn its 1.0% figure therefore appears to be the result of unjustified and insufficiently reasoned "aiming up". It cannot constitute a "plausible" range based on a reasonable assessment of the evidence. Given that GEMA selected the mid-point, this flawed range has directly impacted the outcome, materially reducing allowances without adequate justification. This approach to regulation is not in the interests of consumers, underfunds companies, and breaches principles of good regulation, notably proportionality.

7.7 Error 4: GEMA's assertion that qualitative factors support a 1.0% OE assumption is unevicenced and is based on flawed reasoning

- (447) In the FD, GEMA referenced various factors that it subjected to 'qualitative assessment' at DD in deciding to select 1.0% as the mid-point of its "plausible range". GEMA's assessment is flawed in various respects and does not support a 1.0% OE parameter.
- (448) The factors considered by GEMA included independent forecasts of economy-wide productivity trends, the protection afforded to regulated networks due to price control framework predictability and the business plans submissions (which are flawed for the reasons given in Errors 1, 2 and 3 above). The other factors identified by GEMA at FD are also vitiated by errors.

7.7.1 Innovation funding.

- (449) The FD cites Advanced Leakage Detection ("**ALD**") and Data Platform Leak Analytics ("**DPLA**") technologies. GEMA states that the infancy of these technologies and significant GD3 funding for their testing and adoption makes it reasonable to expect companies to identify opportunities to drive productivity improvements.²⁹² These technologies do not support a 1.0% OE parameter.

²⁹¹ Note that para. A.13 of MR1/1, GT applied an arithmetic average rather than a geometric (compound growth rate average). This is wrong as: (i) OE is applied on a compounding basis; and (ii) arithmetic averages are more sensitive to volatile data within series. Applying a geometric approach to GT's broader methodology would reduce GEMA's "top-end" figure from 1.3% to 1.2%.

²⁹² FD Overview, para. 8.54. (SGN1_009)

- (450) Firstly, these technologies are environment and safety driven. Per para. 73.3(b) of DH1: *“the deployment of Advanced Leakage Detection (ALD), Digital Platform Leakage Analytics (DPLA) may raise important environmental benefits but there is no basis to assume a financial improvement, the workload remains it is the pipes that are targeted that may change”*.
- (451) Second, a potential effect of the ALD (where vehicles will be used to more accurately assess where leaks are occurring, rather than relying upon individuals calling-leaks in) is that considerable additional leaks could potentially be detected in certain areas, leading to higher volume repairs than anticipated in Business Plans.²⁹³ Indeed, SGN sought (but GEMA rejected) a re-opener for the potential volume impact from additional ALD discoveries.²⁹⁴ While GEMA’s FD states that Cadent have identified a potential time-reduction benefit from the DPLA, the DPLA will not be implemented until the start of GD4, and the FD does not weigh any time-saving benefits against the consequences of a potential increase in the volume of repairs required from ALD. GEMA’s reasoning is, therefore, incomplete and overestimates the net productivity benefit that can reasonably be assumed.
- (452) At GD2, the CMA overturned an “innovation uplift” GEMA applied to set OE, and noted in doing so that GEMA did not compare network R&D spend with such spend in the wider economy or comparator sectors, or the proportion of the R&D spend that was spent on cost reduction.²⁹⁵ Stepping back, per para. 5.11 to 5.12 of Frontier’s OE Report, GEMA has not shown ALD and DPLA (or indeed wider innovation) investment or spend is proportionally higher than would be expected for comparable organisations in the wider economy, or the materiality of the productivity gains that GEMA believes this spend will deliver. Innovation funding, including for ALD and DPLA, therefore does not provide a reasonable basis to support a 1.0% OE parameter.
- (453) The FD states that a factor GEMA considered at DD was past innovation funding.²⁹⁶ While this is not discussed further at FD, for completeness, SGN refers the CMA to para. 73.3(a) of DH1, *“In RIIO-2 innovation funding was specifically targeted at longer-term energy system transition and vulnerable customer support, and explicitly stated that operational and maintenance innovation should be funded out of BAU. Therefore, there is no basis from which to assume that this funding drives OE improvements over and above the rest of the economy.”*
- (454) SGN further notes that it has actively incorporated efficiencies into its Business Plan already. Per SK1 para. 29 *“Our RIIO GD3 business plan includes £232m of embedded savings. We also identified further potential savings of over £89 million across RIIO-GD3, driven by core innovation (ie. BAU) initiatives and supported by robust management plans to pursue further efficiencies, which are still to be fully defined. These were captured in the 0.5% ongoing efficiency estimate included in our plan. There is a risk that these initiatives may not fully deliver all the benefits which we baked into our initial business plan; this won’t be established until they are fully implemented”*. GEMA has not shown good cause to conclude that GDNs can reasonably generate productivity improvements materially beyond comparator organisations in the wider economy through innovation efficiencies beyond those already included in company plans.

