RIIO-3 APPEALS 2026

Final determination Volume 3: Totex Model Allowances

29 October 2026



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The Competition and Markets Authority has excluded from this published version of the final determinations information which the Appeal Group considers should be excluded having regard to section 23G Gas Act 1986. The omissions are indicated by [✂].

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6. Ground 2: Totex Model Allowances

Introduction

6.1 This chapter relates to GEMA's determination of SGN's RIIO-3 totex allowances. Specifically, SGN has appealed GEMA's decision to overwrite its Tier 1 mains repex forecasts by applying an industry-wide normalisation (**Ground 2A**) as well as GEMA's use of a single totex regression model that combines multiple cost drivers into a single Composite Scale Variable (**CSV**) with uniform weights in determining those allowances[1] (**Ground 2B**).[2]

The grounds of appeal

6.2 We set out below the grounds of appeal from SGN in relation to totex model allowances.

6.3 SGN submitted that GEMA applied an industry-wide pre-modelling adjustment to all GDNs' Tier 1 mains repex forecasts to correct issues with NGN's and Cadent's mains laid forecasts, which showed a material shift from smaller diameter to larger diameter mains bands, without a clear engineering or economic justification. GEMA overrode 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.

6.4 **Ground 2A**: SGN contends that GEMA erred in two respects in relation to overriding GDNs' Tier 1 Mains repex forecasts by:

(a) **Error 1:** Applying its 'normalisation adjustment' to GDN repex forecasts which, in the case of SGN, was flawed, unnecessary and disproportionate; and

(b) **Error 2:** Misapplying the adjustment and failing to fully 'normalise' SGN repex forecasts, by applying a 'mix and match' approach to the assumptions that comprise the adjustment (ie, combining WWU decommission-to-lay assumptions with SGN-specific technique assumptions).

6.5 **Ground 2B:** SGN contends that GEMA has made the following errors in relation to CSV weights:

[1] Callum Mayfield WS1, paragraph 340(iii) and SGN Notice of Appeal (**SGN NoA**), paragraph 18.
[2] These grounds were referred to as 1A and 1B in the SGN NoA.

(a) **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**).

(b) **Error 2**: GEMA has placed undue weight on historical data and has failed to account for exogenous structural changes to spending.

(c) **Error 3:** GEMA's reasons for adopting its top-down method and rejecting SGN's proposed bottom-up method are flawed.

6.6 We have considered Ground 2A and Ground 2B in turn below. In respect of each of Ground 2A and Ground 2B, we have identified the statutory grounds of appeal on which SGN relies and its supporting submissions. We consider, in light of those grounds and submissions:

(a) the statutory question(s) for determination;

(b) subsidiary questions to be determined in order to answer the question in (a); and

(c) relevant analytical issues which we need to assess to answer the questions in (a) and (b).

6.7 For both Grounds, we structure our assessment by first considering the relevant analytical issues involved in the errors SGN alleges. We then use that analysis to answer the statutory and subsidiary questions for determination.

Ground 2A – Overwriting of SGN's repex forecasts (normalisation)

Statutory question for determination for Ground 2A

6.8 For the purposes of Ground 2A, SGN submitted that GEMA's decision was wrong on account of the overwriting of SGN's repex forecast on each of the statutory grounds of appeal under section 23(D)(4) of the GA86.

6.9 Applying the grounds of appeal in section 23(D)(4) of the GA86 to Ground 2A, the statutory question for our determination is:

> Was the decision wrong because, by overwriting SGN's repex forecasts, GEMA did one or more of the following: (a) failed properly to have regard to its statutory duties in section 23D(4)(2) of the GA86, (b) failed to give appropriate weight to these statutory duties; (c) made the decision based on an error of fact; (d) failed in full or in part to achieve the effect it stated the relevant licence

modifications would have; or (e) on account of that overwriting, it made a decision that was wrong in law?

Subsidiary questions

6.10 SGN alleged that, under Ground 2A, GEMA made two errors that the CMA must consider:

(a) **Error 1:** GEMA was wrong to apply an industry-wide normalisation to all GDNs, which in the case of SGN, was unnecessary, disproportionate and flawed.[3] SGN alleged that:

(i) GEMA relied on an inappropriate proxy as the basis for applying the normalisation (the '**Reliable Proxy Matter**');

(ii) GEMA applied such normalisation in circumstances where it only had concerns about two GDNs' forecasts (Cadent's and NGN's) (the '**Identified Issues Matter**'); and

(iii) the adjustments it made were not necessary for effective benchmarking (the '**Necessity Matter**').

(b) **Error 2:** SGN alleged that the decision was wrong because of GEMA's implementation of its normalisation adjustment, in that GEMA misapplied that adjustment by combining WWU's decommission-to-lay assumption with SGN's technique assumption (the '**Technique Matter**').[4]

6.11 SGN also alleged that GEMA erred in failing to consult adequately on its approach to normalising GDNs' forecasts using the WWU proxy (the '**Consultation Matter**').[5]

6.12 Taking account of SGN's submissions, the subsidiary questions for our assessment (in order to determine the statutory question on Ground 2A), are whether GEMA's decision was wrong because:

(a) GEMA **failed properly to have regard to, and to give appropriate weight to, its statutory duties** in that:

(i) it applied an industry-wide adjustment, without consultation, that was not appropriately targeted to those companies where GEMA identified a

[3] SGN NoA, paragraphs 193-228.
[4] SGN NoA, paragraphs 229-244.
[5] SGN NoA paragraph 197 and 215-217.

problem and where there is precedent for addressing company-specific errors directly;[6]

(ii) its adjustment is incompatible with consumers' interests in security of supply of gas. SGN is materially underfunded to deliver workloads necessary to meet these duties.[7]

(b) GEMA made these **errors of fact** on which the decision was based:

(i) it incorrectly assumed that WWU's decommission-to-lay ratio constituted a 'reliable proxy' for industry standards that could be applied to SGN, as it is inconsistent with the operational requirements of SGN's network;[8]

(ii) its analysis of GDNs' ratio of commissioned to abandoned volumes (**RCAV**) relied on incorrect data.[9]

(c) The licence modification(s) resulting from the decision **failed to achieve its (their) stated effect**, in that:

(i) 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,' but the effect of taking the approach it adopted was arbitrarily to disadvantage SGN and underfund it in the delivery of its statutory obligations;

(ii) 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.[10]

(d) The decision was **wrong in law,** in that:

(i) GEMA acted irrationally and/or unreasonably by applying WWU's decommission-to-lay assumptions to SGN in circumstances where this produced a workload mix that would not deliver sufficient pressure to the end customer in line with SGN's statutory obligations;[11]

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[6] SGN NoA, paragraphs 156(i)(a) and 246(i)(a).
[7] SGN NoA, paragraphs 156(i)(b) and 246(i)(b).
[8] SGN NoA, paragraphs 156(ii)(a) and 246(ii)(a).
[9] SGN NoA, paragraphs 156(ii)(b) and 246 (ii)(b).
[10] SGN NoA, paragraphs 156(iii)(b) and 246(iii)(b).
[11] SGN NoA, paragraphs 156(iv)(a) and 246(iv)(a).

(ii) GEMA took account of irrelevant considerations, including the supposed robustness of WWU's methodology which did not render it suitable as a means of estimating costs for SGN's network;[12]

(iii) GEMA failed, in the period between its DD and FD, to make appropriate inquiries or to consult on the use of the WWU methodology, depriving stakeholders of the opportunity to identify and address the key flaws in its approach;[13]

(iv) GEMA's rationale for using WWU's decommission-to-lay assumptions - including that this represented 'a reliable proxy for expected industry standards' when combined with GDN-specific technique assumptions - was irrational and wrong.[14]

Our analytical approach

6.13 First, we set out some context to GEMA's decision to normalise SGN's repex forecasts.

6.14 Then, we group the errors pleaded by SGN, on the statutory grounds described above, in the following sub-sections:

(a) whether GEMA erred in its decision to normalise SGN's repex forecasts (the Identified Issues Matter and the Necessity Matter); and

(b) whether GEMA erred in its implementation of the normalisation (the Reliable Proxy Matter, the Technique Matter and the Consultation Matter).

6.15 Our assessment begins, as we described above, with our consideration of the analytical issues raised in respect of each alleged error. We then use that analysis to answer the statutory and subsidiary questions for determination.

Context to GEMA's decision to normalise SGN's repex forecasts

6.16 In the following section we set out the context and background to replacement expenditure (**repex**) in the industry and GEMA's decision to apply an industry-wide normalisation to GDNs' repex forecasts.

[12] SGN NoA, paragraphs 156(iv)(b) and 246 (iv)(b).
[13] SGN NoA, paragraphs 156(iv)(c) and 246 (iv)(c).
[14] SGN NoA, paragraphs 156(iv)(d) and 246(iv)(d).

Tier 1 mains replacement programme

6.17 Repex is the largest component of each GDN's totex.[15] In practice, repex involves decommissioning an old main by commissioning a new one. The largest component of repex under RIIO-3 is the iron mains replacement programme, which began in 1974 following a series of severe gas incidents.[16] The Health and Safety Executive's (**HSE**) programme has come to be known as the Iron Mains Risk Reduction Programme (**IMRRP**) and involves replacing iron mains with polyethylene (**PE**). Tier 1 mains (those less than or equal to 8 inches in diameter) must be decommissioned by the end of 2032 or earlier, ie shortly after the end of the RIIO-3 regulatory period.[17]

Forecasting repex workload and costs

6.18 GEMA has explained that, over successive price controls, it has asked GDNs to provide forecasts of their expected repex costs, which are used in GEMA's regression model[18] for the purposes of identifying totex allowances that reflect efficient costs.[19] GEMA stated that for repex, the forecast costs estimated by GDNs depend on a number of variables. In particular, the cost of repex work depends on the 'decommissioned workload', ie the length and diameter of pipe that is being replaced or taken off the network,[20] and the 'lay workload',[21] being the length and diameter of pipe that is installed in its place.

6.19 GEMA uses a measure known as the ratio of the volume of mains commissioned to the volume of mains abandoned (ie decommissioned) (RCAV) to inform its assessment of GDNs' workload forecasts.[22] RCAV can highlight significant changes to the physical capacity of the network through time.[23]

6.20 GEMA explained that repex costs also depend on the technique used – principally, whether lay workload is carried out by using an 'insertion technique', by which narrower pipes are inserted into existing mains pipes to effect the replacement, or

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[15] GEMA response to Appellants' NoAs, paragraph 162.1.
[16] GEMA response to Appellants' NoAs, paragraph 162.1.
[17] GEMA response to Appellants' NoAs, paragraph 162.1.
[18] GEMA RIIO-3 Final Determination (2025) (**GEMA RIIO-3 FD**), paragraph 5.240. See also Callum Mayfield WS1 paragraph 41.
[19] GEMA response to Appellants' NoAs, paragraph 247.5.
[20] 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, see SGN NoA paragraph 163.
[21] 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, see SGN NoA paragraph 164.
[22] Volume is measured in two ways: (a) the length in kilometres; and (b) the capacity in cubic metres, of the decommissioned and commissioned pipes.
[23] Callum Mayfield WS1, paragraphs 270-271.

an ‘open cut’ technique, by which a new trench is excavated along a mains route.[24]

6.21 SGN indicated that its default approach is to lay new mains using insertion wherever possible because insertion is more cost effective, takes less time to complete, and is feasible due to declining gas demand over time.[25]

6.22 The alternative technique is to use ‘open cut’. This involves excavating the existing main and then laying a new PE main to replace or reroute it. This is generally a more costly exercise, due to the increased time and resources needed to dig the trench and lay the new main, including higher volumes of waste removal and reinstatement. However, it does allow for the new PE main to deliver additional capacity on the network, if required.[26]

6.23 GEMA stated that, when submitting their business plans for RIIO-GD3, GDNs forecast their workload and cost estimates, ie their expectations as to decommissioned workload and lay workload.[27] These forecasts were disaggregated by reference to each GDN’s banding expectations, ie the diameter of pipe that is to be decommissioned (abandoned) and commissioned (laid). There are seven bands of pipe which vary significantly in average unit cost: the higher the band (ie the greater the pipe diameter), the greater the cost to a GDN in laying that pipe. The costs forecasted reflect the combination of these activities. In GDNs’ business plans they are reported as costs of mains commissioned.[28]

6.24 SGN’s repex workload mix forecasts for GD3 were developed using core profiles of each asset (pipe band), 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 to 2023/24 (up to September 2023).[29]

6.25 From this data, SGN derived a matrix for each year 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.[30] Each year’s data was aggregated to provide an overall matrix for Southern and Scotland networks with lay lengths (in kilometres) converted into percentages of the decommissioned pipes by band. The

[24] GEMA response to Appellants’ NoAs, paragraph 162.3 and SGN NoA, paragraph 165-166.
[25] SGN NoA, paragraph 240.
[26] Callum Mayfield WS1, paragraph 70.
[27] GEMA response to Appellants’ NoAs, paragraph 162.4.
[28] GEMA response to Appellants’ NoAs, paragraph 162.4.
[29] SGN NoA, paragraph 167.
[30] SGN NoA, paragraph 168.

summary matrix and abandonment-to-lay ratio[31] were used to produce the decommission-to-lay mix for GD3.[32] SGN did not calculate different decommission-to-lay matrices for the insertion and open cut technique.

6.26 In addition to submitting forecasts of their expected repex workload, GDNs also provided GEMA with their historical actual data showing their historical commissioned and decommissioned workloads and volumes.[33]

6.27 Although SGN did not compute separate matrices by technique type pre-FD, it has since, as part of the appeal process, calculated separate decommission-to-lay matrices for both open cut and insertion workload.

SGN's asset management strategy

6.28 SGN provided witness evidence setting out an overview of its asset management strategy.[34] This included background on how and why distribution networks differ[35] and that these factors can significantly impact the volume and complexity of work.

6.29 SGN explained that its default approach is to lay new mains using insertion, unless insertion is not feasible, and that this results in SGN proposing the smallest proportion of work to be delivered via open cut of the GDNs. SGN's methodological approach to the lay matrix did not distinguish by technique, because there is no engineering or economic reason to believe that the mix of technique it has delivered historically will change in future. SGN's analysis was therefore based solely on the overall matrix, rather than breaking it out by technique sub-category.[36]

6.30 SGN provided Southern, Scotland and WWU band mix tables to show how these can vary between GDNs.[37] These tables are said to demonstrate that there are differences between the two SGN networks even though they have the same management procedures. We note differences between SGN and WWU, such as SGN having a higher proportion of Band B mains decommissioned and replaced by insertion with larger diameter Band 2 mains compared with WWU ([✂]).

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[31] GEMA RIIO-3 FD, paragraph 5.330.
[32] SGN NoA, paragraph 169.
[33] GEMA response to Appellants' NoAs, paragraph 162.6.
[34] Jeremy Deveney WS1 (Confidential), p3-6.
[35] Including significant disparity between the lengths of main of the different networks, higher proportions of diameter and metallic mains, as well as population density and complexity of operating conditions.
[36] Jeremy Deveney WS1 (Confidential), paragraphs 70-75.
[37] Jeremy Deveney WS1 (Confidential), p16-17.

Repex cost driver

6.31 As part of determining final cost allowances for repex, GEMA uses a single totex regression model that combines multiple cost drivers into a single CSV.[38] Within the CSV, GEMA uses the 'repex synthetic' variable as its cost driver to explain repex costs.[39] This driver reflects the costs to deliver the GDN's lay workloads at the average industry unit cost for each band (see paragraphs 6.193 below to 6.211 below for further details).[40] This means that it is the variations in workload (in lay length) and workload mix (in lay diameter bands of pipes) that drive differences in the cost driver value between networks.[41]

GEMA's Draft Determination

6.32 In its DD published on 1 July 2025, GEMA stated that it had '*concerns about the justification for some of the Tier 1 mains workload forecasts submitted by GDNs*'.[42]

6.33 GEMA explained that there were two areas where it had identified issues that could have material impacts on the outcome of the benchmark modelling and where it would like to further clarify the rationale for the submitted workload forecasts. First, the workload mix forecasts for Tier 1 mains commissioned for some GDNs showed notable inconsistencies between historical and forecast years with respect to the diameter band mix. Second, there were also several cases where the ratio between the forecast volume of mains commissioned[43] (ie laid) and of mains decommissioned (ie abandoned) was inconsistent with historical trends and engineering logic.[44]

6.34 GEMA noted that the commissioned diameter band workload mix feeds directly into the repex synthetic cost driver calculation. GEMA stated that it had observed a marked shift from smaller diameter bands to larger diameter bands between historical (ie 'actuals') and forecast years, the rationale for which had not been set out in GDNs' business plans. It also stated that it was notable that there was not a corresponding shift in the forecast diameter band mix for mains decommissioned.

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[38] Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraph 4.3.
[39] This is calculated by multiplying each GDN's 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 (ie, Bands 1-8). See SGN NoA, paragraph 172 and GEMA RIIO-3 FD, paragraph 5.291. 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 is directly affected by the banding mix.
[40] SGN NoA, paragraph 172.
[41] Callum Mayfield WS1, paragraph 85.
[42] RIIO-3 Draft Determinations – Gas Distribution (**GEMA RIIO-3 DD**) paragraph 5.220.
[43] That is, the quantity of replacement pipe that is actually installed and brought into service.
[44] GEMA RIIO-3 DD, paragraph 5.220.

6.35 A diameter band mix featuring a higher share of larger diameter mains would result in a higher value repex synthetic cost driver, all else being equal.[45] This in turn would have impacts on the CSV calculation. The repex synthetic cost driver receives the highest weight within the totex CSV calculation because repex costs account for the largest share of totex.[46] Put more simply, by forecasting more workload at higher diameter bands and then only commissioning smaller diameter bands, GDNs could potentially gain totex allowances from GEMA in excess of actual costs incurred.

6.36 In its DD, GEMA stated that it wanted to further engage with the GDNs ahead of the FD to understand the justification for the Tier 1 forecasts submitted in their business plans. GEMA noted that if it thought there was insufficient evidence or justification to support the forecasts ahead of the FD, it would consider making adjustments to forecast Tier 1 commissioned workloads based on '(i) historical averages or trends of lay-to-abandon ratios for Tier 1 mains; (ii) historical relationships between Tier 1 mains commissioned and decommissioned diameter band mixes; (iii) historical average Tier 1 mains commissioned diameter band mixes; and (iv) other methodological approaches that are robust and follow engineering logic'.[47]

SGN's DD response

6.37 In response to the DD, SGN set out its concerns that other GDNs could submit an elevated banding mix in their forecasts,[48] undermining the robustness of the cost assessment.[49] SGN indicated in two separate submissions that a normalisation would be required in order 'to enable a fair comparison of business plans' and '[✂]'.[50]

6.38 SGN outlined three potential solutions to enable comparative benchmarking which would be applicable for both the banding mix and abandonment ratio issues. These were:

(a) 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;

[45] GEMA RIIO-3 DD, paragraph 5.221.
[46] Callum Mayfield WS1, paragraph 91.
[47] GEMA RIIO-3 DD, paragraph 5.224.
[48] An elevated banding comprises higher lay diameter bands for Tier 1 when compared with historical averages.
[49] SGN NoA, paragraph 180.
[50] GEMA response to Appellants' NoAs, paragraphs 166-167.

(b) Require networks to restate their forecasts in line with good engineering design efficiency and provide an engineering rationale to any variation; or

(c) Networks that have maintained a high level of design efficiency should be allowed to recalibrate to align with the other networks.[51]

6.39 SGN has noted that this issue was also raised by WWU in its DD response.[52]

GEMA's Final Determination

6.40 In its FD, GEMA approved £4 billion of baseline totex for SGN (including repex, see paragraph 6.206), a £733 million reduction compared with SGN's submitted business plan, but approximately a £[✂] increase compared to the position proposed in the DD.[53]

6.41 GEMA explained in the FD that, since the publication of its DD, it had gathered additional evidence on each GDN's Tier 1 mains forecast through Supplementary Questions (**SQ**), data requests, the Cost Assessment Working Group (**CAWG**) and bilateral discussions:[54]

(a) GEMA issued SQs on 10 July 2025 [✂], seeking further clarification on their Tier 1 forecasts. GEMA explained that, at this stage, [✂] banding mix forecasts and the lay-to-abandon ratio forecasts were the most obvious concerns for further investigation.[55]

(b) GEMA held a bilateral meeting with SGN on 24 July 2025, focused on cost assessment issues. SGN expressed that it was pleased to see the issues around Tier 1 workload forecasts had been noted as a distinct area for further consideration at FDs.[56]

(c) At the CAWG on 12 August 2025, 'Tier 1 forecasts, lay-to-abandon and diameter band mix' was a dedicated agenda item and SGN noted that possible options for resolving inconsistencies included either Cadent and NGN resubmitting their forecasts based on different assumptions, or SGN resubmitting its forecasts to align with other GDNs' assumptions.[57]

(d) GEMA issued further SQs on 1 September 2025 to all GDNs seeking additional data and information on their forecasting methodologies for RIIO-

[51] SGN NoA, paragraph 181.
[52] SGN NoA, paragraphs 182-183.
[53] SGN NoA, paragraph 139, GEMA RIIO-3 FD, Table 15.
[54] GEMA RIIO-3 FD paragraph 5.317.
[55] Callum Mayfield WS1, paragraphs 150 – 151.
[56] Callum Mayfield WS1, paragraph 154.
[57] Callum Mayfield WS1, paragraph 155.

GD3 including the provision of pipe-level data covering every individual pipe (both commissioned and decommissioned) in the proposed workload forecasts set out in their business plans.[58]

(e) In response to GEMA's SQ, in addition to the requested data, each of the GDNs provided a written response including additional information and context.[59]

(f) Between 5 and 12 September 2025, GEMA held a follow-up bilateral call with each of the GDNs to allow them to explain their approach to forecasting Tier 1 repex workloads in RIIO-GD3. GEMA spoke with SGN on 15 September 2025.[60]

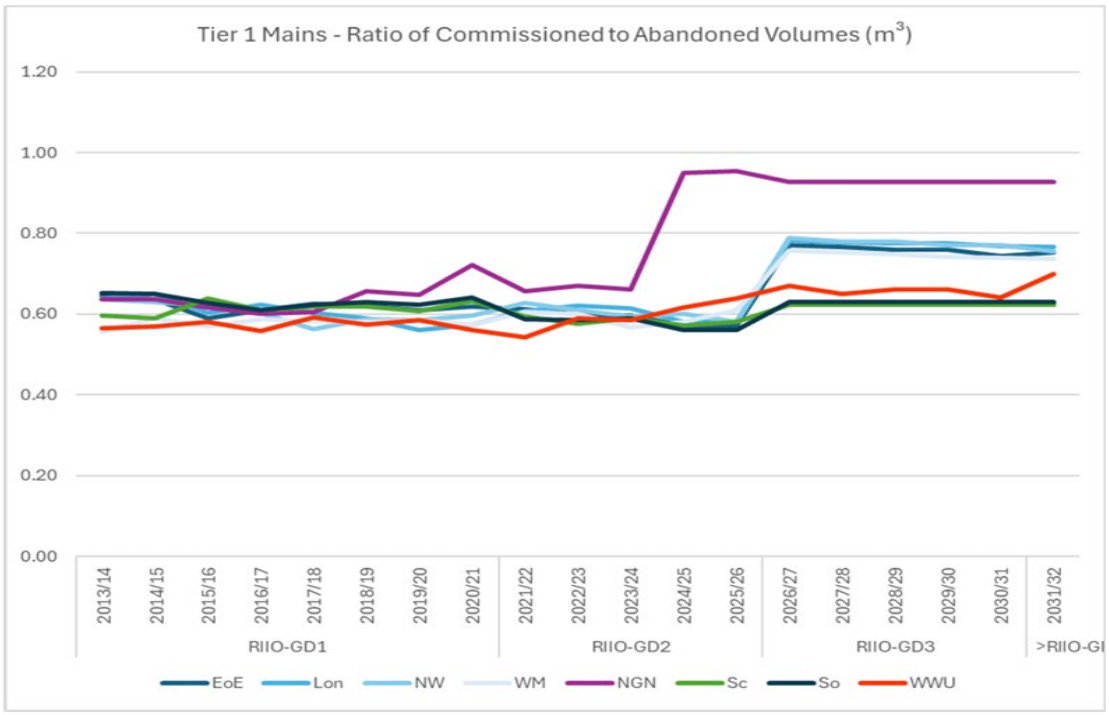
6.42 Following its post-DD process of review and engagement, GEMA concluded in the FD that GDNs each took a different approach to forecasting Tier 1 mains forecasts for RIIO-GD3, resulting in varying degrees of uncertainty within the submitted data.[61]

6.43 GEMA first analysed the relationship between the capacity of commissioned pipes laid in each GDN's network, and the corresponding capacity of pipes decommissioned, by estimating the total physical volume of each set of mains. This was designed to check whether the forecast data in company plans was consistent with observed historical relationships across the industry. In principle, GEMA stated that it would expect these relationships to be broadly stable over time. A significant increase or decrease in the ratio between these capacities implies a relative growth or decline in overall network capacity.[62]

6.44 GEMA explained in the FD that, in its analysis, historic data showed a stable relationship between the capacity of mains commissioned, and the capacity of mains decommissioned.[63] The ratio of volume commissioned to volume decommissioned had been close to 0.689 over RIIO-GD1 and the first three years (actuals) of RIIO-GD2, as shown in Figure 1.1 below.

[58] Callum Mayfield WS1, paragraph 170.
[59] Callum Mayfield WS1, paragraph 171.
[60] Callum Mayfield WS1, paragraphs 174 and 177.
[61] GEMA RIIO-3 FD, paragraph 5.317.
[62] GEMA RIIO-3 FD, paragraph 5.318.
[63] GEMA RIIO-3 FD, paragraph 5.319.

Figure 1.1: Ratio of volume (m3) of mains lay /volume (m3) of mains abandoned for Tier 1 mains[64]



Source: Figure 8 of GEMA RIIO-3 FD, page 196.

6.45 However, GEMA observed notable step changes in this relationship in the forecast data for some companies. GEMA stated that, for NGN, this ratio increases sharply to just below 1 from 2024/25, year 4 of RIIO-GD2 and remains at this level for the remainder of RIIO-GD2 and throughout RIIO-GD3. Similarly, for Cadent, the trend line exhibits a sharp increase to around 0.8 at the start of RIIO-GD3 and stays at this level for the remainder of the forecast. WWU exhibits a moderate increase over the forecast, reaching a maximum of around 0.7, whilst SGN remain at around 0.6 throughout the entirety of the periods shown on the chart.[65]

6.46 Based on this analysis, GEMA drew a series of conclusions:[66]

(a) There is a clear historical relationship between the capacity commissioned, and the capacity decommissioned across RIIO-GD1 and the actuals reported for RIIO-GD2 (years 1 to 3).

(b) During the forecast period (RIIO-GD3) these relationships had changed for Cadent and NGN, resulting in a step change increase in the ratio of capacity

[64] EoE, Lon, NW and WM refer to Cadent's networks (East of England, North London, North West and West Midlands); Sc refers to SGN Scotland; So refers to SGN Southern.
[65] GEMA RIIO-3 FD, paragraph 5.320.
[66] GEMA RIIO-3 FD, paragraph 5.321.

laid to capacity abandoned. This change was not seen in the forecasts of SGN and WWU.

(c) The step change in the capacity ratio implied an expected increase[67] in network capacity for NGN and Cadent from year 4 of RIIO-GD2 and RIIO-GD3 respectively. WWU had forecast a 14% increase, although this increase mostly occurs in the final year of the data, which is beyond RIIO-GD3. SGN's forecast was flat.

6.47 GEMA stated that it did not consider there to be clear engineering or economic rationale for such a change, and none had been put forward in the companies' business plans. Companies had not, in GEMA's view, provided evidence why this relationship would change in RIIO-GD3.[68]

6.48 GEMA has explained that it had the following concerns in relation to the robustness of SGN's submitted forecasts:[69]

(a) SGN exhibited low forecast accuracy in RIIO-GD2, with actual delivery moving from larger diameter bands to smaller and less expensive diameter bands;

(b) SGN submitted pipe-level repex data with a large number of errors and engineering inconsistencies; and

(c) SGN described forecasting methodologies which relied upon high-level modelling, rather than a comprehensive view of its networks, where the detailed scoping of work would take place between 6 and 24 months before planned delivery.

6.49 Considering all the evidence together GEMA concluded that it had concerns that there was significant inconsistency in submitted Tier 1 mains forecasts in RIIO-GD3 business plans.[70] GEMA considered that NGN and Cadent had submitted forecasts which could lead to material adverse outcomes from its cost assessment process, given the relative share of Tier 1 mains within the repex synthetic cost driver and totex CSV. GEMA also noted the varying levels of uncertainty and differences in assumptions, confirmed by the GDNs themselves, that underpinned these forecasts.[71]

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[67] We understand this to mean an increase in forecast network capacity relative to the capacity trajectory implied by the historical relationship between commissioned and abandoned capacity; where RCAV nevertheless remained below one, absolute network capacity would still be declining, albeit at a slower rate.
[68] GEMA RIIO-3 FD, paragraph 5.321.
[69] Callum Mayfield WS1, paragraph 248(ii)-(iv).
[70] GEMA RIIO-3 FD, paragraph 5.324.
[71] GEMA RIIO-3 FD, paragraph 5.324.

6.50 GEMA therefore decided to normalise all Tier 1 repex forecasts '*to ensure a consistent set of assumptions are applied across the industry'*, noting that normalising forecasts protects both customers from unjustified cost increases and networks from being disadvantaged in the benchmarking process and being underfunded.[72]

Normalisation method

6.51 The method deployed by GEMA to carry out the normalisation was as follows:[73]

(a) **Step 1:** GEMA's starting point was to use each GDN's forecast decommissioning volumes (by diameter band) from their business plans as GEMA saw no reason to interfere with these.[74] GEMA explained that it considered that the population of metallic mains to be decommissioned is fixed and identifiable in advance, making it a stable and auditable measure of delivery and that GDNs had submitted a specific plan to the HSE based on decommissioning specific pipes on their network during RIIO-GD3. That meant that they should have a good understanding of the corresponding lay mix required to enable replacement.[75]

(b) **Step 2:** 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 their business plans). It applied the GDN-specific aggregate (ie across all decommissioning bands) technique ratio to all diameter bands.[76]

(c) **Step 3**: 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.[77] In doing so GEMA's expectation was that the relationship between mains commissioned and decommissioned in terms of lay bandwidth would be similar between GDNs by technique as measured at the aggregate level. GEMA also considered that the repex information WWU provided was of a high quality and reliable, and the granularity of the data enabled GEMA to develop a more targeted and

[72] GEMA RIIO-3 FD, paragraph 5.325.
[73] SGN NoA, paragraph 189, see also Callum Mayfield WS1, paragraph 209-213, and GEMA response to Appellants' NoAs paragraph 172.
[74] GEMA response to Appellants' NoAs paragraph 172.1.
[75] Callum Mayfield WS1, paragraph 97.
[76] GEMA response to Appellants' NoAs paragraph 172.2, see also Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraphs A.8 - A.11 and SGN NoA, paragraph 189.
[77] GEMA response to Appellants' NoAs paragraph 172.3 -172.4.

network-specific approach to calculating the normalisation (see paragraphs 6.126 to 6.133).[78] Applying WWU's decommission-to-lay matrices to the volumes derived from the prior step produced the lay volumes split by technique.[79]

(d) **Step 4:** 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 replaced each GDN's original repex forecast volumes in the benchmarking model.[80]

6.52 GEMA also decided to apply a lay-to-abandon ratio of 1 to SGN's forecast to bring this into line with the three other companies, to avoid placing it at a comparative disadvantage in the benchmarking process.[81] This had the effect of increasing SGN's repex allowance.[82]

6.53 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.[83] GEMA multiplied the 'normalised' repex workloads for each commissioned band diameter category by the associated industry average unit costs over the GD1-GD3 period.[84]

6.54 GEMA considered and rejected alternatives to industry-wide normalisation of the GDNs' forecasts as proposed by some GDNs during the DD process stage[85] (see paragraphs 6.106 to 6.108 for a fuller description of GEMA's reasoning).

6.55 Additionally, GEMA made a pre-modelling adjustment to submitted costs. GEMA stated that it considered it consistent to adjust both costs and workloads, as this ensures the underlying unit cost relationship remains unchanged prior to running the benchmarking, allowing the regression analysis to determine any further inefficiencies implicit in the submitted cost forecasts.[86] GEMA achieved this by multiplying the unit costs for each commissioned band diameter category implied by each GDN's original business plan submission by the new repex volumes. The resulting costs were then applied in GEMA's regression model.[87]

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[78] GEMA RIIO-3 FD, paragraph 5.326; Callum Mayfield WS1, paragraphs 194 -195.
[79] SGN NoA, paragraph 189, see also Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraphs A17-A22.
[80] SGN NoA, paragraph 189, see also Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraph A23.
[81] GEMA RIIO-3 FD, paragraphs 5.330-5.333, Callum Mayfield WS1, paragraphs 130, 197-199.
[82] GEMA response to Appellants' NoAs paragraph 173.
[83] SGN NoA paragraph 190.
[84] Callum Mayfield WS1, paragraphs 83-85.
[85] Callum Mayfield WS1, paragraph 185.
[86] GEMA RIIO-3 FD, paragraph 5.329.
[87] SGN NoA paragraph 191. RIIO3 - GEMA Response to CMA RFI 01 Q1 - 13 May 2026 - Confidential pages 3 and 4.

6.56 GEMA explained that the effect of the normalisation was to increase SGN's totex allowance by £[✂] compared to if it had made no adjustment at all to any GDNs.[88]

Whether GEMA erred in its decision to normalise SGN's repex forecasts (the Identified Issues and Necessity Matters in alleged Error 1)

6.57 SGN alleges that GEMA was wrong to apply an industry-wide normalisation to all GDNs, which, in the case of SGN, was unnecessary, disproportionate and flawed.

6.58 In order to assess whether GEMA erred in its decision to normalise SGN's forecasts, we have considered the following as set out in this section:

(a) The Identified Issues Matter: Did GEMA err in its decision to normalise SGN's forecasts because its concerns were limited to Cadent's and NGN's banding mix data?

(b) The Necessity Matter: Did GEMA err in its decision to apply an industry-wide normalisation?

6.59 We go on to consider the Reliable Proxy Matter (ie whether GEMA relied on an inappropriate proxy as the basis for applying industry-wide normalisation) in the subsequent section. Having found there that GEMA erred in the Reliable Proxy Matter, and for reasons stated below, it is not necessary for us to conclude on the Technique Matter (see paragraphs 6.170 to 6.172) or the Consultation Matter (see paragraphs 6.179 to 6.180).

The Identified Issues Matter: Did GEMA err in its decision to normalise SGN's forecasts because its concerns were limited to Cadent's and NGN's banding mix data?

SGN's submissions

6.60 SGN submitted that, in its FD, GEMA had 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' (emphasis added).[89]

6.61 In addition, SGN submitted that, in the DD and the FD, GEMA had identified issues solely in relation to Cadent's and NGN's banding mix data, and that no

[88] Callum Mayfield WS1, paragraph 224.
[89] SGN NoA, paragraph 218 quoting FD paragraph 63-65.

concerns were raised at any stage of the GD3 process in relation to SGN's submitted repex forecast.[90] At the hearing, SGN reiterated that GEMA never clearly identified SGN's forecasts as problematic and that therefore SGN could not reasonably have known that GEMA considered SGN's forecasts as unreliable.[91]

6.62 Notwithstanding the absence of any identified issues with SGN's forecasts, GEMA applied the volume adjustment on an industry-wide basis.[92]

6.63 Moreover, SGN explained that GEMA's own RCAV analysis showed that SGN's forecast remained flat across the GD3 period, and that SGN's data [✂] suggesting that its data was robust and accurate and did not need overwriting.[93] The evolution of the RCAV analysis and its implications are discussed in more detail at paragraph 6.139.

6.64 SGN explained that it had discussed the fact that its analysis was historical and based on averages with GEMA and other GDNs during the CAWG meetings. SGN submitted that it communicated its processes to GEMA; however, there was no discussion about the benefits and drawbacks of each forecasting approach, and GEMA did not communicate any concern about the engineering assumptions SGN made.[94]

6.65 SGN further stated that, in its response to GEMA's request for further information (SQ78), it confirmed that its RIIO-GD3 plans were a continuation of the RIIO-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.[95]

6.66 In response to our PD, SGN submitted that there was no evidential basis for the CMA's provisional finding that there were reasons to doubt the reliability of SGN's GD3 forecasts (or to prefer WWU's forecasts), because: (i) the PD's treatment of an SQ data error[96] is inconsistent with GEMA's witness's (Mayfield) explanation of the issue; (ii) the PD did not consider the evidence SGN provided in its responses to requests for information on updated GD2 forecasts; and (iii) SGN provided granular pipe level data containing all the information necessary for GEMA to recut this data into a disaggregated banding mix.[97]

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[90] SGN NoA, paragraph 219.
[91] (Confidential) transcript of the hearing for Totex Model Allowances on 19 June 2026, p27, lines 18–24
[92] SGN NoA, paragraph 221.
[93] SGN NoA, paragraph 219-220.
[94] Transcript of the hearing for Totex Model Allowances session on 19 June 2026, page 27-30.
[95] Daniel Brennan WS1 (Confidential), paragraph 18(e).
[96] GEMA undertook analysis to check the pipe level data provided in the SQ responses [✂], the "SQ error" – see paragraph 6.88(b).
[97] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 67. SGN also commented that the CMA's PD position that this was not provided to GEMA by SGN was a factual error (see paragraph 4(i) (SGN Foreword)).

6.67 In relation to the reliability of its GD2 forecasts, SGN submitted that the CMA should not place undue weight on GD2 forecast vs actual evidence when considering reliability and accuracy of SGN's GD3 forecasts, given that:

(a) the GD2 forecast vs actual data on which GEMA relied to test the reliability of GDNs' forecasts was factually incorrect; and

(b) GEMA relied on a three-year comparison of (incorrect) GD2 data while four-year data was available from July 2025 and that there is no rational basis for excluding 'more recent and complete data' when assessing the reliability of network forecasts.[98]

6.68 SGN submitted that corrected forecast-versus-outturn analysis, together with updated four-year (available to GEMA at the time of the decision) and five-year GD2 data (available to the CMA during the appeal), showed forecasting outcomes that were broadly comparable to those of WWU and therefore did not support GEMA's conclusion that SGN's forecasts were unreliable (or that WWU's forecasts were reliable).[99]

6.69 SGN also submitted that GEMA's high-level comparison of the relative change in banding mix is only, at most, a partial test of the 'accuracy' of GD2 forecasts and proposed other measures to test the accuracy of SGN's forecasts:

(a) SGN submitted that when viewed on the basis of overall decommissioned and commissioned volumes in absolute terms (instead of the mix), SGN stated that SGN, NGN and WWU exhibit materially similar levels of GD2 forecasting 'accuracy' and that [✂].[100]

(b) SGN also submitted that it had proposed another alternative in this appeal which was not considered in our PD, that is, to assess GD2 forecast performance on a cost-weighted basis rather than by reference to length (or mix) alone. [✂].[101]

GEMA's submissions

6.70 GEMA submitted that at least some GDNs appeared to be overstating their repex banding forecasts in their business plans, by skewing the mix towards larger and

[98] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 70(b).
[99] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 71.
[100] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 71(b); SGN RFI02 Response (Confidential), paragraph 15(i).