²⁹³ SGN-GD3-DD-GD, p. 30. (SGN1_018).

²⁹⁴ SGN Annex, para. 4.17. (SGN1_011).

²⁹⁵ CMA RIIO-2 FD Vol 2, para. 7.551. (SGN1_026)

²⁹⁶ FD Overview, para. 8.54. (SGN1_009)

7.7.2 Networks' strong ambitions to deliver significant technological change in RIIO-3.

- (455) In the FD, GEMA noted that they have allowed for over £2.2bn in costs for IT&T investments across the various sectors at FD and that companies have justified these investments as part of their ambition to leverage AI and machine learning to drive efficiencies. GEMA then goes on to argue that this high level of ambition, combined with the level of funding provided, justifies a 1.0% OE figure.²⁹⁷
- (456) First, per para. 5.8 of the Frontier OE Report, GEMA has not provided any evidence to suggest that such spending will be higher for GDNs than for comparable organisations. Per paragraphs E1 of the Frontier OE Report, the OBR central forecast already accounts for a 0.2% positive impact from AI by 2030, while the BoE considered upside and downside factors for AI qualitatively, highlighting the uncertainty over how AI will be adopted in different parts of the economy (which is also explained in paras. E1-E5 of Frontier's OE Report).²⁹⁸ SGN refers the CMA to para. 73.2(b) of DH1: *"whilst we recognise that multiple benefits can be realised from AI, we also recognise that we have a primary duty to protect the safety of our customers, our network and to avoid increasing our exposure to cyber and personal data risks. As a result, whilst we would anticipate benefits arising, it is reasonable to anticipate a level of caution in its deployment compared to the other sectors of the economy which can be expected to be more experimental in AI's deployment. Furthermore, the physical attributes of the work that is completed, i.e., digging holes to repair infrastructure, is likely to limit the application of AI relative to more service orientated sectors."*
- (457) Second, GEMA has not explained whether it has assessed the extent to which these investments would push the productivity frontier or the materiality of the gains that would be realised. Per para. 5.8 of the Frontier OE Report, the nature of the investment in systems and technologies does not necessarily lead to productivity gains. Indeed, as set out in para. 73.2(a) of DH1: *"Of the total IT&T expenditure, nearly 40% is driven by investment in cyber security, which is critically important, but doesn't support improved efficiency, but targets the delivery Network and Information System Regulation (2018) and delivery against the associated cyber assessment framework. A further 5% is driven by data and digitalisation, whilst investment in data and digitalisation more generally supports improvements, a primary focus is to make data more accessible to third parties in line with Ofgem guidance. Whilst these licence requirements deliver wider public and resilience benefits, they do not give rise to significant efficiency opportunities which could lead Ofgem to expect that they would enable SGN to exceed the national average."*
- (458) Third, and in any event, as per para. (454) above, SGN incorporated £232m of embedded savings into its Business Plan from operational improvements. SGN refers the CMA to para. 15 of SK1, which explains that £232m was removed from SGN's cost-base including to account for technology changes *"which I am committed to delivering by optimising our operating model and processes, as well as harnessing data and digitalisation"*. While GEMA implies that the inclusion of technology savings in business plans does not result in double-counting, as the OE will apply to *"unknown OE gains"*,²⁹⁹ GEMA does not evidence or articulate which types of gains it expects could come to light, or justify why unknown

²⁹⁷ FD Overview, para. 8.53. (SGN1_009)

²⁹⁸ BCG and OECD studies have ranked utilities as falling outside those sectors that are expected to be the most exposed to AI changes. OECD, A sectoral taxonomy of AI intensity, May 2025 (Slide 17 to 18). BCG AI Report, Exhibit 1. (SGN1_033)

²⁹⁹ FD Overview, para. 8.53. (SGN1_009)

technology efficiencies will manifest at a rate that is reasonably expected to enable gas networks to produce productivity growth materially beyond the wider UK economy.