[101] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 71(c), referring to SGN RFI02 Response (Confidential), paragraphs 20-22.

more costly pipe diameters, which were not consistent with historical or expected repex work, and historical data showed a material concern about the accuracy of forecasting.[102]

6.71 GEMA submitted[103] that the structure and formulation of the repex cost driver and Tier 1 price control deliverable (**PCD**)[104] gave rise to the potential incentive for GDNs to inflate elements of their submitted workloads in a way that benefits their totex allowances and potential profitability during the price control period.[105]

6.72 GEMA noted that all GDNs submitted final business plans with significant increases in their forecast repex expenditure for RIIO-GD3 compared with RIIO-GD2. At the sector level, the cost of repex submissions increased by 34% between price controls.[106]

6.73 GEMA also noted that all GDNs, except for SGN, submitted forecasts suggesting a lay to abandon ratio of 1, despite historically the figure being below 1 (ie historically a shorter distance of mains was laid than abandoned); SGN was the only company forecasting a ratio below 1.[107]

6.74 GEMA's analysis showed that Cadent and NGN expected to complete a commissioned workload mix with significantly more diameter Band C pipes, and a correspondingly lower proportion of diameter Band A pipes relative to their historical delivery, notwithstanding that the 'decommission' workload mix remained broadly stable between historical and forecast workload.[108]

6.75 GEMA also assessed variances between forecast and actual delivery in RIIO-GD2 (see Figure 1.2 below). This showed that, at GD2, Cadent delivered [✂]% more diameter [✂] than they had initially forecast at the outset of RIIO-GD2, and similarly [✂]% less diameter [✂]. SGN also exhibited a high forecast variance, delivering [✂]% and [✂]% more diameter [✂], and similarly less diameter [✂], than originally forecast.[109]

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[102] GEMA response to Appellants' NoAs, paragraph 164.
[103] GEMA response to Appellants' NoAs, paragraph 163.
[104] PCD identifies the volume of Tier 1 mains each network needs to deliver within the price control and sets out unit costs which are used to adjust allowances for variances within in-period workload delivery. See Callum Mayfield WS1, paragraph 11.
[105] Inflation of workloads could result in higher submitted repex allowances which would then feed into the normalised costs which flow into the totex model, after accounting for adjustments.
[106] GEMA response to Appellants' NoAs, paragraph 164.1.
[107] GEMA response to Appellants' NoAs, paragraph 164.2.
[108] GEMA response to Appellants' NoAs, paragraph 164.3 (as shown in Callum Mayfield WS1 Figures 7 and 8).
[109] GEMA response to Appellants' NoAs, paragraph 164.4.

Figure 1.2: Difference in GD2 forecasted and actual Tier 1 repex diameter band volume (Note: this analysis was subsequently revised to correct for an error (see Figure 1.3A))

[✂]

Source: [✂]

6.76 GEMA submitted that the appropriate way to address concerns around GDNs taking a different approach to forecasting Tier 1 mains repex, which *ex hypothesi* affected each GDN, was to apply an industry-wide normalisation.[110]

6.77 GEMA submitted that its aim in doing so was to apply a consistent set of assumptions across the industry to normalise forecasts of all GDNs to protect customers from unjustified cost increases and networks from being underfunded.[111] GEMA submitted that this aim precluded it from normalising only the forecasts of NGN and Cadent.[112]

6.78 In addition, GEMA submitted, normalising only NGN's and Cadent's forecasts would have improperly ignored its assessment that WWU's approach to forecasting its Tier 1 mains workload was the most robust.[113] GEMA contended that it was permissible for it to consider that the most robust approach should be applied to all GDNs rather than to Cadent and NGN alone.[114]

6.79 GEMA further stated that while the concerns identified in the FD were most acute in relation to Cadent and NGN, it had also identified a number of separate concerns regarding the reliability of SGN's forecasts.[115] These included discrepancies between forecast and outturn data in RIIO-GD2, errors identified within certain pipe-level forecasting data, SGN's reliance on historical averages rather than detailed forward-looking design work when estimating future banding ratios, and what GEMA regarded as a tension between SGN's reliance on historical assumptions and its contention that the remaining Tier 1 programme would become increasingly complex.[116]

6.80 GEMA also noted that it considered alternative approaches before deciding to apply an industry-wide adjustment. These included allowing companies to resubmit forecasts using the same assumptions as Cadent and NGN, normalising

[110] GEMA response to Appellants' NoAs, paragraph 195.
[111] GEMA response to Appellants' NoAs, paragraph 195 quoting RIIO-3 FD paragraph 5.325.
[112] GEMA response to Appellants' NoAs, paragraph 195.
[113] GEMA response to Appellants' NoAs, paragraph 195.
[114] GEMA response to Appellants' NoAs, paragraph 195.
[115] GEMA response to Appellants' NoAs, paragraph 196.
[116] GEMA response to Appellants' NoAs, paragraph 196.

using historical averages, as well as normalising using industry-standard banding mix assumptions.[117]

6.81 GEMA considered and specifically rejected an approach that would have adjusted Cadent and NGN while excluding SGN, due to the fact that: (i) the evidence as a whole gave rise to material concerns about the robustness of SGN's forecasts; and (ii) a consistency of approach across the GDNs was to be preferred over an inconsistent adjustment.[118]

CMA assessment

6.82 For the reasons given below, we find that GEMA did not err in its decision to normalise SGN's forecasts as part of an industry-wide normalisation. The concerns GEMA held at the time, which had adequate support in the facts and evidence, were not limited to Cadent's and NGN's banding mix data.

6.83 We have assessed how GEMA's concerns in relation to the GDNs' forecasts evolved first in the lead up to and then after publication of its DD and, specifically, the evidence that these concerns extended to SGN's forecasts. We subsequently describe the evolution of the evidence base throughout this appeal and the implications for GEMA's approach to normalisation.

Lead up to DD: GEMA initially identified concerns which were not limited to specific GDNs

6.84 We find that, in the lead up to the DD, GEMA had identified several issues that were not limited to Cadent and NGN's forecasts, which it considered could have a material impact on the outcome of the benchmark modelling and which prompted GEMA to investigate further. For example:

(a) GEMA's initial analysis of historic and forecast diameter band mix on three years actuals also identified issues with SGN. It found that Cadent's and SGN's forecasts 'exhibited notable variance between their RIIO-GD2 forecasted commission workload mix and the workload actually delivered for the first three years of the RIIO-GD2' (see left Figure 1.3 below).[119]

(b) GEMA has since updated its analysis in this connection to correct for errors identified by SGN in this appeal process (see Figure 1.3A below). In this appeal, GEMA stated that the corrected analysis continues to support its

[117] GEMA response to Appellants' NoAs, paragraph 198.
[118] GEMA response to Appellants' NoAs, paragraph 198.
[119] Callum Mayfield WS1, paragraphs 134-135.

concerns about the overall reliability of some GDNs' Tier 1 workload forecasts for GD2, including SGN's.

(c) We note that the corrected three years actuals analysis shows a smaller variation from forecast for SGN with the shift to smaller diameter Band A pipes falling for SGN Scotland from [✂]% to [✂]% and for SGN Southern from [✂]% to [✂]%. Even so, it continues to show SGN is the GDN with the [✂] level of variance between its actual and forecast workloads in GD2 and a shift towards the delivery of smaller diameter pipes, such that this error does not materially impact GEMA's conclusions.[120]

Figure 1.3 and 1.3A: GEMA's original and corrected analysis of the difference between GD2 forecast and actual Tier 1 repex diameter band volumes

[✂]

Source: [✂]

(d) GEMA's DD shows that its concerns were not specific to Cadent and NGN but applied to 'GDNs':

(i) The DD noted concerns about 'the justification for some of the Tier 1 mains workload forecasts **submitted by the GDNs** in their Business Plans' (emphasis added) for which GEMA would seek further clarification ahead of FDs:[121]

(ii) The DD also stated that GEMA wanted to 'further engage with **the GDNs**' (emphasis added) to understand the rationale and justification for the Tier 1 forecasts submitted in their business plans, and if there was insufficient evidence or justification to support these forecasts ahead of FD, it would consider making adjustments to forecast Tier 1 commissioned workloads.[122]

6.85 We have reviewed the analysis comparing SGN's GD2 forecasts to three years of actuals (see paragraph 6.84(c) above) and to five years of actuals (see paragraph 6.93 below). We consider it unlikely that GEMA would have come to a different view in relation to the reliability of SGN's GD2 forecasts had it updated its analysis to include four years of actuals when this data became available on 31 July 2025. The more up to date analysis (in the five years' actuals) continues to show a shift

[120] GEMA RFI02a Response (Non-confidential), Question 3A, paragraphs 8-12.
[121] GEMA RII0-3 DD, paragraph 5.220.
[122] GEMA RII0-3 DD, pages 141-142, paragraph 5.224.

to smaller diameter Band A pipes of [✂]% for SGN Scotland and [✂]% for SGN Southern.

Post-DD: GEMA's engagement with GDNs post-DD demonstrates that its concerns were not limited to Cadent and NGN's banding mix data

6.86 GEMA's engagement with the GDNs post-DD also demonstrates that its concerns were not limited to Cadent and NGN.

6.87 First, we note that GEMA engaged with all four GDNs with the aim of understanding the rationale and justification for their submitted Tier 1 forecasts. The engagement included issuing supplementary questions seeking additional data and information on the GDNs' forecasting methodologies. It also included bilateral and CAWG meetings at which the substantive issues were discussed (as described in paragraphs 6.41 to 6.49 above).

6.88 Second, the form and content of the engagement between GEMA and SGN indicate that GEMA was concerned about the accuracy of SGN's forecasts specifically (as well as others') and that SGN's responses did not allay those concerns. GEMA's submissions suggest that the information SGN provided during the post-DD engagement phase had material shortcomings. The information remained high level despite various rounds of engagement.[123] In particular, we note GEMA's description of events that:

(a) [✂].[124] [✂].[125]

(b) GEMA undertook analysis to check the pipe level data provided in the SQ responses [✂].[126]

(c) GEMA issued a follow-up SQ to SGN [✂] highlighting inconsistencies in their original SQ responses and giving them the opportunity to explain and rectify, [✂].[127]

(d) However, in the subsequent bilateral meetings SGN largely reiterated the qualitative information set out in the SQ responses and described its forecasting methodologies at a high level.[128]

[123] Callum Mayfield WS1, paragraphs 172.3 and 184.
[124] Callum Mayfield WS1, paragraphs 171.3 and 174.
[127] Callum Mayfield WS1, paragraph 171.3.
[126] Callum Mayfield WS1, paragraphs 172 and 172.3.
[127] Callum Mayfield WS1, paragraph 173.
[128] Callum Mayfield WS1, paragraphs 174 and 177.

6.89 Third, we find that it is apparent from the FD that GEMA had identified issues and had concerns that were not limited to the data submitted by Cadent and NGN. In the FD GEMA stated that its engagement with GDNs had revealed that each had taken a different approach to forecasting Tier 1 mains forecasts for RIIO-GD3, with some networks relying significantly more on bottom-up approaches and others using a combination of bottom-up and more holistic top-down approaches, and that the result was varying degrees of uncertainty within the submitted data.[129] For example, in the FD GEMA concluded:

> 'Considering all the evidence discussed, we have concerns that there is significant inconsistency in submitted Tier 1 mains forecasts in RIIO-GD3 Business Plans. Some forecasts are clearly inconsistent with the forward-looking expectations around network growth. We consider that NGN and Cadent have submitted forecasts which could lead to material adverse outcomes from our cost assessment process, given the relative share [sic] Tier 1 mains within the repex synthetic cost driver and totex CSV. **We also note the varying levels of uncertainty and differences in assumptions, confirmed by the GDNs themselves, that underpin these forecasts**.'[130] (emphasis added)

6.90 Finally we note that SGN submitted in response to the PD that the CMA had overstated the importance of the SQ 'minor formula error' which GEMA's own witness confirmed did not drive GEMA's decision to normalise Tier 1 workloads.[131] We consider that, while such errors may have been 'straightforward spreadsheet errors' which were corrected and therefore not material to GEMA's decision to normalise SGN's workloads, they nevertheless contributed to a series of issues which undermined GEMA's confidence in SGN's forecasts, leading GEMA to interrogate SGN's forecasts in more detail.

Post-FD: Evidence submitted during course of the appeal shows that SGN Southern's GD2 forecasts were comparable to WWU's

6.91 As noted in paragraph 6.84(a) above, GEMA's original analysis at DD compared the GDNs' historical GD2 forecasts with subsequent actual outcomes in the GD2 period over a three-year period in order to assess the reliability of the GDNs' forecasts for GD3.

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[129] GEMA RIIO-3 FD, paragraph 5.317.
[130] GEMA RIIO-3 FD, paragraph 5.324.
[131] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 68 to 69.

6.92 During this appeal, in response to a request for information,[132] SGN provided an additional analysis of its banding mix variance over the full five years of the GD2 period (see Figure 1.4). This analysis is based on the four-year data of other GDN actuals for the GD2 period published in August 2026, as submitted in their fourth year Regulatory Reporting Packs (RRP),[133] and on five years of SGN actuals.[134] SGN submitted that this analysis shows that, regarding commissioned Band A, SGN Southern's [✂]% variance is comparable to WWU's [✂]% variance; and SGN Scotland's ([✂]) [✂]% variance is comparable to NGN. In contrast, both WWU and NGN have [✂].[135]

6.93 The updated analysis presented by SGN (see below) shows that the variance of SGN Southern's GD2 forecasts from actuals is lower than previously expected, but SGN Scotland's remains similar. We place only limited weight on this analysis because data covering the full five years of SGN actuals over the GD2 period was not available to GEMA at the time of its decision, and because the variance between forecasts and actuals was only one factor GEMA relied upon. The analysis does not indicate, however, that GEMA erred at least as far as SGN Scotland was concerned and it appears to be consistent with GEMA's overall concerns about the reliability of forecast data across a group of GDNs (including part of SGN).

Figure 1.4: Analysis of the difference between GD2 forecast and actual Tier 1 repex diameter band volumes based on five years of actual data for SGN

[✂]

Source: [✂].

6.94 We note SGN's submission that GEMA's high-level comparison of the relative change in banding mix was only, at most, a partial test of the 'accuracy' of GD2 forecasts and SGN proposed other measures to test the accuracy of its forecasts looking at the variance in length of pipes decommissioned, volume of pipes commissioned and cost of delivery (see paragraph 6.69 above).[136]

(a) In relation to commissioned length we agree that, based on this measure, the accuracy of SGN's forecasts does not appear to be out-of-line with WWU's. We note too, however, that the [✂].[137]

[132] SGN RFI02 Response (Confidential), paragraph 15(i).
[133] Ofgem's Decision Interim Regulatory Reporting Packs (RRPs) and PCFM Guidance for GD, GT and ET.
[134] SGN RFI02 Response (Confidential), paragraph 15(i).
[135] SGN RFI02 Response (Confidential), paragraph 15(i).
[136] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 71(b) to (d).
[137] SGN RFI02 Response (Confidential), paragraph 15, and [✂].

(b) In relation to SGN's proposal to assess the forecast performance on a cost-weighted basis, we agree with SGN's submissions that [✂][138] and, on this basis, SGN therefore performs better than WWU in terms of forecast accuracy in GD2. The comparison between SGN and WWU in this regard would not by itself, however, resolve concerns about SGN's forecasts.

Conclusion on the Identified Issues Matter

6.95 We find that GEMA had reasonable concerns in relation to the robustness of the GDNs' submitted Tier 1 workload forecasts. These concerns were not limited at the time, as claimed by SGN, to those submitted by Cadent and NGN but also extended to SGN's submitted forecasts. In particular, the evidence demonstrates the following:

(a) In its DD, GEMA made its concerns clear in relation to the robustness of the Tier 1 workload forecast submitted by GDNs[139] and the consequences if, ahead of FD there remained insufficient evidence or justification to support these forecasts.[140] GEMA remarked upon the 'notable inconsistencies between historical and forecast years with respect to diameter band mix' and that the ratio between forecast volume of mains to be commissioned and to be laid was not consistent with historical trends or engineering logic.[141] Concerns related to those forecasts prompted GEMA to investigate further the consistency and robustness of all GDNs' forecasting methodologies, including SGN's.[142]

(b) After publication of its DD, GEMA engaged extensively with all GDNs with the specific aim of understanding the rationale and justification for their submitted Tier 1 forecasts. This included gathering further evidence on the data underpinning the GDNs' forecasts and on the GDNs' forecasting methodologies.

(c) GDNs, including SGN, then had the opportunity to discuss GEMA's concerns and satisfy it that their forecasts were justified including in responses to the DD, further information requests, and meetings with GEMA. However, their

[138] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 71(c); SGN RFI02 Response (Confidential), paragraphs 20 to 22.
[139] GEMA RII0-3 DD, paragraph 5.220.
[140] GEMA RIIO-3 DD, paragraph 5.224.
[141] GEMA Response to Appellants' NoAs, paragraph 165.
[142] GEMA Response to Appellants' NoAs, paragraph 197; Transcript of the hearing for Totex Model Allowances session on 19 June 2026, page 25, lines 24-25 and page 26, lines 1-13.

responses did not provide GEMA with the required level of detail and assurance.

6.96 We therefore conclude that it was reasonable for GEMA to have decided, at the time of the FD, that it 'did not consider it appropriate to apply a normalisation to NGN and Cadent while excluding SGN, given that (i) the evidence as a whole also gave rise to material concerns about the robustness of SGN's forecasts and (ii) a consistency of approach across the GDNs was to be preferred over an inconsistent adjustment.'[143] We discuss point (ii) in The Necessity Matter: Did GEMA err in its decision to apply an industry-wide normalisation? below.

6.97 In relation to SGN's submission that GEMA did not communicate concerns about SGN's engineering assumptions to SGN,[144] we consider that the evidence indicates that SGN was aware of GEMA's concerns in relation to its high-level approach to forecasting (see paragraphs 6.86 to 6.88).[145] That is so even if SGN did not fully appreciate the extent or seriousness of these concerns.[146]

6.98 In relation to the reliability of GD2 forecasts, while the additional analyses discussed at paragraphs 6.91 to 6.94(b) above provide a more complete account of GD2 forecast performance than the original three-year comparison by GEMA, we consider that:

(a) The subsequent availability of a fourth year of actual data does not materially impact the reasonableness of GEMA's analysis. The five-year data was not available to GEMA at any point prior to this appeal.

(b) The forecast-versus-actual evidence was in any event not, on its own, determinative nor was it the only consideration or component of evidence available to GEMA when it formed its concerns regarding forecast reliability and undertook the normalisation exercise. We note that SGN itself contended that undue weight should not be placed on GD2 forecast vs actual evidence when considering the reliability and accuracy of GD3 forecasts, given its limited relevance compared with other data points.[147]

[143] Callum Mayfield WS1, paragraph 184.
[144] Transcript of the hearing for Totex Model Allowances session on 19 June 2026, page 27-30.
[145] Callum Mayfield WS1, paragraphs 170-177.
[146] In response to the PD, SGN submitted that SGN understood GEMA's granular data-gathering exercise to have been for the purpose of normalising Cadent and NGN, SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 1, row 1.81. See also paragraph 6.41 above.
[147] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 70.

The Necessity Matter: Did GEMA err in its decision to apply an industry-wide normalisation?

SGN's submissions

6.99 SGN submitted that there is no reasonable justification for GEMA's decision to normalise repex forecasts across all GDNs.[148]

6.100 SGN submitted that GEMA's approach was not necessary for effective cost benchmarking. While GEMA's stated purpose for the normalisation process was to protect consumers from overpaying and ensuring that networks are not underfunded, it did not follow that this objective required a uniform assumption to be applied across the industry.[149]

6.101 SGN referred to the Frontier Totex Report, in which Frontier explained that:

(a) it is 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;

(b) there is no logical reason why GDNs' forecasts should be based on a common engineering assumption; and

(c) GEMA's approach is inconsistent with its typical approach to normalisation.[150]

6.102 In response to our PD, SGN submitted that:

(a) the RCAV calculations, which GEMA relied upon to support the view that WWU's assumptions were a suitable industry standard and to inform its assessments of workload forecasts and the need for an industry wide repex adjustment, were factually incorrect;[151]

(b) the evidence cited in the PD does not support a normalisation of SGN forecasts and fails to account for the fact that SGN alerted GEMA to the issue of other GDNs' inaccurate forecasts early in the GD3 business planning stage;[152]

[148] SGN NoA, paragraph 226.
[149] SGN NoA, paragraphs 224-225.
[150] SGN NoA, paragraph 225.
[151] SGN's Response to CMA RIIO-3 Totex PD (Confidential). paragraph 36.
[152] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 1, row 1.104.

(c) the CMA cannot reasonably conclude that GEMA undertook a detailed analysis to inform its understanding of GDN forecasts and forecasting methodologies. GEMA (i) failed to properly engage with SGN in relation to its forecast data; and (ii) undertook a flawed and incomplete analysis of SGN's forecasts;[153] and

(d) the fact that SGN proposed a normalisation does not mean that all normalisations are equally robust or technically accurate.[154]

GEMA's submissions

6.103 In relation to SGN's argument that there was 'no logical reason why GDNs' forecasts should be based on a common engineering assumption',[155] GEMA submitted that SGN's own position was that a normalisation was necessary and appropriate:[156]

(a) GEMA noted that, in its response to the DD, SGN (i) stated, 'To enable a fair comparison of business plans **a normalisation will be required**…..' (emphasis added); and (ii) suggested options that contemplated solutions applying consistently across the networks. SGN's first option was that '[a] **single level of design efficiency** based on historical averages, **should be applied consistently to all networks**' (emphasis added).[157]

(b) GEMA also noted that, on 25 September 2025, SGN submitted a further response, stating: '[w]e suggest that Ofgem apply normalisation adjustments to ensure consistency in forecast assumptions across networks, given the material impact the banding mix and abandonment ratio assumptions have on cost efficiency'.[158]

6.104 GEMA submitted that it was well within the scope of its discretion to determine that, whilst it may sometimes be reasonable for different companies to adopt different forecasts based on different metrics, the position in respect of the GDNs' repex lay diameter banding forecasts was too unstable and too variable.[159] GEMA explained that its reasoning on this issue was outlined in its DD and was supported by historical data applicable to all GDNs (including SGN).[160]

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[153] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 1, row 1.105.
[154] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 1, row 1.107.
[155] SGN NoA, paragraph 225(ii).
[156] GEMA response to Appellants' NoAs paragraph 200.
[157] GEMA response to Appellants' NoAs paragraph 166 citing SGN response to DD paragraphs 561-563.
[158] GEMA response to Appellants' NoAs paragraph 167 and Callum Mayfield WS1, paragraph 165.
[159] GEMA response to Appellants' NoAs, paragraph 201.
[160] GEMA response to Appellants' NoAs, paragraph 201.

6.105 GEMA submitted that there were risks for the stability of its regression estimation when applying differing assumptions between GDNs. It said that inaccurate forecasts would directly influence the value of the repex component of the totex CSV, affecting the relative benchmark efficiencies between GDNs, and ultimately feeding through into totex allowances and company profitability.[161]

6.106 GEMA considered alternatives to normalising all GDNs' forecasts including allowing all GDNs to resubmit their forecasts. It concluded that this option was not practical or desirable. In particular, that there was insufficient time within the wider process to allow for resubmissions of any of the GDNs' Tier 1 programmes.[162]

6.107 GEMA also considered SGN's proposal that SGN and WWU could resubmit their forecasts on the same basis as those of NGN and/or Cadent. However, it concluded this would be illogical, given its concerns over the reliability of NGN and Cadent's data.[163]

6.108 GEMA considered, too, different options for normalising based on using historical averages for each GDN (proposed by both SGN and WWU).[164] It decided not to adopt this approach because it was concerned that using historical banding mixes risked not capturing the increasing complexity of the repex work for GD3.[165]

6.109 GEMA contended that SGN's primary concern is not a particular analytical or methodological error made by GEMA, but rather the outcome of its (lawful) reasoning, which in SGN's view means that SGN was underfunded.[166] GEMA submitted that the claim to underfunding depends, however, on SGN's forecasts being accepted as accurate, reliable and consistent, which GEMA does not accept.

6.110 Further GEMA submitted that the effect of the normalisation was, consistent with SGN's analysis, comparatively favourable to SGN. GEMA has explained that it has re-run its FD post-snagging totex model without the Tier 1 normalisation to allow the impact of the normalisation to be clearly observed. GEMA submitted[167] that applying the FD adjustment to Tier 1 repex workloads results in an increase of £[✂] in totex allowances for SGN, compared to if it had made no normalisation adjustment to any GDNs at the FD stage.[168]

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[161] Callum Mayfield WS1, paragraphs 245-249.
[162] Callum Mayfield WS1, paragraph 240(i).
[163] Callum Mayfield WS1, paragraphs 187-188 and 240(i).
[164] Callum Mayfield WS1, paragraph 190.
[165] Callum Mayfield WS1, paragraph 191.
[166] GEMA response to Appellants' NoAs, paragraph 202.
[167] Callum Mayfield WS1, paragraph 224.
[168] GEMA response to Appellants' NoAs, paragraph 202.

CMA assessment

6.111 For the reasons set out below, we find that GEMA did not err in its decision to normalise all the GDNs' Tier 1 forecasts.

6.112 We find that GEMA's concerns related to both the consistency and the reliability of the GDNs' forecasts.[169] In particular, as explained under the Identified Issues Matter in paragraph 6.70, GEMA had material concerns regarding the validity and accuracy of three of the four GDNs' forecasts, which GEMA considered risked distorting the economic modelling, including the assessment of relative efficiency.[170] GEMA therefore decided to normalise all Tier 1 repex forecasts in order to protect both customers from facing unjustified cost increases and networks being disadvantaged in the benchmarking process and, therefore, being underfunded.[171]

6.113 This was supported by GEMA's RCAV analysis which indicated a step change increase in the ratio of capacity laid to capacity abandoned for Cadent and NGN with no clear engineering or economic rationale for such a change.[172] These concerns remain following GEMA's corrected RCAV analysis which has been updated during this appeal – see further paragraph 6.139 below.

6.114 Having concluded that GEMA's concerns with GDN forecasts were sufficiently well-founded (see Conclusions on the Identified Issues Matter above), we consider that GEMA's assessment that normalising the Tier 1 repex forecasts across GDNs was necessary was similarly well-founded for the reasons below:

(a) Tier 1 repex accounts for a large proportion of GDNs' GD3 forecast totex (see paragraph 6.17) and the repex synthetic cost driver receives the highest weight within the totex CSV calculation.[173] Inaccurate forecasts, based on increased use of larger diameter pipes without a corresponding engineering justification or which were inconsistent with historic outturn data, would directly influence the value of the repex component of the totex CSV, and risked the consequences GEMA identified.

(b) GEMA's assessment of the quality of the GDNs' forecasts followed a period of intensive engagement with the GDNs.[174] This engagement provided them with a reasonable opportunity, in the time available, to reassure GEMA in

[169] GEMA RIIO-3 FD paragraph 5.324.
[170] Callum Mayfield WS1, paragraph 182.
[171] GEMA RIIO-3 FD paragraph 5.325.
[172] GEMA RIIO-3 FD paragraph 5.321- 5.322.
[173] Callum Mayfield WS1, paragraph 91.
[174] Callum Mayfield WS1, paragraphs 150-184.

relation to the quality and consistency of their forecasts and forecasting methodologies.

(c) Following this period of engagement, GEMA concluded that there was a strong case for applying a normalisation adjustment to company forecasts at FD to address concerns regarding the validity and accuracy of the submitted forecasts. GEMA then considered alternatives to normalising all GDNs' forecasts (see paragraphs 6.106 to 6.108 above):

(i) The option of allowing all GDNs to resubmit their forecasts was dismissed on grounds of practicality, including because there was insufficient time within the wider process to allow for resubmissions of any of the GDNs' Tier 1 programmes.[175] Weighing up the risks of a delay in implementing the charge control against the alternatives for addressing its concerns is something GEMA was entitled to do.

(ii) The option of allowing SGN and WWU to resubmit their forecasts on the same basis as those of NGN and/or Cadent was considered by GEMA to be illogical. That view was a reasonable one, given GEMA's concerns over the reliability of NGN and Cadent's data.[176]

(iii) The options for normalising based on using historical averages for each GDN (proposed by both SGN and WWU), were dismissed on the basis of concerns that using historical banding mixes risked not capturing the increasing complexity of the repex work for GD3. This view was reasonable given that all of the GDNs had identified increasing complexity as a driver of higher costs in their forecasts.[177]

(d) Finally, we also note that, as described above in paragraph 6.103, in its response to the DD, [✂] suggested that GEMA apply normalisation adjustments [✂].[178] SGN's own suggested options contemplated solutions applying consistently across the networks.

Whether GEMA erred in how it applied its normalisation to SGN using a 'mix and match' approach (the Reliable Proxy Matter in alleged Error 1, the Technique Matter in alleged Error 2, and the Consultation Matter)

6.115 SGN alleges that GEMA failed to establish that WWU's decommission-to-lay assumptions provided a reliable proxy for industry standards. It further alleges that

[176] Callum Mayfield WS1, paragraph 240(i).
[176] Callum Mayfield WS1, paragraphs 187-188 and 240(i).
[177] Callum Mayfield WS1, paragraphs 190-191.
[178] Callum Mayfield WS1, paragraphs 167 and 169.

GEMA misapplied the adjustment and failed to fully 'normalise' SGN's repex forecasts by combining WWU decommission-to-lay assumptions with SGN-specific technique assumptions.

6.116 Based on SGN's submissions in response to our PD we find in the section below that GEMA erred in reaching the decision that WWU's decommission-to-lay assumptions were appropriate to normalise SGN's forecasts. In light of this finding, and for reasons stated below, it is not necessary for us to reach a conclusion on the Technique Matter (see paragraphs 6.170 to 6.172) or the Consultation Matter (see paragraphs 6.179 to 6.180).

The Reliable Proxy Matter: Did GEMA err in using WWU's decommission-to-lay assumptions to normalise GDNs' forecasts?

SGN's submissions

6.117 SGN submitted that WWU is not a 'reliable proxy for expected industry standards' for the following reasons:

(a) While GEMA considered WWU's decommission-to-lay assumption to be 'robust', this does not establish that it is an appropriate basis for the work which SGN needs to do on its network 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.[179]

(b) 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 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.[180]

(c) SGN submitted that such concentration of mains within the lowest bands would, if implemented for it, result in:

[179] SGN NoA, paragraph 201.
[180] SGN NoA, paragraph 202.

(i) a reduction in network capacity of [✂] (compared to what was assumed in SGN's business plan), which represents a [✂]% reduction in the volume of pipe that SGN had proposed to lay; and

(ii) increased incidences of low pressure at the extremities of the network,[181] which would amount to a breach of licence obligations to provide a safe and resilient network.[182]

(d) SGN also noted that, because 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 £[✂] reduction in SGN's total repex synthetic cost, compared to repex synthetic costs based on SGN's submitted volumes, as set out in its forecast.[183]

(e) GEMA's analysis of the RCAV does not support the conclusion that WWU is a 'reliable proxy'.[184] WWU's forecasts are not aligned with GEMA's expectations as to RCAV over time[185] and GEMA may have miscalculated WWU's RCAV change over time.[186]

(f) 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.[187] While GEMA concludes that WWU's methodology is informed by detailed network models, that overlooks the critical point that WWU's models and forecasts are designed for its network.[188]

6.118 SGN submitted that, [✂].[189] According to SGN, the implications of GEMA's approach are that the overwhelming majority of SGN's new mains would be laid at equal or smaller diameters than originally planned, while only a small proportion of the remaining mains would be upsized.[190]

6.119 SGN contended that, from an engineering perspective, the point in the preceding paragraph is demonstrated by Figure 1.5 and Figure 1.6 (below). These compare the length of main to be laid across SGN's Southern and Scotland networks and

[181] SGN NoA, paragraph 203.
[182] SGN NoA, paragraph 204.
[183] SGN NoA, paragraph 205.
[184] SGN NoA, paragraph 207.
[185] SGN NoA, paragraph 208.
[186] SGN NoA, paragraph 209.
[187] SGN NoA, paragraph 211.
[188] SGN NoA, paragraph 213.
[189] Jeremy Deveney WS1 (Confidential), paragraph 85.
[190] Jeremy Deveney WS1 (Confidential), paragraph 87.

the change in capacity, disaggregated by diameter band size, using SGN's original decommission-to-lay banding mix and GEMA's imposed assumptions.[191]

Figure 1.5: [✂]

[✂]

Source: [✂]

Figure 1.6: [✂]

[✂]

Source: [✂].

6.120 In response to our PD, SGN submitted that there was no reasonable basis for concluding that WWU assumptions are more reliable than SGN's.[192]

6.121 SGN stated that GEMA conceded at the hearing[193] that (i) GEMA did not backcast WWU's approach using GD2 data to determine if it would produce similar results when applied to SGN; (ii) GEMA failed to examine the assumption underpinning its use of WWU's decommissioned to-lay data to confirm that the relationship between mains decommissioned and commissioned would hold once disaggregated by technique; and (iii) GEMA only looked at kilometres of pipe to be decommissioned without considering whether the normalised workload would deliver the capacity required for each network.[194]

6.122 SGN submitted three further key points in response to our PD:

(a) WWU's forecasts are not more 'granular' than SGN's – in fact, before it made its FD, GEMA had all the information necessary to understand SGN's approach to open cut and insertion in the responses to SQ78 and SQ98;[195]

(b) WWU's RCAV does not show a consistent relationship between the capacity of the mains being commissioned and decommissioned. SGN submitted that regardless of whether forecast capacity changes show a 'step jump' or gradual increase, [✂];[196] and

(c) the CMA's PD incorrectly assumed a link between open cut and capacity when the full five-year data from RIIO-2 shows that there is no relationship

[191] Jeremy Deveney WS1 (Confidential), paragraph 90.
[192] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 72.
[193] Transcript of the hearing for Totex Model Allowances session on 19 June 2026 pp. 38-39, 45-46 and 52.
[194] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 75.
[195] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 76 – 80.
[196] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 92.

between the proportion of open-cut work undertaken by a network and its capacity.[197]

6.123 SGN submitted the analysis in Figure 1.7[198] below of GEMA's corrected results and made the following observations on this analysis:

(a) SGN's submitted forecasts show a rate of reduction in forecast capacity that is in line with historic levels; and

(b) SGN's adjusted forecasts show an increased rate of reduction in capacity relative to its forecasts.

Figure 1.7: Corrected RCAV analysis

[✂]

Source: [✂]

6.124 As to materiality, SGN submitted that:

(a) SGN has demonstrated an impact on capacity/ pressure from combining WWU's banding mix assumptions with SGN's technique assumptions;[199] and

(b) the Tier 1 repex adjustment error is material to SGN and leads to significant underfunding risks, equivalent to approximately [✂] or [✂] of work in Scotland and [✂] or [✂] of work in Southern compared with SGN's proposed remedies.[200]

6.125 SGN submitted that retaining its Tier 1 repex forecasts[201] is 'materially better' than applying WWU's assumptions for a number of reasons including that:[202]

(a) its forecasts are consistent with engineering logic[203] because it keeps the banding mix and technique mix aligned;

(b) its forecasts are consistent with historical delivery over a 10.5-year period and the operational requirements of SGN's network;

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[197] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 90 – 96.
[198] SGN Hearing slide pack, Exhibit 4.
[199] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 99; citing Jeremy Deveney WS1 (Confidential), paragraphs 92-99, JD1_1_009 Banding Mix Comparisons Report.pdf and SGN NoA, paragraph 203.
[200] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 104.
[201] That is, removing GEMA's overwriting adjustment for SGN but retaining it for the other GDNs.
[202] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 106 to 112.
[203] SGN submitted that the engineering evidence demonstrates that combining WWU's banding mix with SGN's technique assumptions would lead to unacceptable pressure risks on its network. SGN submitted that neither GEMA nor the CMA's PD has produced any engineering evidence to the contrary. See SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 17(i) (SGN Foreword).

(c) SGN's banding mix is based on a reliable forecasting methodology; and

(d) SGN's banding mix assumptions preserve its approach to insertion, which makes greater use of 'close-fit' insertion.

GEMA's submissions

6.126 GEMA argued that the extent to which WWU's decommission-to-lay assumption served as a reliable industry proxy, and the question of whether the use of a proxy would ignore operational requirements within a given network, are matters of regulatory judgement and evaluation.[204]

6.127 GEMA stated that there was a good basis for regarding WWU's decommission-to-lay data as a reliable proxy; namely, that WWU's data was robust, built bottom-up, informed by highly detailed network models and did not demonstrate the historical variance shown in other GDNs' data.[205]

6.128 GEMA also considered that, once decommissioning workloads and delivery techniques were accounted for, there was no reason to expect particular variance between networks in decommission-to-lay banding at the aggregate level. GEMA noted that SGN itself had previously proposed implementing a single model rolled out consistently to all networks.[206]

6.129 GEMA rejected SGN's contention that GEMA's conclusion that WWU's methodology was a reliable proxy was based on an erroneous assessment of WWU's RCAV.[207] In doing so:

(a) GEMA submitted that, '… the conclusions that SGN draws from its RCAV analysis in its notice of appeal are misleading. The reason forecast RCAV values differ between networks is a result of the different forecast of the share of open cut between networks. SGN's conclusions fail to recognise this link, and therefore, do not support its case that our adjustment fails to effectively normalise forecast workloads between networks'.[208]

(b) GEMA stated that the consideration of RCAV was a separate piece of analysis used to ascertain whether GDNs' business forecasts were generally consistent with historical delivery and consistent between GDNs. RCAV was

[204] GEMA response to Appellants' NoAs paragraph 184.
[205] GEMA response to Appellants' NoAs, paragraph 185.
[206] GEMA response to Appellants' NoAs paragraph 185.
[207] SGN NoA, paragraph 210(iv).
[208] GEMA response to Appellants' NoAs, paragraph 186.1 and 212.

neither used to determine that WWU's data was reliable nor used to calculate the normalisation adjustments that were applied.[209]

(c) GEMA stated that the minor error in the calculation of RCAV at the time of FDs was immaterial to its decision-making.[210]

6.130 GEMA further submitted that it assessed that it was appropriate to use WWU's decommission-to-lay matrix for all GDNs in circumstances where there is a high level of commonality, repeatability and comparability between the repex activities delivered by the GDNs (which is indeed the reason it was considered suitable to be included within the regression for comparative benchmarking).[211] GEMA argued that there is an implicit relationship between the physical characteristics of the mains being laid and those being decommissioned, and that this relationship holds broadly true across all GDNs.[212]

6.131 With regard to SGN's claims in relation to the effect of normalisation on network capacity and safety risks, GEMA rejected these claims on the basis that:

(a) SGN can allocate its totex allowance as required to meet regulatory obligations in relation to safety;

(b) insofar as SGN's workload diameter banding forecasts were overstated prior to normalisation, the alleged impact on the modelling assumptions is also overstated by SGN;[213] and

(c) SGN's capacity analysis is driven largely by its own reported technique assumptions rather than by the normalisation itself.[214]

6.132 GEMA rejected SGN's contention that WWU's models and forecasts should only have been applied to WWU's network. GEMA submitted that WWU's forecasts were not bluntly used to overwrite SGN's forecasts without reference to the nature of its own network.[215]

6.133 GEMA also explained that it considered WWU's assumptions to be suitable for the following reasons:[216]

[209] GEMA response to Appellants' NoAs, paragraph 186.2-186.3.
[210] GEMA response to Appellants' NoAs, paragraph 186.4.
[211] GEMA response to Appellants' NoAs, paragraph 172.4. see also Callum Mayfield WS1, paragraph 193(ii).
[212] GEMA response to Appellants' NoAs, paragraph 172.4, see also Callum Mayfield WS1, paragraph 242.
[213] GEMA response to Appellants' NoAs, paragraph 191.2.
[214] GEMA response to Appellants' NoAs, paragraph 191.3.
[215] GEMA response to Appellants' NoAs, paragraph 192.
[216] Callum Mayfield WS1, paragraph 242.

(a) WWU had consistently demonstrated its Tier 1 repex information was of a high-quality and reliable.

(b) [✂].

(c) WWU forecast workloads at a sufficiently granular detail that made a clear distinction between its insertion and open cut workloads, allowing for each type of workload to be modelled separately.

(d) GEMA's engineering understanding of the relationship between mains commissioned and decommissioned, and the expectation that this would be broadly consistent between GDNs and by technique at the aggregate level.