7.7.3 The potential for embodied and disembodied technical change.

- (459) In the FD, GEMA references the “*potential for embodied and disembodied technical change*”³⁰⁰ and the potential that productivity growth may be underestimated if embodied technical change is excluded (which relates to quality improvements in production factors).
- (460) However, per para. 5.16 of the Frontier OE Report, there are no reliable estimates of the size of this possible effect and therefore how much it might distort the EU KLEMS estimates, and GEMA has not provided any quantified evidence to suggest the impact may be material, given that networks may have fewer opportunities to benefit from embodied technical change as their assets have longer asset lives and are not frequently replaced.
- (461) In its DDs, GEMA noted that “*embodied technical change is important in the context of the RIIO-3 [sic], where technological change is anticipated*”.³⁰¹ Further reasoning is not provided in the FD. However, as above, it is reasonable to assume that technological changes are anticipated across all industries in GD3. There is no reason for this factor to meaningfully inform the OE figure selected by GEMA, and it does not support an OE that materially outstrips wider economy productivity forecasts.

7.7.4 The impact of different productivity metrics.

- (462) In the FD, GEMA references the “*impact of different productivity metrics*”.³⁰² The ‘narrow range’ of OE estimates GEMA uses are based only on the Gross Output (“GO”) productivity metric (which is calculated using all production inputs for a given sector) rather than the Value-Added (“VA”) metric (which is calculated using capital and labour as inputs).
- (463) In the Frontier OE Report, results are derived from a 50/50 weighting of VA and GO productivity measures. As a result, per para. 5.15 of the Frontier OE Report, even if GEMA were to give regard in a quantitative manner to the VA measure, Frontier’s results (which derive an OE range of -0.1% to 0.7%) demonstrate that applying this does not justify a 1.0% OE.

7.7.5 Regulatory precedent.

- (464) A factor influencing GEMA’s choice of 1.0% at DD was “*recent UK regulatory precedent*”. In the independent report prepared by GT, “[*being*] *consistent with wider price control determination*’ is set out as a goal in setting OE figures.³⁰³
- (465) Recent regulatory precedent has typically set the OE around 1.0% per paras. 5.17-5.19 of the Frontier OE Report. It is appropriate to depart from regulatory precedent OE levels where the evidence supports this outcome. As above, the historical and forecast evidence shows the persistence of a post-GFC slowdown in productivity growth across the UK economy and across comparable sectors to GDNs, with no significant bounce-back expected by independent forecasts during RIIO-GD3. This creates particularly strong evidence at RIIO-GD3 that OE should be materially lower than 1.0%.

³⁰⁰ FD Overview, para. 8.23. (SGN1_009)

³⁰¹ RIIO-3 DD Overview, para. 8.33 (SGN1_012)

³⁰² FD Overview, para. 8.23. (SGN1_009)

³⁰³ GT First Report, section 2.4 (SGN1_034)

- (466) Further, it is noted that OE values at different price controls are not usually directly comparable given differences in relevant cost bases across controls, and that, in any event, the most recent (provisional) regulatory precedent is lower than 1.0% (the CMA's Provisional Determinations in PR24, which placed greater weight on the evidence of UK productivity trends than that placed upon it by GEMA).
- (467) A reasonable interpretation and weighting of qualitative factors therefore does not support an OE parameter of 1.0% that implies GDNs can substantially outperform the wider economy on productivity over RIIO-3.

7.8 Error 5: GEMA has erred by disproportionately decreasing allowances by setting a higher OE on the basis that the OE should be applied to stretch and incentivise companies to deliver productivity improvements

7.8.1 GEMA'S Approach

- (468) GEMA states that "*setting a stretching but achievable OE challenge ensures value for money for consumers by incentivising companies to continue to deliver productivity improvements overtime*" and that "*OE is a means through which we can ensure that, in delivering their investments, network companies are incentivised to achieve productivity gains*" and that "*setting a 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*".³⁰⁴