(e) [✂].

CMA assessment

6.134 We find that, in deciding to use WWU's banding mix ratio as a proxy for the industry standard in so far as it applied to SGN, GEMA erred by relying on incorrect or incomplete data and by failing to take into account relevant data submitted by SGN and other relevant considerations.

6.135 In reaching our conclusion we have considered the following issues:

(a) GEMA's reasons for considering WWU's decommission-to-lay assumptions to be a reliable industry proxy; and

(b) the effect of GEMA's approach to the normalisation on the RCAV analysis.

GEMA's reasons for considering WWU's decommission-to-lay assumptions to be a reliable industry proxy

6.136 On their face, GEMA had good reasons for regarding WWU's banding mix as representing high-quality information suitable for use as an industry proxy:[217]

(a) WWU's approach to forecasting was the most granular of the GDNs' approaches to the forecasts they submitted. In contrast to other GDNs' forecasts, WWU provided forecasts for its insertion and open cut

[217] GEMA's expectation was that the relationship between mains commissioned and decommissioned would be similar between GDNs at the aggregate level based on its understanding of the engineering involved which aligned with the views expressed by WWU that the Tier 1 programme has consistent features across all GDNs – see Victor Tuffen WS1 (Confidential), paragraphs 14 – 21. GEMA considered, bolstered by the views WWU put to it, that the open cut ratio is, to a large degree, determined by the characteristics of the main already within the ground.

workloads.[218] GEMA considered that this enabled it to develop a more targeted and network-specific approach to calculating the normalisation.[219]

(b) WWU's data on banding mix assumptions was the best available to GEMA amongst the GDNs' forecasts. GEMA found, in particular, that:

(i) [✂].[220]

(ii) [✂].[221]

6.137 However, taking account of SGN's representations to the PD (see paragraphs 6.120 to 6.125) and having reviewed the reasons that GEMA relied on to conclude that WWU's assumptions were a reliable proxy, including for SGN (see paragraph 6.133 above), we find that GEMA:

(a) relied on incorrect data amounting to an irrelevant consideration, and so did not have an adequate basis to conclude that WWU's assumptions could be applied to SGN (see paragraph 6.138(a) below);

(b) failed to take account of evidence provided to it by SGN to which it should have turned its mind rather than simply relying on WWU's assumptions as a proxy for SGN (see paragraph 6.138(b) below); and

(c) failed to take account of other relevant considerations relating to the reliability of WWU's assumptions as such a proxy (see paragraph 6.138(c) below).

6.138 Specifically, we find that:

(a) In relation to GEMA's finding that WWU had consistently demonstrated its Tier 1 repex information was of a high-quality and reliable, we recognise that WWU's data gave GEMA confidence in the reliability of WWU's forecasting methods. However, we agree with SGN that the high quality data and reliability of WWU's modelling of its own network alone do not necessarily establish that it is an appropriate proxy for the work which SGN needs to do on its network. Moreover, GEMA relied, for the purposes of the Reliable Proxy Matter, on incorrect data analysing three years of actual workloads in GD2 compared to GD2 forecasts. The corrected three-year GD2 analysis (see paragraph Figure 1.3 above) shows a larger variance in WWU's forecast from actuals compared with the incorrect analysis on which GEMA relied in its FD. Put another way, in relying on data that was incorrect in this

[218] We have subsequently found that this was not the case. See paragraph 6.138(b).
[219] Callum Mayfield WS1, paragraphs 194 and 242(i) and (iii).
[220] Callum Mayfield WS1, paragraph 242(ii).
[221] Callum Mayfield WS1, paragraph 242(v).

context, GEMA had regard to an irrelevant consideration. This weakens GEMA's conclusion that WWU forecasts were high-quality and reliable and, therefore, undermines its use of WWU's assumptions as a proxy for SGN.

(b) In relation to GEMA's finding that only forecast workload data submitted by WWU was sufficiently granular to allow GEMA to calculate band matrices by technique, we find that the information that SGN provided to GEMA in its SQ78 document was of comparable granularity to that provided by WWU. We also find that GEMA did not take into consideration the data that SGN had submitted before FD in its SQ78 document, which contained *inter alia* the underlying data required for GEMA to derive band mix matrices by installation technique. In particular, for each pipe to be decommissioned or commissioned, it contained lay and decommissioning diameter bands, location, replacement technique (including the use of close-fit insertion) and other information, ie the underlying data in the spreadsheet was sufficient to calculate each SGN network's disaggregated banding mix.

(c) In relation to GEMA's engineering understanding of the relationship between mains commissioned and decommissioned, and the expectation that this would be broadly consistent between GDNs and by technique at the aggregate level, the evidence we have reviewed suggests broad support for consistency of the historic relationship between mains commissioned and decommissioned and the expectation that this would be broadly consistent between GDNs.[222] However, SGN submitted that, at least in its case, this relationship breaks down once the commissioned and decommissioned mains are disaggregated by technique.[223] We also note that GEMA conceded at the hearing[224] that in some respects these are codetermined and that it did not test whether WWU disaggregated banding matrices had been similar to SGN's. We find that GEMA therefore did not, before making its decision, properly consider whether WWU's assumptions were transferable to SGN. GEMA did not compare WWU's assumptions against SGN's own disaggregated data, which it would have been able to do at the time as SGN had provided the necessary data.

6.139 We also make the following observations about GEMA's RCAV analysis, which it considered demonstrated that WWU's historical delivery had shown a consistent relationship between the capacity of the mains being commissioned and

[222] Victor Tuffen WS1 (Confidential), paragraph 14; Callum Mayfield WS1, paragraph 242(iv) and Annex A Figure 14.
[223] SGN's reply to GEMA's response, paragraph 21(a); Transcript of the hearing for Totex Model Allowances session on 19 June 2026, page 68, lines 14-17.
[224] Transcript of the hearing for Totex Model Allowances session on 19 June 2026, pages 38-39 and 48.

decommissioned. We do not find, in light of those observations, that GEMA erred in this specific connection. In particular, we observe that:

(a) GEMA's expectation was that RCAV should be broadly stable over time.[225] However, during the course of this appeal, GEMA accepted that it made an error in its analysis of RCAVs in its FD[226] and produced corrected RCAVs which showed increases of [✂]% for NGN, [✂]% for Cadent and [✂]% for WWU, while SGN was projecting a broadly constant RCAV at [✂]%.[227] The original and corrected RCAVs (before normalisation) are shown in Figure 1.8 below.

Figure 1.8: Ratio of volume (m3) of lay and abandoned volume for Tier 1 mains (original (left) and corrected (right)) based on actual and forecast workloads before the normalisation adjustment

[✂]

Source: [✂]

(b) SGN submitted that the increase in WWU's RCAV of [✂]% undermines the reliability of WWU's forecasts and GEMA's justification for using WWU's decommission-to-lay as a proxy for industry standards in normalising GDNs' forecasts (see paragraph 6.122(b)). In our view, this error alone and, in turn, the corrected results, do not necessarily undermine GEMA's conclusion that WWU's technique level assumptions on the band mix relationship between decommissioned and commissioned mains are a 'reliable proxy' for an industry standard. GEMA explained that it used the analysis to assess whether forecast capacity was within a reasonable range compared to historical levels.[228]

(c) Rather, we consider that Figure 1.8 above shows that GEMA would have been unlikely to have reached a different conclusion about the reliability of WWU's assumptions on the basis of the corrected RCAV figures for the following reasons:

(i) [✂],[229] [✂].[230] [✂].

[225] Callum Mayfield WS1, paragraph 271; SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 87.
[226] Callum Mayfield WS1, paragraph 285.
[227] Callum Mayfield WS1, Figure 12.
[228] Transcript of the hearing for Totex Model Allowances session on 19 June 2026, pages 54-55.
[229] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 91 and Annex 1, row 1.130(a) and (c).
[230] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 88.

(ii) [✂],[231] [✂].[232] [✂].[233]

(iii) [✂].

The effect of GEMA's approach to the normalisation on the RCAV analysis

6.140 We have also considered the implications of the normalisation adjustment on the corrected RCAV analysis (see Figure 1.7 above) (the preceding paragraphs having focused on RCAVs before normalisation).

6.141 We find the following, to which GEMA should have had regard but did not:

(a) First, the effect of the normalisation is a faster rate of reduction in SGN's GD3 capacity relative to that calculated using SGN's submitted GD3 forecasts and the average SGN delivered over the 2014-2024 period.[234] We note that this reduction in capacity would likely be less had SGN not included incorrect data in its BPDT submission on its technique split.[235] The effect is, however, contrary to GEMA's statement that the forecast RCAV is in line with actual levels observed in the first three years of GD2 2022 to 2024,[236] ie that it showed no substantial inconsistency with historical RCAVs.[237]

(b) Second, the same analysis does not align with results for Cadent and WWU networks as it shows that, post adjustment, the four Cadent networks and WWU all have RCAVs that [✂].[238]

(c) Third, the effect of the normalisation on SGN is inconsistent with GEMA's reasoning for not relying on historical averages in the normalisation of Tier 1 forecasts. In particular, that using historical banding mixes risked not capturing the increasing complexity of the repex work as a driver of higher costs contained within the RIIO-GD3 forecasts.[239] This suggests to us that while GEMA expected RCAVs to be broadly stable over time, it also accepted that the direction in GD3 could be higher RCAVs relative to 2014-2024.

[231] RIIO-3 Final Determinations – Gas Distribution, paragraph 5.321, Figure 8.
[232] RIIO-3 Final Determinations – Gas Distribution, paragraph 5.321, Figure 8.
[233] Callum Mayfield WS1, Annex A, Figure 14.
[234] SGN slides for the hearing for Totex Model Allowances on 19 June 2025, page 12.
[235] Daniel Brennan WS1 (Confidential), note to Figure 1.
[236] GEMA's (Confidential) Totex closing statement, paragraph 4.
[237] Callum Mayfield WS1, paragraph 282.
[238] SGN slides for the hearing for Totex Model Allowances on 19 June 2025, page 12.
[239] Callum Mayfield WS1, paragraph 191-192.

(d) Finally, as part of its closing submission following the hearing in this appeal, SGN submitted that [✂].[240] While this data was not available to GEMA at the relevant time and therefore failing to consider it was not an error by GEMA, this latest GD2 data lends weight to the broader critique of GEMA's failure to test whether the projected banding mix for SGN post-normalisation was appropriate.

Conclusion on the Reliable Proxy Matter

6.142 Accordingly, we find that, in deciding to use WWU's banding mix ratio as a proxy for the industry standard in so far as it applied to SGN, GEMA erred by relying on incorrect or incomplete data and by failing to take into account relevant data submitted by SGN and other relevant considerations. These matters are material because they affect how and with what effect GEMA should have normalised SGN's forecasts in setting its totex allowances.

6.143 First, as explained in paragraphs 6.137 and 6.138 above, we find that GEMA:

(a) relied on incorrect data analysing three years of actual workloads in GD2 compared to GD2 forecasts, amounting to an irrelevant consideration, and so did not have an adequate basis to conclude that WWU's assumptions could be applied to SGN (see paragraph 6.138(a) above);

(b) failed to take account of evidence provided to it by SGN in SQ78 to which it should have turned its mind rather than simply relying on WWU's assumptions as a proxy for SGN (see paragraph 6.138(b) above); and

(c) failed to take account of other relevant considerations relating to the reliability of WWU's assumptions as such a proxy, by not comparing WWU's assumptions against SGN's own disaggregated data (see paragraph 6.138(c) above).

6.144 Second, as explained in paragraphs 6.140 and 6.141 above, GEMA did not update its RCAV analysis post-normalisation and failed to test whether the projected banding mix for SGN post-normalisation was appropriate. In our view, GEMA should have done so and had regard to the resulting information in considering whether WWU's lay-decommissioning assumptions provided a reliable industry proxy for SGN.

[240] SGN supplementary submission to GEMA's closing statement (confidential), paragraph 7.

The Technique Matter: Did GEMA err by combining WWU decommission-to-lay assumptions with SGN-specific technique assumptions?

SGN's submissions

6.145 SGN submitted 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.[241]

6.146 SGN explained that, while GEMA has applied a common decommission-to-lay assumption across GDNs by adopting WWU's methodology, it has relied on each GDN's existing technique assumptions. This means that each GDN's volumes are calculated using WWU's decommission-to-lay assumption weighted by their own forecast technique mix.

6.147 SGN submitted that it is inconsistent for GEMA to adopt an approach that combines GDN-specific technique assumptions with WWU's decommission-to-lay assumption.[242] SGN submitted that this approach fails to recognise the relationship between the decommission-to-lay matrices and the technique of workload delivery from an engineering perspective. They are interdependent components of the engineering design process, both derived from a common set of environmental and network specific factors such as capacity requirements, urbanity and main geometry.[243]

6.148 SGN explained that its network had different characteristics to that of WWU, notably because of SGN's use of tight-fit insertion. Tight-fit insertions involve inserting mains closer in size to the decommissioned mains than their narrower 'standard' alternatives. This means that, [✂]. SGN contended that applying WWU's banding mix to SGN technique mix systematically understated the capacity that SGN needs to achieve through insertion and that GEMA failed to appreciate the true impact of its overwriting adjustments.[244]

6.149 SGN also submitted that information on the technique split was not relevant in previous price controls. While GDNs submitted data on their forecast share of work to be undertaken by open cut or insertion in their business plans in those previous controls, this was not used in the benchmarking process and had no direct impact on the outcome.[245] Moreover, SGN explained, because this data was

[241] SGN NoA, paragraph 229.
[242] SGN NoA, paragraph 236.
[243] SGN NoA, paragraphs 237-238.
[244] SGN's reply to GEMA's response, paragraph 21(a); Transcript of the hearing for Totex Model Allowances session on 19 June 2026, page 68, lines 14-17.
[245] SGN NoA, paragraph 243.

not relevant for the benchmarking process in previous price controls, the data that GEMA used to determine its open cut and insertion figure in GD3 is not the appropriate data (although it was from SGN's own business plan). SGN said that, since it was not consulted on GEMA's novel approach prior to the FD, it did not have the opportunity to engage with GEMA on these issues.[246]

6.150 Therefore, SGN submitted, applying a 'mix and match' approach to 'explain' the work SGN needs to do, both distorts SGN's workload mix and underfunds its delivery.[247]

6.151 In response to the PD, SGN stated that the PD proceeds on the erroneous assumption that the relationship between commissioned and decommissioned mains should be consistent across networks by technique, whereas the engineering evidence showed that the relationship breaks down once the forecasts are disaggregated by technique.[248]

6.152 SGN contended that the 'combined banding mix' (ie the banding matrix without disaggregating by technique)[249] produced broadly similar capacity outcomes, but applying WWU's disaggregated assumptions produced [✂] in SGN's assumed capacity of [✂]% for Southern and [✂]% for Scotland.[250] SGN submitted that there was therefore no engineering reason to expect the banding mix at the disaggregated level to be similar to that of another GDN because each GDN's banding mix is influenced by its own specific technique split.[251]

6.153 SGN submitted that the reason for this error was that GEMA had wrongly treated the technique mix and banding mix as independent variables rather than two sides of the same engineering decision.[252] The resulting 'mix and match' approach failed because it combined SGN's technique mix, including its greater use of insertion, with WWU's disaggregated banding matrices, which had been developed on the basis of WWU's different technique mix and significantly higher levels of open-cut activity.[253] SGN said that delinking those assumptions created 'an internal inconsistency' and assumed insufficient capacity for SGN's network.[254]

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[246] SGN's reply to GEMA's response, paragraph 21(b).
[247] SGN NoA, paragraph 244.
[248] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 40 and 47.
[249] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 44 for definition.
[250] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 45-48.
[251] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 48.
[252] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 58.
[253] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 59-61.
[254] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 61.

6.154 SGN submitted that the information needed to understand its use of tight-fit insertion was available to GEMA before the FD and was visible in the pipe-level data provided in response to SQ78 and again in response to SQ98.[255]

6.155 SGN maintained that the Technique Matter had material consequences for capacity, pressure and security of supply. It stated that, because it maximised insertion and used proportionally more tight-fit insertion, applying WWU's disaggregated banding mix to SGN's technique mix understates the capacity that SGN needs to achieve.[256]

6.156 SGN emphasised that GEMA had undertaken no assessment of whether its approach was compatible with networks' capacity and pressure requirements and had produced no engineering evidence to challenge SGN's evidence on that issue.[257]

6.157 SGN also provided workbooks providing historical and forecast banding matrix tables (a combined view regardless of technique) for its RIIO-GD3 business plan; and a table to support which techniques are most appropriate for the band diameter intended to be laid. Daniel Brennan's witness statement then provides an analysis of the impact of GEMA's Tier 1 repex adjustments, see Figure 1.9 below.

Figure 1.9: [✂]

[✂]

Source: [✂]

GEMA's submissions

6.158 GEMA acknowledged that it used each GDN's proposed forecast technique in its analysis. GEMA submitted that doing so was justified because assumptions on banding mix are formulaic. They can be based on standard engineering assumptions on account of the implicit relationship between the diameter of decommissioned and commissioned mains. This, GEMA stated, is in contrast to assumptions as to when the open cut or insertion technique will be used. The technique will depend on company-specific delivery choices and local conditions.[258] As such, GEMA submitted, it was appropriate for it to apply WWU's

[255] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 84.
[256] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 85.
[257] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 99 and 101.
[260] GEMA response to Appellants' NoAs, paragraph 204; Victor Tuffen WS1 (Confidential), paragraphs 11-17.

decommission-to-lay assumption to each GDN's own forecast use of open cut and insertion techniques.[259]

6.159 GEMA also explained that retaining the technique ratio accordingly ensured that the normalisation addressed the specific issues that had been identified (in particular, significant inconsistency in submitted Tier 1 mains forecasts in RIIO-GD3 business plans and varying levels of uncertainty and differences in assumptions that underpin these forecasts),[260] without unnecessarily overriding legitimate, network-specific delivery choices.[261]

6.160 More specifically, GEMA submitted that:

> 'We considered that open cut ratio *[sic]* is, to a large degree, determined by the characteristics of the main already within the ground (ie the decommissioned main), including its geographical location, location on the network, and physical characteristics. Therefore, we considered that maintaining forecast open cut insertion ratios was consistent with using each companies' decommissioned workload forecasts, as submitted.'[262]

6.161 GEMA further explained that, in its view, assumptions about pipe diameter are capable of standardisation because they reflect engineering relationships between decommissioned and replacement mains.[263] By contrast, assumptions about the proportion of work undertaken using insertion or open cut techniques depend on company-specific factors such as network characteristics, geography and delivery choices.[264] On that basis, GEMA considered it appropriate to standardise diameter assumptions while retaining each company's own forecast technique split. It maintained that this was an intentional and more targeted intervention than the alternative proposed by SGN.[265]

6.162 GEMA contended that SGN's submissions on this issue relate principally to the method by which GEMA normalised the GDNs' decommission-to-lay assumptions against technique forecasts.[266] In response to this, GEMA emphasised that the key aspect is that it did not apply a single lay workload assumption to each of the GDNs' total decommissioned workload assumptions, based on WWU's decommission-to-lay figures. Rather, a more refined and focussed approach was

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[259] GEMA response to Appellants' NoAs, paragraph 204.
[260] GEMA RIIO-3 FD paragraph 5.324.
[261] GEMA response to Appellants' NoAs, paragraph 172.2.
[262] Callum Mayfield WS1, paragraph 196.
[263] GEMA response to Appellants' NoAs, paragraph 204.
[264] GEMA response to Appellants' NoAs, paragraph 204.
[265] GEMA response to Appellants' NoAs, paragraph 208.
[266] GEMA response to Appellants' NoAs, paragraph 203.

adopted, by which specific decommission-to-lay assumptions from WWU in respect of use of the open cut technique and use of the insertion technique were applied separately to the GDNs' forecasts.[267]

6.163 GEMA submitted that, having accepted forecast decommissioning volumes, it would be illogical to overwrite GDNs' assumptions as to when they would use open cut rather than insertion techniques, because that heavily depends on the decommissioning workload which had been identified.[268] GEMA also submitted that, after the FDs, [✂].[269]

6.164 GEMA stated that its approach ensured that the decommission-to-lay assumption was appropriately applied to actual reported technique assumptions. These had been put forward by GDNs in their business plans, and gave rise to no regulatory concern.[270]

6.165 GEMA went on to suggest that SGN's proposed alternative approach is more intrusive and runs the risk of ignoring relevant distinctions between GDNs, which GEMA was entitled to take into account.[271] GEMA argued that applying SGN's approach would mean an increase in the use of open cut beyond SGN's own forecasts which would create a high likelihood of overfunding.[272]

6.166 GEMA submitted that underlying SGN's claim is the fact that it reported inaccurate technique assumptions to GEMA.[273] It noted that SGN's appeal submissions contain different open cut assumptions from those in SGN's business plan – which GEMA relied upon in its business plan review and its approach to cost assessment.[274]

6.167 In respect of SGN's submission that the effect of the normalisation is an implied net reduction in SGN's network capacity, using modelled RCAV, GEMA argued that when RCAV is modelled by reference to insertion and open cut separately, the Tier 1 adjustment to forecasts results in a consistent relationship across all of the networks in GD3.[275]

6.168 GEMA submitted that evidence[276] shows that, while the normalisation results in a lower RCAV than SGN's submitted forecast, it does not set it below the RCAV that

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[267] GEMA response to Appellants' NoAs, paragraph 203.
[268] GEMA response to Appellants' NoAs, paragraph 205.
[269] GEMA response to Appellants' NoAs, paragraph 206.
[270] GEMA response to Appellants' NoAs, paragraph 208.
[271] GEMA response to Appellants' NoAs, paragraph 209.
[272] GEMA response to Appellants' NoAs, paragraph 209.
[273] GEMA response to Appellants' NoAs, paragraph 210.
[274] GEMA response to Appellants' NoAs, paragraph 210.1 and 210.2.
[275] GEMA response to Appellants' NoAs, paragraph 212.
[276] Callum Mayfield WS1, Figure 11.