7.8.2 Errors in GEMA's approach

- (469) GEMA has a variety of tools to promote efficiency and innovation by regulated network companies. GEMA is empowered to conduct in-depth investigations during the RIIO framework to deploy benchmarking to ensure that cost allowances are accurate and reflect the actual needs of regulated network companies to prevent wasteful expenditure. Further, the ex-ante totex allowance framework and Totex Incentive Mechanism ("**TIM**") rewards companies that outperform their allowed costs. Business plan incentives further ensure that GDNs are incentivised to be ambitious and innovative from the outset.
- (470) Utilising OE to set an overly-stretching parameter that goes materially beyond the wider economy is therefore not necessary to ensure that networks "*are strongly challenged to continue driving cost efficiency through their businesses over time*".³⁰⁵ Per paras. 2.10 to 2.11 and paras. 5.3 to 5.6 of Frontier's OE Report, the role of OE in the price control framework is to establish ex ante totex allowances at the expected efficiency level over the period. OE reflects exogenous economy-wide productivity improvements. The incentives to drive efficiencies against allowances, including by adopting these improvements as rapidly as possible, are established by the TIM and wider incentive mechanisms (independently of whether the OE parameter is 1.0% to 0.5%).
- (471) Setting an arbitrarily high OE parameter on the basis that companies should be incentivised or stretched therefore reduces totex allowances from their assessed level without being appropriately targeted at the outcome GEMA seeks to deliver, or proportionate when set against the tools in the wider framework.

³⁰⁴ FD Overview, paras. 3.11, 8.5 and 8.22. (SGN1_009)

³⁰⁵ FD Overview, para. 8.22. (SGN1_009)

7.9 Legal consequences

(472) In light of the above errors, SGN submits that GEMA's conclusion on OE is wrong within the meaning of Section 23D(4) GA86.

(473) In particular, SGN submits that:³⁰⁶

- (i) GEMA's decision was wrong as a matter of law within the meaning of Section 23D(4)(e) – including by:
 - (a) reaching conclusions which are not supported by and/or inconsistent with the available evidence and based on flawed reasoning and/or which are otherwise irrational and/or unreasonable;
 - (b) failing to take account of relevant considerations and taking account of irrelevant considerations;
 - (c) failing to act in accordance with its duties under Section 23D(4)(a) and (b) GA86 (as set out in (iv) below)/and principles of regulatory best practice, including by setting a level of OE which is unnecessary, insufficiently targeted and disproportionate to achieving its stated aims.
- (ii) GEMA's decision was based wholly or partly on errors of fact within the meaning of Section 23D(4)(c) GA86, including in citing incorrect data and, therefore, wrongly concluding that independent forecast data sits at the top end of its narrow range.
- (iii) GEMA has failed to achieve its stated effect within the meaning of Section 23D(4)(d) of setting an “*achievable target*”³⁰⁷ or “*deliverable target*”³⁰⁸ or a “*plausible*” or “*narrow plausible*” range from which to select it.
- (iv) GEMA failed, within the meaning of Section 23D(4)(a) and (b) GA86 to have due regard/give appropriate weight to the performance of its duties under:
 - (a) Section 4AA(1-1A) (2) and (5) GA86, including the consumer duty and efficiency duty (by failing to allow recovery of efficiently incurred costs without proper justification and creating perverse incentives on networks to aim down when including OE assumptions in business plans) and the duty to have regard to the need to secure that licence holders are able to finance their activities.

As above, the impact of setting an OE parameter that is incompatible with the relevant outturn and forecast evidence is to materially reduce the allowances that efficient operators require to deliver outcomes for consumers, given that the wider price control framework already limits GDNs' allowances to the level of a firm operating at the 'efficiency frontier'. The interests of consumers require that SGN is able to fund the cost of the activities needed to perform essential functions.

- (b) Section 4AA (5A) GA86 including the principles under which regulatory activities should be proportionate, targeted only where action is needed, consistent and not create perverse incentives, given the tools that have

³⁰⁶ SGN further refers the CMA to Section 3 above.

³⁰⁷ FD Overview, para. 8.50. (SGN1_009)

³⁰⁸ GD Annex, para. 2.12. (SGN1_010)

already been deployed by GEMA in GD3 to drive efficiency, the overwhelming evidence of sustained and persistent low UK productivity growth and the reliance on a methodology placing less weight on key evidence than at GD2 despite this, and the implications of tying company business plans submissions to an OE floor.

7.10 Relief sought

- (474) SGN submits that the CMA should substitute GEMA's decision with a decision to set OE at 0.5% p.a., which falls within the upper part of the plausible range determined by Frontier on the available evidence. This OE parameter is compatible with the evidence and economic realities within which networks operate. It therefore represents a materially better approach to ensuring that GEMA's duties, and the interests those duties protect, are upheld.
- (475) Further details on how to implement the specific relief sought is set out in SGN1_072.
- (476) In the alternative, SGN submits that the CMA should substitute GEMA's decision to set OE at 1.0% p.a. with a decision to set OE at a level that falls in the appropriate range determined by Frontier (-0.1-0.7%). SGN refers the CMA to para. 4.8 of the Frontier OE Report that observes "*The new evidence since our 2024 report - including downward revisions both to EU KLEMS outturn data; and updated independent forecasts of the OBR and BoE – further confirms that it is appropriate to aim cautiously. The mid-point of our revised range is now 0.3% – aiming cautiously above this would suggest 0.5% is a plausible evidence-based OE parameter for RIIO-3.*"