SGN actually delivered across RIIO-GD2. The implication is that the RCAV analysis does not indicate any error in the methodological approach to the normalisation, but rather that any implied greater reduction in network capacity than SGN had intended for RIIO-GD3 is a product of SGN's lower reported 'open cut' forecast.[277]

6.169 Victor Tuffen's witness statement[278] discusses the relationship between decommissioned mains, technique and decommission-to-lay assumptions, and secondly the role of the engineering assessment and the cost modelling process. In particular:

(a) Victor Tuffen states that it is appropriate from an engineering perspective to retain a GDN's specific decommission workload and a GDN's specific technique assumptions, as applied to that decommission workload, through the normalisation exercise.[279] However at an aggregate level, Victor Tuffen does not agree with SGN that there can be expected to be a material difference between the diameter of pipes laid to replace mains when accounting for (i) that remaining workload and (ii) the GDN's technique assumptions applied to that workload.[280]

(b) Victor Tuffen agrees with SGN that there is a connection between the technique and the decommission-to-lay matrices.[281] However, that there is a link between decommission-to-lay matrices and technique does not mean that it would have been appropriate to disregard SGN's technique forecast in the normalising exercise.[282] Victor Tuffen repeats the position GEMA has stated elsewhere that he would have expected GDNs to carry out a proper analysis of their remaining decommission workload and what technique mix would be required to deliver it.[283]

CMA assessment

6.170 In the PD we found that it was open to GEMA in principle to combine WWU's decommission-to-lay assumption with GDN-specific technique assumptions. We found that it was reasonable for GEMA (based on the information it had) to take the view that making targeted use of GDNs' technique assumptions alongside WWU's decommission-to-lay assumptions would achieve the purpose of the

[277] GEMA response to Appellants' NoAs, paragraph 212.
[278] Victor Tuffen WS1 (Confidential).
[279] Victor Tuffen WS1 (Confidential), paragraph 17.
[280] Victor Tuffen WS1 (Confidential), paragraph 19.
[281] Victor Tuffen WS1 (Confidential), paragraph 20.
[282] Victor Tuffen WS1 (Confidential), paragraph 21.
[283] Victor Tuffen WS1 (Confidential), paragraph 21.

normalisation (ie to correct for unreliable workload forecasts).[284] In particular we found that:

(a) It was open to GEMA to rely on the technique mix data the GDNs had submitted in their business plans;

(b) It was open to GEMA to rely on each GDN's own technique mix data in combination with WWU's decommission-to-lay assumptions, in particular because it was reasonable for GEMA to consider that the relationship between mains commissioned and decommissioned would be broadly consistent between GDNs and by technique at the aggregate level. While we have found that there were some errors in GEMA's RCAV analysis (see above paragraph 6.139) we remain of the view that it was reasonable for GEMA to consider that that this would be broadly consistent between GDNs (see paragraph 6.138(c)).

(c) It was reasonable for GEMA to consider that combining WWU's decommissioning-to-lay ratio with the GDNs' own submitted data about their technique mix would, accordingly, address its concerns about the GDNs' forecasts, while taking account of the different network characteristics, geography and delivery choices.

6.171 As explained in paragraphs 6.111 to 6.114, we consider that it was open to GEMA to decide to normalise GDNs' repex forecasts, but that GEMA committed errors in its determination that WWU's decommission-to-lay assumptions were a suitable proxy to normalise SGN's forecasts.

6.172 Since we have decided to quash and remit the Decision to GEMA on account of the error we find it to have made in treating WWU's decommission-to-lay assumptions as an appropriate proxy to normalise SGN's forecasts, we do not need to conclude on the Technique Matter. It is open to GEMA upon remittal to decide, taking due account of relevant facts and evidence, and applying the relevant statutory requirements and public law principles, whether to normalise SGN's forecasts, and, if so, what methodology to use.

[284] CMA PD, paragraph 1.165.

The Consultation Matter: Did GEMA err in failing to consult adequately on its approach to normalising GDNs' forecasts using the WWU proxy?

SGN's submissions

6.173 SGN submitted that GEMA applied WWU's decommissioning-to-lay ratio to all GDNs on the basis that it was considered to be 'a reliable proxy for expected industry standards' without consultation on the suitability or consequences of such an approach.[285]

6.174 SGN said that GEMA's approach lacked transparency. GEMA did not propose making pre-modelling adjustments on an industry-wide basis, nor did it consult on the proposed remedy prior to the FD,[286] despite indicating that it would engage with GDNs to develop an appropriate approach.[287]

6.175 SGN further contended that, if GEMA had made reasonable inquiries regarding the design of its approach, the clear methodological flaws (discussed above) and data errors would have been identified and addressed prior to implementation.[288]

6.176 In response to our PD SGN submitted several points relating to GEMA's consultation process:

(a) SGN said the PD ignored that SGN first alerted GEMA to its concerns about Cadent's and NGN's forecasts at the SSMC stage in March 2024 (having also raised concerns throughout GD2);

(b) SGN submitted that it continued to express concerns on the data provided by those two companies culminating in SGN's proposal to normalise Cadent and NGN's forecasts; and

(c) SGN submitted that it was not made aware by GEMA directly, nor did it have a reasonable basis to suspect, that GEMA held any concerns with its banding mix forecasts until this issue was raised during the appeal process.[289]

6.177 SGN also submitted that no proper consultation was made between the DD and FD in relation to an industry-wide normalisation,[290] in particular:

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[285] SGN NoA, paragraph 197.
[286] SGN NoA, paragraph 215.
[287] SGN NoA, paragraph 216.
[288] SGN NoA, paragraph 217.
[289] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 24.
[290] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 124 to 133.

(a) SGN submitted that three of the four options canvassed in the DD were backward looking (relying on historic data). According to SGN, the FD did not adopt a backward-looking approach.[291] The fourth option in the DD ('other methodology') was too vague to count as a (re-)consultation;

(b) The alleged lack of time is not a basis for not consulting given the importance of the issues at play;

(c) GEMA's internal documents showed that GEMA understood the importance of industry agreeing to any normalisation;

(d) GEMA did not ask other GDNs to provide the same data it wished to use from WWU (data on the split between insertion and open-cut workloads);

(e) The PD failed to recognise that not all normalisations are the same and that the normalisation chosen in the FD was fundamentally different to those suggested by GEMA and others during the process leading up to the FD.

GEMA's submissions

6.178 GEMA rejected SGN's suggestion that consultation was inadequate.[292] It said concerns regarding Tier 1 forecasts were identified before it issued its DD, and it engaged in extensive consultation and bilateral engagement with GDNs, and issued additional data requests. GEMA noted that it received and considered detailed consultation responses, including proposals from SGN regarding normalisation. GEMA stressed that the normalisation in the FD was not 'fundamentally different' from the options it had put forward in the DD. As such, GEMA stated, the duty to re-consult prior to making a final determination does not arise.[293]

CMA assessment

6.179 SGN's submissions in relation to the Consultation Matter relate to alleged failures by GEMA to make appropriate inquiries or to consult, between DD and FD, on the implementation of the normalisation, depriving SGN of an opportunity to identify and address flaws in GEMA's approach of using WWU's decommission-to-lay assumptions as a proxy to normalise SGN's forecasts.

6.180 Since we have upheld SGN's appeal on account of the Reliable Proxy Matter, and are remitting the decision to GEMA as to whether to normalise SGN's forecasts

[291] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 125.
[292] GEMA response to Appellants' NoAs, paragraph 217.
[293] GEMA's Response to CMA RIIO-3 PD, paragraph 10.

and the appropriate approach to use, if so, the question of whether GEMA erred in failing to consult adequately on its approach to normalising SGN's forecasts using the WWU proxy becomes redundant. GEMA will reconsider its approach as part of the remittal, and will be required to follow a fair process taking due account of its statutory obligations and relevant public law principles. We therefore do not need to conclude on the Consultation Matter.

Conclusions on Ground 2A

Wrong in law

6.181 SGN pleaded that GEMA's decision was **wrong in law** on four bases.[294] The first three relate to the substantive decision and are assessed together. The fourth relates to an alleged lack of consultation and failure to make enquiries.

6.182 The three substantive bases are that the decision was wrong in law in that GEMA:

(a) acted irrationally and/or unreasonably by applying WWU's assumptions to SGN in circumstances where this produced a workload mix that would not deliver sufficient pressure to the end customer in line with SGN's statutory obligations;[295]

(b) took account of irrelevant considerations, including the supposed robustness of WWU's methodology which did not render it suitable as a means of estimating costs for SGN's network;[296] and

(c) adopted a rationale for using WWU's decommission-to-lay assumptions – including that this represented 'a reliable proxy for expected industry standards' when combined with GDN-specific technique assumptions – that was irrational and wrong.[297]

6.183 For the reasons set out above, we find that GEMA was wrong in law in ways that relate to the three bases described in the preceding paragraph and we allow the appeal, and quash the Decision, insofar as it concerns the identification and use of a 'reliable proxy' in relation to the normalisation of SGN's repex forecasts.[298] In particular, we find that, in deciding to use WWU's decommission-to-lay assumptions as a reliable proxy, GEMA:

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[294] Relying on section 23D(4)(e) of the GA86.
[295] SGN NoA, paragraphs 156(iv)(a) and 246(iv)(a).
[296] SGN NoA, paragraphs 156(iv)(b) and 246(iv)(b).
[297] SGN NoA, paragraphs 156(iv)(d) and 246(iv)(d).
[298] The Decision is otherwise confirmed in respect of Ground 2A.

(a) relied on incorrect data analysing three years of actual workloads in GD2 compared to GD2 forecasts (when it should have considered the correct analysis), amounting to an irrelevant consideration, and so did not have an adequate basis to conclude that WWU's assumptions could be applied to SGN;

(b) did not take into account a relevant consideration in that it failed to take account of evidence provided to it by SGN in SQ78 to which it should have turned its mind rather than simply relying on WWU's assumptions as a proxy for SGN;

(c) failed to take account of other relevant considerations relating to the reliability of WWU's assumptions as a proxy, by not comparing WWU's assumptions against SGN's own disaggregated data; and

(d) failed to take account of a relevant consideration when it did not update its RCAV analysis post-normalisation and failed to test whether the projected banding mix for SGN post-normalisation was appropriate.

6.184 Given that, for the purpose of section 23D GA86 the CMA may allow an appeal on one or more of the statutory appeal grounds, in the interests of the overriding objective[299] we do not consider and determine whether any of the other statutory grounds relied on by SGN has also been met. Doing so is not necessary.

6.185 In particular, SGN also claims that the decision was **wrong in law** in that GEMA failed, in the period between its DD and its FD, to make appropriate enquiries or to consult on its use of the WWU methodology, depriving stakeholders of the opportunity to identify and address the key flaws in its approach.[300] For the reasons set out in paragraphs 6.179 and 6.180, that issue is redundant and its determination is unnecessary.

[299] To enable the CMA to dispose of appeals 'fairly and efficiently and at proportionate cost' within the time period prescribed by the GA86. Rule 4.1 of CMA70.
[300] SGN NoA, paragraphs 156(iv)(c) and 246(iv)(c).

Ground 2B – Composite Scale Variable

Statutory question for determination for Ground 2B

6.186 SGN submitted that GEMA's decision was wrong because GEMA erred in its approach to the Composite Scale Variable (CSV). SGN alleged that the decision was wrong on this account because GEMA failed properly to have regard, or to give appropriate weight, to its principal objective and relevant statutory duties, failed to achieve, in whole or in part, the stated effect of the licence modifications made by the decision, or the decision was wrong in law.

6.187 Accordingly, the statutory question for our determination of SGN's Ground 2B is:

> Was the decision wrong because, in its approach to the CSV, GEMA failed properly to have regard to its principal objective and relevant statutory duties or to give appropriate weight to such matters, or failed in full or in part to achieve the effect it stated the relevant licence modifications would have, or, on account of its approach to the CSV, GEMA made a decision that was wrong in law?

Subsidiary questions

6.188 SGN alleged that GEMA made three errors that we must consider:

(a) **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 GDN workloads it has approved (Error 1B)[301] (the '**Cost Structure Matter**');

(b) **Error 2**: GEMA has placed undue weight on historical data and has failed to account for exogenous structural changes to costs[302] (the '**Data Matter**'); and

(c) **Error 3**: GEMA's justification for adopting its top-down approach to CSV weights, and its reasons for rejecting SGN's proposed bottom-up approach, are flawed[303] (the '**Top-down Matter**').

[301] SGN NoA, paragraphs 279-310.
[302] SGN NoA, paragraphs 311-323.
[303] SGN NoA, paragraphs 324-353.

6.189 Taking account of SGN's submissions, the subsidiary questions for our assessment, in order to determine the statutory question on Ground 2B, are whether GEMA's decision was wrong because:

(a) GEMA failed properly to have regard, or to give appropriate weight, to its principal objective and relevant statutory duties because:

(i) Underfunding SGN to deliver necessary workloads is incompatible with GEMA's duty to consider current and future customers and contrary to the finance duty.[304]

(ii) Its 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).[305]

(b) The licence modification(s) resulting from the decision **failed to achieve, in whole or in part, its (their) stated effect**, in that:

(i) By taking a 'notional' company approach to cost driver weightings, and in doing so failing to reflect genuine differences in GDNs' cost structures and applying average weights to cost drivers, 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', a primary objective in GD3.[306]

(ii) GEMA's approach fails to fund workloads that it has assessed and accepted through pre-modelling engineering assessments, effectively underfunding SGN to deliver workloads GEMA deemed necessary and, therefore, implicitly intended to fund.[307]

[304] SGN NoA, paragraphs 261(i)(a) and 354 (i)(a).
[305] SGN NoA, paragraphs 261(i)(b) and 354 (i)(b).
[306] SGN NoA, paragraphs 261(ii)(a) and 354(ii)(a).
[307] SGN NoA, paragraphs 261(ii)(b) and 354(ii)(b).

(c) The decision was **wrong in law** because, by failing to reflect genuine differences in GDNs' cost structures and applying average weights to cost drivers as part of its notional company approach:

(i) 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.[308]

(ii) 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'.[309]

(iii) 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).[310]

Our analytical approach

6.190 First, we set out some context to GEMA's modelling approach.

6.191 Then, we consider the errors pleaded by SGN, on the statutory grounds described above, as follows:

(a) **The Cost Structure Matter**: Did GEMA err in failing to reflect genuine differences between GDNs' cost structures, and in doing so, adopting an approach which is logically inconsistent with the workloads it approved?

(b) **The Data Matter**: Did GEMA err in placing undue weight on historical data when determining CSV weights and failing to account for exogenous, industry-wide changes to efficient cost structures?

(c) **The Top-down Matter**: Did GEMA err in justifying its approach to CSV weights and in its reasons for rejecting SGN's 'bottom-up CSV' approach?

6.192 Our assessment begins, as we described above, with our consideration of the analytical issues raised in respect of each alleged error. We then use that analysis to answer the statutory and subsidiary questions for determination.

[308] SGN NoA, paragraphs 261(iii)(a) and 354(iii)(a).
[309] SGN NoA, paragraphs 261(iii)(b) and 354(iii)(b).
[310] SGN NoA, paragraphs 321 and 355.

Context to GEMA's modelling approach

6.193 In the following section, we set out the context and background to GEMA's totex regression model used to set GDNs' modelled cost allowances in GD3.

Purpose and principles

6.194 GEMA stated that the purpose of cost assessment is to calculate the efficient baseline level of costs that will enable network companies to maintain safe and reliable networks whilst delivering an excellent level of service to gas consumers.[311] Its task in setting the price control is to determine efficient allowances for the GDNs in RIIO-3. GEMA explained that a key principle of the RIIO framework is to establish an allowance for all costs (ie 'totex'), not just for specific areas of cost. Allowances are set at the totex level to give companies flexibility in how they decide they should best deploy their totex allowances to deliver workloads and outputs in the most efficient way.[312]

6.195 GEMA explained that the principle underlying its modelling approach was to compare companies' submitted totex costs against those of a notionally efficient company, in order to assess whether their forecast costs are likely at an efficient level or not, and to reflect allowances accordingly.[313]

6.196 For these purposes, the notionally efficient company is estimated empirically by GEMA based on:

(a) a cost model estimated from data on companies' historical and forecast expenditure, workloads, and network characteristics, based on the information provided in business plans;

(b) the application of the cost model to each company's forecast cost drivers; and

(c) a catch-up efficiency adjustment to the results of the model outcome.[314]

6.197 GEMA stated that the notionally efficient company is an abstract concept based on the average relationship between actual and forecast expenditure and cost drivers across companies, adjusted for catch-up efficiency.[315] As such it is an empirically-derived reference point against which to assess each GDN's forecasts,

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[311] GEMA RIIO-3 FD paragraph 5.40.
[312] Callum Mayfield WS1, paragraph 11.
[313] Callum Mayfield WS1, paragraph 12.
[314] Callum Mayfield WS1, paragraph 12.
[315] Callum Mayfield WS1, paragraph 13.

representing the average cost structure and relationship between cost and cost drivers across the industry, rather than that of any specific GDN.

6.198 In RIIO-GD3, GEMA defined the notionally efficient company as one that reflects the average industry cost structure over the period 2013/14 to 2030/31. This approach uses historical and forecast cost data submitted by each of the companies, and accounts for adjustments made through GEMA's pre-modelling adjustment process.[316]

6.199 Regression analysis[317] forms a key part of cost assessment. GEMA adopted a single totex regression model to set GDNs' modelled cost allowances in GD3. A single top-down totex model means that efficiency is assessed at the totex level rather than at the level of individual cost categories.[318] The single totex regression uses a single cost driver – the CSV – as the explanatory variable, which is made up of seven individual workload and scale drivers which were selected to represent different types of cost activities.[319] This is shown in Figure 1.10 below along with the industry average cost shares which are used to weigh each cost driver.

Figure 1.10: GEMA's CSV weights for each cost driver

Table 10 GEMA's CSV weights for each cost driver

Cost activity	Cost driver	Driver type	Weight in CSV
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 synthetic cost	Workload	4.0%
Mains reinforcements	Mains reinforcement synthetic cost	Workload	1.3%
			100%

Source: Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraph 5.10.