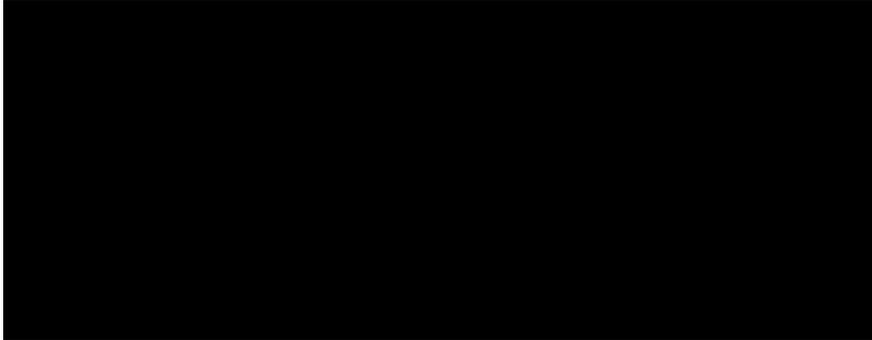
8 Chronology

This chronology details the key steps leading up to the Decision, beginning with the consultation on the RIIO-3 framework.

Date	Event
29 September 2022	GEMA publishes an open letter seeking views from stakeholders on the RIIO-3 framework
10 March 2023	GEMA publishes a consultation on frameworks for future systems and network regulation
26 July 2023	GEMA publishes an open letter decision on the future of gas price controls
26 October 2023	GEMA publishes a decision on frameworks for future systems and network regulation
13 December 2023	GEMA publishes its Sector Specific Methodology Consultation
18 July 2024	GEMA publishes its Sector Specific Methodology Decision (supporting documents available here)
18 July 2024	GEMA publishes initial business plan guidance
30 September 2024	GEMA publishes updated and final business plan guidance
18 December 2024	SGN publishes its final business plan for RIIO-GD3 (supporting documents available here)
1 July 2025	GEMA published its draft determinations (and GD Sector, Finance and company-specific annexes) in respect of SGN and the other gas distribution companies currently operating in England, Wales and Scotland (supporting documents available here)
August 2025	SGN submitted its response to GEMA's draft determination (available here)
4 December 2025	GEMA releases RIIO-3 Final Determinations for Transmission and Gas Distribution network companies and the Electricity System Operator
16 December 2025	GEMA publishes a consultation on the modifications to the RIIO-3 licences and associated documents
3 February 2026	GEMA publishes its decision on licence modifications required to implement the Final Determinations
1 April 2026	RIIO-3 licence conditions come into force

9 Statement of Truth

The Appellant believes that the facts stated in this Notice of Appeal are true.



Signature of Authorised Representative

David Handley

Name of Authorised Representative

3rd March 2026

Date

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

Appendix – Glossary

Term	Definitions
Act	Gas Act 1986
ALD	Advanced Leakage Detection
Appellants	Southern Gas Networks plc and Scotland Gas Networks plc
Better Regulation Framework	Better Regulation Taskforce's Principles of Good Regulation
BGT	British Gas Trading Limited v The Gas and Electricity Markets Authority
BoE	Bank of England
BPDT	Business Plan Data Template
BP	Business Plan
BPI	Business Plan Initiative
CAGR	Compound average growth rate
Capex	Capital expenditure
CAWG	Cost Assessment Working Group
CC	Competition Commission
CEPA	Cambridge Economic Policy Associates
CMA	Competition and Markets Authority
CSV	Composite Scale Variable
DB1	First Witness Statement of Daniel Brennan
DD	GEMA's Draft Determination published on 1 July 2025.
DECC	Department of Energy and Climate Change (now defunct)
Decision	Decision of GEMA to proceed with modifications to the Licences published on 3 February 2026.
DH1	First Witness Statement of David Handley
DPLA	Data Platform Leak Analytics
E.ON UK	CC's decision in E.ON UK Plc and GEMA and British Gas Trading Limited
EA89	Electricity Act 1989
EJP	Engineering Justification Paper
EoE	East of England
FD	GEMA's Final Determination
FE1	First Joint Expert Witness Statement of Matthew Roberts and Caitlan Russell, on Totex Model Allowances