GEMA's Sector Specific Methodology Consultation and Decision

6.200 GEMA's Sector Specific Methodology Consultation, published in December 2023, outlined a number of options for evolving its cost assessment methodology from

[316] Callum Mayfield WS1, paragraph 14.
[317] Regression analysis is a statistical method that can show how a change in a specific factor impacts an outcome.
[318] Callum Mayfield WS1, paragraph 47.
[319] Callum Mayfield WS1, paragraph 53.

RIIO-GD2. It included consultation questions around the use of different models as well as different model and cost driver specifications.[320]

6.201 In the Sector Specific Methodology Decision in July 2024, in relation to the CSV, GEMA stated that it would continue further testing of the RIIO-GD2 totex CSV for RIIO-GD3 by assessing the role of modern equivalent asset value (MEAV), recalibrating the synthetic workload drivers,[321] considering alternative CSV weightings, and exploring alternative cost drivers and CSVs at a totex level as well as using middle-up and disaggregated modelling.[322]

GEMA's Draft Determination

6.202 GEMA's DD in July 2025 set out proposals for an initial efficient baseline totex funding package of £12.8 billion across all GDNs, to operate, maintain and enhance the networks and support the transition to net zero. This represented an average downward adjustment of 23% relative to the levels of funding sought by GDNs in their business plans.[323]

6.203 In relation to its approach to cost assessment, GEMA proposed in its DD to:

(a) Maintain the use of a single top-down totex model for calculating efficient baseline totex in RIIO-GD3.

(b) Continue using the Cobb-Douglas functional[324] form, consistent with GEMA's approach in RIIO-GD1 and RIIO-GD2.

(c) Maintain its RIIO-GD2 approach of using a CSV as the main driver in the model specification.

(d) Maintain its RIIO-GD2 approach to determining the weights of each component within the totex CSV for RIIO-GD3. This is based on the relative proportions of average industry submitted costs for each cost category associated with each of the cost drivers, a continuation of the approach it used in RIIO-GD1 and RIIO-GD2.[325]

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[320] Callum Mayfield WS1, paragraph 308, 313 citing RIIO-3 Sector Specific Methodology Consultation - GD Annex dated 13 December 2023.
[321] A synthetic workload driver measures the work a company is expected to carry out, calculated using standard industry cost assumptions rather than the company's own costs, enabling cross-company comparisons to be made.
[322] Callum Mayfield WS1, paragraph 325.
[323] GEMA RIIO3 Draft Determination, Table 19. See also Callum Mayfield WS1, paragraph 339.
[324] The Cobb-Douglas production function is defined as a mathematical representation that summarizes the relationship between inputs (capital and labour) and maximum possible output. Greer, M. (2022). Chapter 4 -The economics (and econometrics) of cost modelling. In M. Greer (Ed.), Electricity Cost Modelling Calculations (2nd ed., pp. 175–209). Cambridge, MA: Academic Press. https:// doi.org/10.1016/B978-0-12-821365-0.00001-3.
[325] Callum Mayfield WS1, paragraph 340.

SGN's DD response

6.204 During the GD3 process[326] SGN challenged GEMA's proposed approach to the CSV[327] and advanced alternative approaches including a bottom-up CSV approach to assess efficient costs. Specifically, GEMA states that SGN put forward the RIIO-ED2 approach which used a company-specific method, with SGN suggesting that it resulted in improved efficiency scores,[328] and that SGN noted that the '*ED2 models use company specific cost shares to generate yar [sic] by year weightings and a CSV for each network/year*'.

6.205 On 27 August 2025, SGN, and all other GDNs, submitted their DD consultation responses. SGN provided two versions of the GD3 model suite, in which it applied its proposed CSV adjustment, alongside a range of other modelling methodology changes it proposed.[329]

GEMA's Final Determination

6.206 In its FD GEMA adopted a single totex regression model based on a CSV cost driver, combined with non-regression benchmarking and technical assessment of those cost activities which are not suitable for regression benchmarking.[330] This was the same approach taken by GEMA in RIIO-GD2. In its FD, GEMA decided to set a combined baseline totex of £14.8 billion for all networks in RIIO-GD3, an increase of £2.0 billion (16%) from its DD position.[331] [✂].[332]

6.207 GEMA explained in the FD that:

> 'The totex model is grounded in economic and engineering logic, resulting in good statistical performance and explanatory power. We have tested other approaches (eg bottom-up and middle-up models) and found they had worse performance. The use of a single top-down totex model also allows for trade-offs between opex, repex and capex to be captured, and allows GDNs a degree of flexibility in deciding how best to deploy total available funding across different types of activity using their own expertise. This is consistent with the principles of the RIIO framework.'[333]

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[326] The process and structure of the Ofgem engagement process is set out in Callum Mayfield WS1, paragraph 105-106. This included formal consultations, stakeholder engagement and bilateral meetings.
[327] SGN NoA, paragraph 275.
[328] Callum Mayfield WS1, paragraph 341.
[329] Callum Mayfield WS1, paragraph 345.
[330] GEMA RIIO-3 FD, paragraphs 5.42-49.
[331] GEMA RIIO-3 FD, paragraphs 5.14.
[332] Callum Mayfield WS1, paragraph 61.
[333] GEMA RIIO-3 FD, paragraphs 5.42- 5.49.

6.208 GEMA set out that the use of a single top-down totex regression model was supported by a number of GDNs.[334]

6.209 GEMA further explained in the FD that its top-down totex regression model already captures the cost drivers of middle-up and bottom-up models through the CSV and that an advantage of using a single top-down totex model is that it does not require GEMA to make judgements as to the best allocation of available funding between different areas of expenditure or about how much weight to place on the results of different models.[335]

6.210 GEMA also noted that gas distribution is a mature and established industry, where different GDNs deliver comparable activities that are well represented by GEMA's single totex model (as evidenced by its good statistical fit). Bottom-up and middle-up models would, GEMA said, arguably be more appropriate for industries where there are greater differences between the activities performed by each company, which need to be modelled at a more granular level.[336]

6.211 GEMA explained its view that regulatory consistency is important:

> 'We have decided to continue using a single top-down totex model in RIIO-GD3. It reflects a consistent approach across GD price controls and aligns with our view that RIIO-GD3 looks broadly similar to RIIO-GD2 in the context of GDN workloads, activities and responsibilities. Moving away from this approach would mean compromising on regulatory consistency, which is important for capital intensive regulated sectors, such as GD, where investors typically make longer term investment decisions. Having a stable regulatory approach to determining the core funding for GDNs is also important in the context of the broader uncertainties that face the sector over the medium to long term.'[337]

CMA assessment: introduction

6.212 Before setting out the specific submissions under each of the three errors and our assessment of each, we observe that SGN does not dispute that it was open to GEMA to use the concept of a notionally efficient company, for the purposes of assessing efficiency, and setting allowances for modelled costs. Nor does SGN dispute the use of a single totex regression model.

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[334] GEMA response to Appellants' NoAs, paragraph 221, NGN, WWU and Cadent, as well as NPg, supported.
[335] GEMA response to Appellants' NoAs, paragraph 221, referring to GEMA RIIO-3 FD, paragraphs 5.42- 5.49.
[336] GEMA response to Appellants' NoAs, paragraph 221, referring to GEMA RIIO-3 FD, paragraphs 5.42- 5.49.
[337] GEMA RIIO-3 FD, paragraph 5.242.

6.213 We also observe that SGN supported the use of a Cobb-Douglas specification for the benchmarking model with a single explanatory scale variable (the 'CSV').[338] The specific formulation used by GEMA is a multiplicative approach to combine the cost drivers in the CSV, and to weigh the cost drivers using industry average cost shares. These are the only two aspects which are disputed by SGN. SGN's preferred alternative uses an additive functional form and median unit cost-to-cost driver ratios to set the weights. We refer to GEMA's approach as the '**top-down CSV model**', and we refer to SGN's approach as the '**bottom-up CSV model**'.

The Cost Structure Matter: Did GEMA err in failing to reflect genuine differences between GDNs' cost structures, and in doing so, adopt an approach which is logically inconsistent with the workloads it approved?

SGN's submissions

6.214 SGN submitted that GEMA mis-defined the 'notional' company when calculating the CSV, creating distortions in the benchmarking model which have the effect of penalising SGN by disallowing efficiently incurred costs. SGN argued that for the purposes of the cost assessment, a 'notional' company should reflect a 'notional' company carrying out the workloads that GEMA has agreed that each company should deliver.[339]

6.215 SGN stated that each network has different asset characteristics and geographical conditions that give rise to unique operational challenges, for example the number of assets, mix of asset types, age of assets, technical specifications and deterioration rates vary significantly between regions.[340] SGN submitted that, as a result, there are material variations between companies in accepted workloads and that this is illustrated by the variation over time for the repex synthetic[341] and connections capex synthetic workload variables.

6.216 SGN explained that 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. SGN submits that 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.[342]

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[338] GEMA response to Appellants' NoAs, paragraph 231.3; Callum Mayfield WS1, paragraph 346(ii).
[339] SGN NoA, paragraph 279.
[340] SGN NoA, paragraph 280.
[341] A 'synthetic cost driver' is GEMA's estimate of the value of a network's planned work, calculated using industry average costs.
[342] SGN NoA, paragraph 281.

6.217 SGN submitted that, from an engineering perspective, differences in workloads reflect variations in the condition and composition of each GDN's inherited asset base and, accordingly, each GDN's asset base starts GD3 in an inherently different position.[343]

6.218 SGN noted that GEMA's approach to cost modelling already recognises that these factors create genuine variation in the cost structures of GDNs.[344] 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. These accepted workloads therefore reflect the engineering and operational realities facing each GDN and are intended to ensure that the network operates efficiently and safely and maintains resilience for the future. Importantly, SGN noted, this assessment is made prior to inputting these workloads into the regression model for then determining efficient costs.[345]

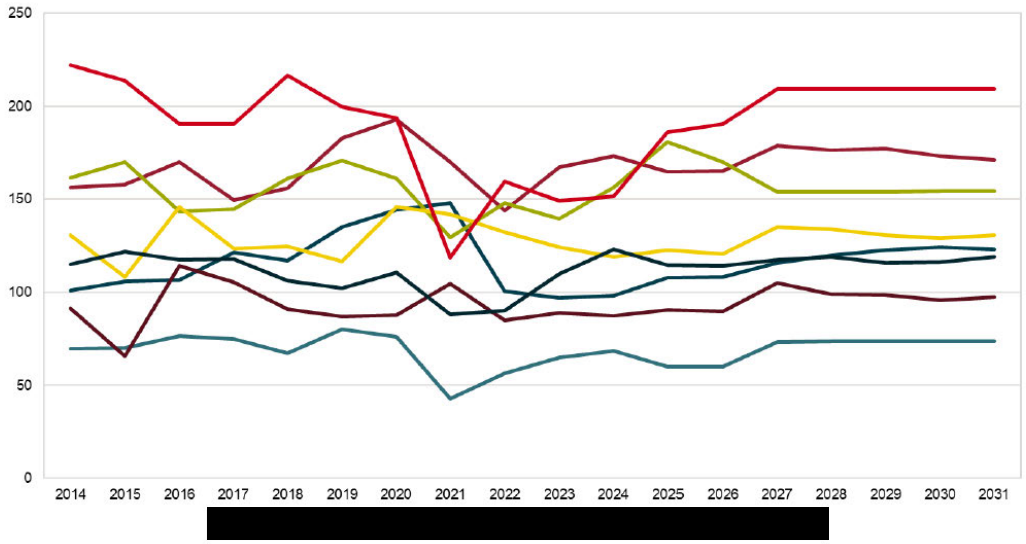
6.219 SGN submitted that GEMA therefore implicitly accepted that cost structures vary between GDNs before it regressed these accepted workloads using the CSV, but that applying the regression model using a common set of cost structures applied to all GDNs contradicted this earlier part of GEMA's assessment.[346]

6.220 SGN therefore contend that since GDNs have different cost structures, 'notional' cost structures should be company specific.[347]

6.221 SGN submitted the following two charts to illustrate its proposition that cost structures vary by GDN and over time.[348] SGN noted that the variations in the cost driver values between firms are solely due to differences in the underlying volume of work, as both the repex synthetic and connections capex synthetic workload variables are based on volumes multiplied by the industry average unit cost.[349]

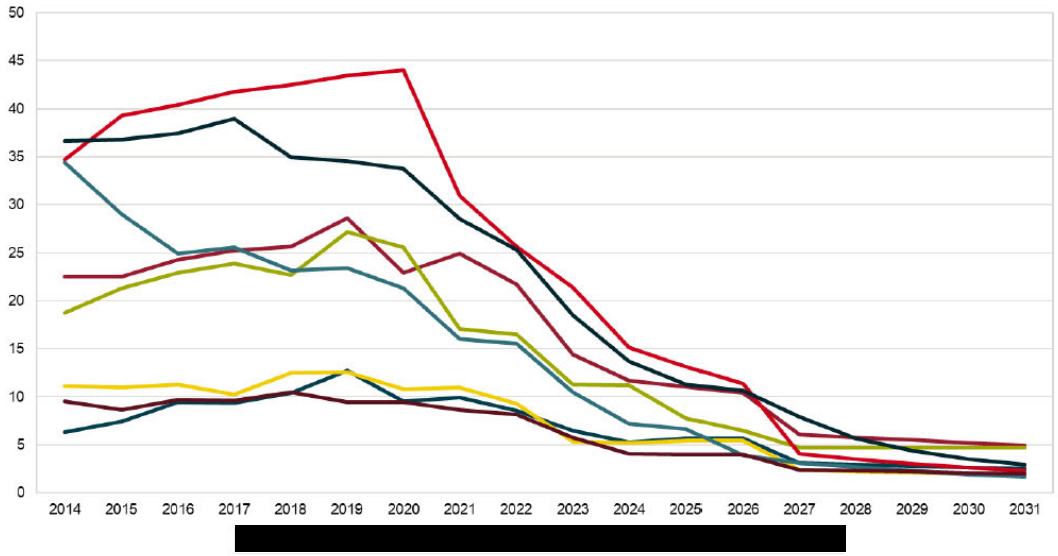
[343] SGN NoA, paragraphs 286-287.
[344] SGN NoA, paragraphs 288.
[345] SGN NoA, paragraphs 291.
[346] SGN NoA, paragraphs 292.
[347] SGN NoA, paragraphs 294.
[348] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Figures 5-7.
[349] SGN NoA, paragraphs 281.

Figure 1.11: Repex synthetic cost driver (£m)



Source: SGN NoA, Figure 4

Figure 1.12: Connections capex synthetic cost driver (£m)

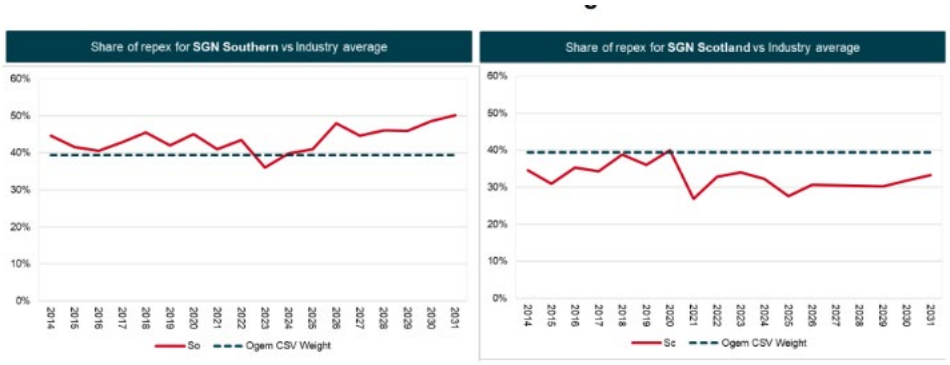


Source: SGN NoA, Figure 5

6.222 SGN also submitted that the divergence between GDNs is 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. SGN argues that these differences largely reflect the inherited variations in the condition and composition characteristics of each of the networks.[350]

Figure 1.13: Repex cost share for SGN Southern and Scotland vs industry average



Source: SGN NoA, Figure 7

6.223 SGN submitted that, while GEMA's approach to pre-modelling adjustments accepted the genuine variation in the cost structure of GDNs, it then inconsistently applied uniform weighting to the CSV drivers based on industry-average cost shares.[351] This ultimately distorted the efficiency assessment[352] which in turn has a material impact on SGN's ability to fulfil its regulatory obligations.[353]

6.224 SGN submitted that GEMA's approach to CSV weights has the effect of distorting the efficiency assessment and underfunding SGN. This, according to SGN, is because of material differences between its network's forecast cost structure and the average-industry cost structure used to set CSV weights for the notionally efficient network.[354]

6.225 To illustrate this, SGN's advisers, Frontier Economics, submitted a mathematical example of three hypothetical firms. The firms operate different mixtures and scales of workloads of two separate cost activities at the same, efficient, constant unit costs. Frontier then applied GEMA's top-down CSV model to the example and showed that the resulting efficiency scores differed from 100% – despite each firm being assumed to exhibit identical unit cost efficiency. Frontier Economics stated that these efficiency distortions and corresponding deviations from efficient funding levels are driven solely by valid differences in cost shares and the top-down CSV weighting approach.[355]

[350] SGN NoA, paragraphs 283-287.
[351] SGN NoA, paragraphs 295-296.
[352] SGN NoA, paragraph 297.
[353] SGN NoA, paragraphs 298, 301, 305 and 306.
[354] SGN NoA, paragraphs 258 and 259.
[355] Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraphs 5.29-5.41.

6.226 In response to GEMA's critique that the mathematical example was entirely 'theoretical', Frontier Economics submitted a numerical simulation using real data from GEMA's modelling suite showing that GDNs with a larger deviation from the average-industry cost structure are scored as being increasingly inefficient, holding unit costs fixed.[356] The resulting U-shaped relationship between efficiency scores and simulated changes to repex shares that result from Frontier's analysis are shown in Figure 1.14 below. SGN's criticism about the efficiency relationship implicit in GEMA's functional form is based on SGN's analysis[357] that GEMA's multiplicative functional form creates a U-shaped efficiency function, whilst SGN's creates an approximately linear function.

Figure 1.14: Simulated changes in each GDN's efficiency score in GEMA's top-down model after unilaterally changing their GD3 repex workloads

[✂]

Source: [✂]

6.227 SGN submitted that it would need to achieve unit costs approximately [✂]% lower than GEMA's benchmark unit cost used to calculate the repex synthetic cost; or to reduce other areas of totex activity[358] in order to deliver the overall normalised repex workload estimated to cost £[✂].

6.228 In addition, SGN submitted that GEMA's approach is logically inconsistent because it effectively disallows workloads it has approved as part of the engineering process.[359] SGN submits that, having accepted that each GDN has a specific workload mix, GEMA then benchmarks all GDNs on the assumption that they will deliver a uniform, average workload, which distorts the relative efficiency scores of GDNs.[360]

6.229 In response to our PD, SGN submitted that the PD did not address this logical inconsistency in GEMA's approach which resulted in SGN not being allowed necessary efficient funding. In particular:

(a) GEMA's CSV approach means that the efficiency assessment directly contradicts its workload determination.[361]

[356] Frontier Economics (2026), 'Supporting Information – Figure 2 in SGN's reply to GEMA's Response Dated 12 May 2026' for further details. In the simulation, efficiency scores increase quadratically as a network's cost structure moves away from the point where its own activity shares match average-industry cost share weights. The result is a U-shaped relationship between efficiency scores and simulated changes to repex shares.
[357] SGN Hearing slide exhibit 11.
[358] SGN NoA, paragraph 305.
[359] SGN NoA, paragraph 307-308.
[360] SGN NoA, paragraphs 309-310.
[361] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 143-144.