Term	Definitions
Finance Annex	GEMA (2020), RIIO-2 Final Determinations - Finance Annex
Firmus Energy	Firmus Energy (Distribution) Limited v Northern Ireland Authority for Utility Regulation
Frontier OE Report	Frontier Economics Technical Report on Ongoing Efficiency for RIIO-T3/GD3
Frontier Totex Report	Frontier Economics Technical Report on Cost Assessment Issues in RIIO-GD3
GA86	Gas Act 1986
Gas Directive	Directive 2009/73/EC
GD	Gas Distribution
GDNs	Gas Distribution Networks
GEMA	Gas and Electricity Markets Authority
GFC	The 2008 Global Financial Crisis
GO	Gross output
H7	CMA's Final Determinations in the H7 Heathrow Airport Licence Modification Appeals
HSE	Health and Safety Executive
I&C	Industrial & Commercial
IT&T	Information Technology & Telecommunications
JD1	First Witness Statement of Jeremy Deveney
KLEMS	Capital Labour Energy Materials and Services
Licence	A distribution licence under section 7(2)(a) of the GA86
LO	London
LTS	Local Transmission System
MEAV	Modern Equivalent Asset Value
MR1	First Expert Witness Statement of Matthew Roberts, Frontier Economics on Assessment of GEMA's Approach to Setting Ongoing Efficiency at RIIO-3
NGET	National Grid Electricity Transmission
NGN	Northern Gas Networks
NIA	Network Innovation Allowance
Northern Powergrid	Northern Powergrid (Northeast) Plc & Northern Powergrid (Yorkshire) Plc v The Gas And Electricity Markets Authority
NPG	Northern Powergrid (Northeast) Limited and Northern Powergrid (Yorkshire) plc v GEMA

Term	Definitions
NW	Northwest
OBR	Office for Budget Responsibility
OE	Ongoing Efficiency
Ofgem	Office for Gas and Electricity Markets. References to Ofgem should be taken to include GEMA.
ONS	Office for National Statistics
Opex	Operating expenditure
PCD	Price Control Deliverable
PDs	Provisional Determinations
PE	Polyethylene
PR19	Ofwat's price control review for 2020-25
PR24	Ofwat's price control review for 2025-30
Principles for Economic Regulation	Department for Business, Energy & Industrial Strategy Principles for Economic Regulation
Principles of Good Administration	Parliamentary and Health Service Ombudsmen's Principles of Good Administration
repex	Replacement expenditure
RIIO	Revenue = Incentives + Innovation + Outputs
RIIO 2 Appeals	Cadent Gas Limited, National Grid Electricity Transmission plc, National Grid Gas plc, Northern Gas Networks Limited, Scottish Hydro Electric Transmission plc, Southern Gas Networks plc and Scotland Gas Networks plc, SP Transmission plc, Wales & West Utilities Limited v the Gas and Electricity Markets Authority
RIIO-ED1 or ED1	Electricity distribution price control review for 2015-23
RIIO-ED2 or ED2	Electricity distribution price control review for 2023-28
RIIO-GD1 or GD1	Gas distribution price control review for 2013-21
RIIO-GD2 or GD2	Gas distribution price control review for 2021-2026
RIIO-GD3 or GD3	Gas distribution price control review for 2026 - 2031
RRP	Regulatory Reporting Pack
SC	Scotland
Scotland	Scotland Gas Networks plc
SGN	Southern Gas Networks plc and Scotland Gas Networks plc
SIF	Strategic Innovation Fund
SK1	The First Witness Statement of Simon Kilonback
SO	Southern

Term	Definitions
SONI	SONI Limited v Northern Ireland Authority for Utility Regulation
Southern	Southern Gas Networks plc
SQs	Supplementary Questions
TFP	Total factor productivity
TIM	Totex Incentive Mechanism
Totex	Total Expenditure
UQ	Upper Quartile
Utilita	CMA's final determination in Utilita Energy Limited's Financial Resilience Appeal
VA	Value-added
WM	West Midlands
WWU	Wales & West Utilities

ENERGY LICENCE MODIFICATION

SOUTHERN GAS NETWORKS PLC

Appellants

SCOTLAND GAS NETWORKS PLC

-and-

GAS AND ELECTRICITY MARKETS AUTHORITY

Respondent

EXHIBIT SGN1

Full Name	Short Name	Ref