(b) As a result of GEMA's method, SGN is penalised because of the resulting efficiency score which is applied across SGN's entire totex allowance. This is so notwithstanding that SGN justified, and GEMA's engineers accepted, substantially greater Tier 3 workloads than the industry average in the GD3 period.[362]

(c) GEMA's approach also contradicts its stated purpose for both the pre-modelling workload assessment and the efficiency assessment. Referring to statements made by GEMA in the hearing, SGN submitted that GEMA's stated purpose for the efficiency assessment is to assess whether unit costs are efficient between the different networks. Instead of correctly assessing unit cost efficiency in its assessment, SGN contended that GEMA's method distorts that assessment and undermines the efficiency of GDNs by reference to their workloads as well as unit costs.[363]

6.230 SGN also submitted that our PD overlooked the inconsistency of GEMA's approach with SGN's licence requirements for delivering outputs. In failing to address the link between the pre-modelling assessment of workloads and the efficiency assessment, the PD overlooked the output obligations defined under SGN's licence requirements. SGN submitted that, once these licence requirements are fixed, SGN has very limited scope to alter its programme of work within the totex allowance.[364]

6.231 Further, SGN raised several points in relation to our PD's critique of Frontier's U-shaped analysis. In particular, SGN submitted that the PD failed to properly engage with the additional evidence produced in the additional Frontier analysis which showed that the error in GEMA's CSV methodology was not just theoretical but had material implications for SGN's efficiency assessment.[365] SGN submitted that the PD's reasons for rejecting Frontier's U-shaped analysis are wrong:

(a) The PD rejected the Frontier analysis based on the fact that, when Frontier varied workloads, it assumed that totex was re-calculated using a fixed unit cost. However, the fixed unit cost assumption was a replication of GEMA's approach[366] and is widely used by GEMA across the GD3 framework;[367]

(b) The PD implies that this is an artificial test that generates a U-shape merely because GEMA's CSV is multiplicative and not additive. However, that

[362] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 145-146.
[363] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 147.
[364] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 150 and Annex 3.
[365] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 157.
[366] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 158-159.
[367] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 160.

property is the point Frontier's analysis illustrates – it shows that a multiplicative CSV exponentially penalises deviations from the industry average, and we should therefore not dismiss the analysis as it shows how GEMA's own assumptions flow through into efficiency scores and arbitrarily penalise GDNs with higher (or lower) approved workloads.[368]

GEMA's submissions

6.232 GEMA submitted that, to assess notional efficient costs, it identifies the average relationship between actual and forecast expenditure and cost drivers across GDNs, adjusted for catch-up efficiency. From a practical perspective, GEMA needs to make assumptions about the cost structure of the notionally-efficient company, in order to have a benchmark against which to assess each GDN's submitted costs. That is a balanced exercise of regulatory judgement concerning different methodological trade-offs.[369]

6.233 GEMA further stated that the approach it adopted is to define the notionally-efficient company as reflecting the average industry cost structure over the period 2013/14 to 2030/31. Central to the decision to adopt this approach is GEMA's view that the gas distribution sector has been, and will continue to be, broadly comparable over time, given the type and mix of workloads that GDNs undertake. GEMA considers that the GDNs broadly deliver the same outputs and operate in similar markets.[370]

6.234 GEMA submitted that this approach permits it to test the efficiency of each GDN against a notional operator with a fixed cost structure across GDNs. GEMA recognises that in doing so it may be hypothesising that a GDN would be doing more of one activity and less of another compared to its forecast cost structure. However, GEMA considered this trade-off was acceptable and not unduly distortive because there is enough comparability in costs structures between GDNs in each price control period. To the extent that there are real regional, company-specific or workload differences between GDNs, GEMA accounts for these through pre-modelling adjustments and/or within the cost drivers themselves, rather than through the specification of the totex model.[371]

6.235 GEMA submitted that the allegation that the application of average weights to cost drivers is logically inconsistent with the workloads it has approved appears to be premised on a misunderstanding of what GEMA is doing when workloads are

[368] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 161.
[369] GEMA response to Appellants' NoAs, paragraph 222.
[370] GEMA response to Appellants' NoAs, paragraph 223.
[371] GEMA response to Appellants' NoAs, paragraph 226.

'approved'. GEMA stated that the inputs to the totex model are normalised costs that account for workload adjustments and that these are allowed within the totex model. However, GEMA added, those costs are not necessarily found to be efficient. GEMA emphasised that it is the totex regression model that assesses efficient costs of the approved workloads and that the notional operator is, by design, an abstraction of that data in order to determine the separate question of cost efficiency.[372]

6.236 GEMA stated that SGN's alternative remedy does not propose a different approach in this regard, nor does it challenge the use of normalised cost or adjusted cost driver inputs within the model. As such, GEMA contended that even on SGN's case there is seemingly no error for us to correct.[373]

6.237 GEMA submitted that the Frontier simulation is a gross simplification as it is based on adjusting repex alone whilst keeping other cost areas constant. For example, in its view, a decrease in repex would, in practice, likely lead to an increase in emergency callouts and maintenance; including this impact would likely result in different efficiency functions.[374]

6.238 The core difference between the respective model functions is the assumption regarding the substitutability of inputs or cost areas. GEMA stated that its approach allows for an interaction between work types, with a varying marginal rate of technical substitution. In contrast, SGN's approach assumes perfect substitutability between inputs.[375]

CMA assessment

6.239 We find that GEMA did not err in failing to reflect genuine differences between GDNs' cost structures, and in doing so, adopting an approach which is logically inconsistent with the workloads it approved.

6.240 SGN's main conceptual critique of GEMA's model is that GEMA's application of uniform weightings to the CSV drivers based on industry-average cost shares was inconsistent with the workloads GEMA accepted. This critique underpins SGN's case and connects to its two core related arguments:

[372] GEMA response to Appellants' NoAs, paragraph 237.
[373] GEMA response to Appellants' NoAs, paragraph 238.
[374] GEMA's (Confidential) Totex closing statement, paragraph 11.
[375] GEMA's (Confidential) Totex closing statement, paragraph 12.

(a) **Inconsistency with 'approved' workloads**: SGN contends that GDN costs should be benchmarked against a notional company with GEMA 'approved' workloads.

(b) **Efficiency distortion**: SGN contends that the implication of this alleged inconsistency is a distortion in the efficiency assessment, which leads to SGN being underfunded to deliver its activities.

6.241 We consider each of these points below. We also discuss how GEMA considered alternative specifications of the CSV weights.

Inconsistency with approved workloads

6.242 We agree with GEMA that it did not approve the workloads it used to calculate the cost drivers as efficient. The pre-modelling adjustment process does not preclude a separate subsequent assessment of the efficiency of submitted costs.[376]

6.243 GEMA has been clear that its primary tool for assessing the comparative efficiency of the GDNs' submitted costs is its econometric modelling and that the purpose of the pre-modelling adjustments is to help ensure the comparability of the costs used in this modelling.[377] GEMA applied workload adjustments where it considered that GDNs had not justified the submitted volumes of work which stakeholders generally agreed was necessary to ensure that the cost models provide a fair assessment across GDNs.[378]

6.244 We therefore find no inconsistencies in GEMA's pre-modelling workload and totex adjustments and the modelling framework GEMA used to assess GDNs' efficiency. For similar reasons, we do not find GEMA's approach to be inconsistent with funding the licence obligations SGN is required to deliver as defined by the PCDs and network asset risk metrics (**NARMs**).

6.245 SGN submitted that the evidence shows that cost structures differ between GDNs and that the differences between them do not average out over time because they largely reflect inherited variations in the condition and composition characteristics of each of the network. While we agree that there are differences between GDNs in the values of the cost drivers, we consider that this reveals no inconsistency with the pre-modelling workload adjustments because these differences feed into the modelling as inputs, alongside normalised submitted totex.

[376] GEMA response to Appellants' NoAs, paragraph 237.
[377] RIIO-3 Sector Specific Methodology Decision – GD Annex paragraphs 5.17 and 5.36.
[378] RIIO-3 Sector Specific Methodology Decision – GD Annex paragraph 5.58.

6.246 SGN's main issue is with how the input cost drivers are combined into the CSV in GEMA's modelling approach. The CSV combines the cost drivers using a single industry cost structure, to represent a notional network, and this has the effect of assuming that the elasticity for each cost driver is proportional to the industry-average cost share for that driver. As a result, there is constant cost elasticity for each cost driver. SGN contended that this assumption is problematic because it can lead to distortions in the efficiency assessment, by under- or over-predicting costs for firms which are further away from the industry cost structure. We turn to this issue in the next section.

SGN's alleged efficiency distortion

6.247 To assess SGN's arguments around the potential efficiency distortion, we first comment on GEMA's choice of the functional form and its decision to use average industry cost shares as weights. We then discuss SGN's examples which SGN submitted to illustrate the alleged efficiency distortion.

GEMA's functional form and modelling choices

6.248 We agree with GEMA that its multiplicative functional form is consistent with the Cobb-Douglas cost model – a widely accepted approach in econometric cost modelling and a well-established specification in price control regulation including through its use in previous energy sector price controls.[379]

6.249 We further consider that GEMA's modelling choices are appropriate for the purpose of regulatory cost benchmarking in the gas distribution sector, specifically the modelling choices it made regarding the cost driver elasticities. Those choices comprised the addition of restrictions to the Cobb-Douglas model as described in the following paragraph.

6.250 Given the challenges GEMA faced to freely estimate readily interpretable cost elasticities for each cost driver individually, we consider that GEMA did not commit any error in adding these additional restrictions for the following reasons:

(a) In the standard application of the Cobb-Douglas model the effect of a percentage change in cost driver values on the percentage change in totex is given by a parameter that measures the cost driver's cost elasticity. While ideally these cost elasticity parameters would be freely estimated (as acknowledged by GEMA), we note GEMA's view that there is insufficient independent variation in the available scale and cost driver data to robustly

[379] GEMA response to Appellants' NoAs, paragraph 227; Callum Mayfield WS1, paragraphs 303, 304 and 340 (ii); GEMA RIIO-3 FD paragraph 5.251.

do so.[380] Consistent with GEMA's view, we find that groups of the scale and cost drivers are highly correlated with one another (ie they exhibit multicollinearity).[381] As a result, freely estimated cost elasticity parameters may not be readily interpretable and may be hard to compare against theory-driven priors on their values.[382]

(b) GEMA's response to these challenges was to add restrictions to the standard Cobb-Douglas model. Its top-down model estimates a single coefficient on the CSV variable. The elasticity for each cost driver is then derived by multiplying the estimated parameter on the CSV term by average industry expenditure shares.[383] In other words, GEMA set the cost driver weights in its multiplicative CSV term equal to the average industry expenditure shares.

6.251 One implication of the restrictions GEMA imposes in the way it calculates the CSV is that cost elasticities are assumed not to vary with the cost driver's value and to be constant across GDNs and over time. However, the model's predicted costs do directly depend on the values cost drivers take for each GDN in each year. This means that if one GDN is forecast to do more of a particular activity compared to another GDN, all else equal, its modelled costs will be higher. We do not consider that this approach reveals any error because in principle GEMA's assumption of constant cost elasticities is one which was open to it as a matter of regulatory judgement.

SGN's efficiency examples

6.252 In relation to the examples provided by SGN, we do not agree that Frontier's stylised mathematical examples, nor its simulation of unilateral repex changes in GD3, demonstrate that GEMA's top-down CSV model necessarily distorts efficiency scores and therefore has the potential to underfund SGN.

6.253 To consider the examples, it is useful to conceptually understand SGN's model first. Like GEMA, SGN constructs the CSV using fixed weights to combine all cost drivers into a single value, ie SGN also adopts a set of restrictions to yield a more easily interpretable model. However, unlike the standard Cobb-Douglas model, in

[380] Callum Mayfield WS1, paragraph 365.

[381] In this situation, the sign and magnitude of coefficients estimated by regression on variables affected by multicollinearity can be unstable and it may be difficult to estimate individual cost elasticities precisely.

[382] Multicollinearity will not affect in-sample predictions. Because GEMA include adjusted versions of projected business plan in the totex regression data, all modelled costs are in-sample predictions. Implicitly, therefore, both GEMA and SGN advocate for restricted cost models that favour more interpretable cost drivers' elasticities over improved model fit and a risk of bias if the restrictions are invalid.

[383] In GEMA's model, the estimated CSV coefficient is 0.896. This means that for each 1% change in the CSV, the predicted totex changes by 0.896%. For each individual cost driver within the CSV, this needs to be further scaled by the industry average cost share. For example, a 1% change in the repex synthetic cost driver leads to a 0.35% change in predicted totex (with 0.35% being the product of 0.896 and the repex cost share of 39%).

SGN's model cost driver elasticities are not constant and can change across GDNs and over time.[384] This is because SGN replaces GEMA's multiplicative CSV with an additive CSV that is the sum of the cost driver values multiplied by the industry median unit costs of each cost activity. Therefore, the additive CSV can be interpreted as a normalised – but not a necessarily efficient – measure of total cost.

6.254 Under these assumptions, the cost drivers' elasticities in SGN's bottom-up CSV model are proportionate to their share of this normalised cost measure.[385] In other words, similar to GEMA's model, SGN's bottom-up model's predicted costs directly depend on the values cost drivers take for each GDN in each year, but they do so in a different way.

6.255 Turning to the specific examples, we do not consider that Frontier's example, with its assumed constant and efficient unit cost, demonstrates that GEMA's top-down CSV model leads to distorted efficiency scores for the following reasons:

(a) In its mathematical example, Frontier assumes that each firm is carrying out workloads agreed with the regulator priced at common, constant unit costs for each cost activity. These assumptions match the construction of SGN's bottom-up CSV. To this Frontier adds the assumption that the unit costs are efficient. It then constructs the multiplicative CSV evaluated at industry average expenditure shares in the mathematical example and applies GEMA's top-down CSV model. Frontier finds that the resulting efficiency scores differ across firms and interprets this as distortion.[386] Frontier concludes that the exercise demonstrates an inconsistency between the procedure used to construct synthetic cost drivers, including pre-modelling workload adjustments, and GEMA's top-down approach to CSV weights.[387]

(b) This conclusion, however, is dependent on Frontier's additional assumption that the unit costs are not only the same across GDNs, but that they are also efficient. If, as is the case in GEMA's benchmark modelling, average (or median) unit costs for each cost activity are used only to normalise submitted costs and build the synthetic cost drivers and are not assumed to be efficient, then Frontier's conclusion no longer follows.

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[384] It is not uncommon to use different cost models that allow cost elasticities to depend on the value of a cost driver. The often used Translog cost model, which nests the Cobb-Douglas model as a special case, allows for this possibility.
[385] For example, in SGN's model, holding all else fixed, the percentage change in totex for an efficient firm following a 1% increase in repex activities, will depend on the share of repex in this normalised cost that defines the additive CSV.
[386] By construction, application of SGN's bottom-up model to the three hypothetical firms exhibiting constant returns to scale produces the same efficiency score for each firm and finds that all firms are equally efficient. Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraph 5.45.
[387] Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraph 5.45.

(c) For example, if, as is the case in GEMA's modelling, the benchmarking model is assumed to have a multiplicative CSV, then efficient unit costs vary with volume and activity mix. Further, if the estimated model parameters imply economies of scale for a given activity[388] holding other activity levels fixed, the efficient unit cost is not constant and falls as its workload increases. In the presence of economies of scale, SGN's preferred benchmarking model of efficient costs, would produce distorted efficiency scores. The conclusion Frontier draws from the mathematical example depends on two assumptions: that the unit costs are constant across volumes and activity mix, and that they are efficient. Neither necessarily holds in practice.

(d) As noted above (see paragraphs 6.242 and 6.244), we consider that the step of constructing the inputs (the synthetic cost driver indices using industry average unit costs and cost driver volumes) and the choice of the cost model to assess efficiency are related but distinct steps in the benchmarking process. It is this second step, rather than the construction of synthetic cost driver indices, that determines which GDNs are measured as efficient. GEMA uses a well-established approach in cost modelling, which assumes some level of substitution between cost drivers and assumes fixed economies of scale. We consider these to be reasonable assumptions as there are likely to be inter-relationships between cost drivers and the resources used to implement them, as discussed further below in paragraph 6.268(b)(iii).

6.256 Neither do we consider that Frontier's simulation demonstrates that GEMA's measured efficiency scores are distorted, leading to underfunding of SGN's accepted repex workloads.[389] Our reasons are as follows:

(a) In our PD, we considered that the U-shaped efficiency scores produced by Frontier Economics' simulation (see paragraph 6.225 above) are, at least partly, a by-product of imposing a linear cost relationship on a log-linear one.[390] Specifically, we (provisionally) found that Frontier's simulation changes repex workloads by a set percentage and adds the resulting cost at a fixed unit price, so totex rises by the full cost of the additional workload at unchanged unit rates. As a result, the simulation imposed a totex change proportional to the change in repex workload (because unit costs are held fixed), whereas GEMA's model implied a proportionally smaller totex

[388] In GEMA's top-down model, a cost activity exhibits economies of scale when the product of the coefficient on the CSV term and its CSV weight is less than 1.
[389] SGN's reply to GEMA's response, paragraphs 26-31 and Figure 2.
[390] CMA PD paragraph 1.272.

change.[391] In turn, the simulated and modelled costs diverge by an amount that grows with the size of the simulated repex workload change, in either direction. This can generate the U-shape without any error in the CSV weights. It results instead from Frontier Economics' simulation imposing the additional assumption that holding unit costs fixed is the same as holding efficiency fixed under GEMA's model.[392]

(b) At the PD stage we were not minded, accordingly, to accept that Frontier's analysis substantiated SGN's contention that the inconsistency in GEMA's approach between forecast company-specific and average industry cost structure materially distorted its efficiency assessment. In its response to the PD, SGN submitted that we had failed to properly engage with the additional Frontier analysis which showed that the error in GEMA's CSV methodology was not just theoretical but had material implications for SGN's efficiency assessment.[393]

(c) In line with our position in our PD, we agree with SGN that the totex adjustment in Frontier's simulation replicates GEMA's pre-modelling repex workload adjustments.[394] We also agree with SGN that the simulation shows that, relative to its bottom-up model, GEMA's top-down model scores a GDN as less efficient at an increasing rate as its cost mix moves further from the industry average.[395] However, we continue to note that this divergence is mechanical and by itself it does not show that either model incorrectly characterises efficiency.

(d) We agree with GEMA, that the simulation is a simplification because it adjusts repex while holding other activity workloads fixed.[396] As a result, it is silent on cases where higher repex share partly reflects lower workloads in other activities. For example, GEMA notes that changes in repex expenditure are likely to be linked to changes in emergency callouts and maintenance activity.[397] In those cases, a GDN's activity mix can move closer to the average industry cost structure even though its repex share rises. The

[391] Under GEMA's totex regression model's assumptions, a proportional change in repex workload raises total expenditure by that same proportion raised to the power of repex's cost elasticity. Repex's cost elasticity in GEMA's model is the product of its estimated CSV coefficient (0.896) and repex's industry average cost share (39%) and is approximately 0.35.
[392] CMA PD paragraph 1.273.
[393] See paragraph 6.231.
[394] Paragraphs 1.48-1.53 in our PD describe the process GEMA uses to adjust totex associated with GD3 repex adjustments.
[395] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 157.
[396] GEMA's (Confidential) Totex closing statement, paragraph 11.
[397] GEMA's (Confidential) Totex closing statement, paragraph 11.

divergence between efficiency scores produced by GEMA's top-down and SGN's bottom-up models could narrow and possibly even fall.

6.257 We therefore consider that, while the simulation demonstrates a credible, albeit mechanical, mechanism for efficiency scores to diverge as repex shares deviate further from the average industry cost structure, it does not establish that this happens at higher repex shares in practice. It is the co-movement of totex and (different) CSV across GDNs and over time in this larger body of data that matters for model outcomes and the resulting efficiency assessment. On that basis, we consider that the simulation on its own does not establish that GEMA's modelling approach will lead to distorted efficiency assessment.

6.258 As in our PD, we recognise, nonetheless, that, if the cost elasticities that result from GEMA setting CSV weights equal to the average-industry cost structure inaccurately measure the 'true' cost driver elasticities, then this can affect the accuracy of the efficiency assessment. For this reason, next we have assessed whether GEMA considered the sensitivity of the model to alternative specification of the weights used in the construction of the CSV.

GEMA's consideration of the alternative specifications of CSV weights

6.259 We note that, in consultation with the GDNs, GEMA considered alternative specifications of the weights used in the construction of the CSV.[398]

6.260 [✂][399] [✂].[400]

6.261 Pre-DD GEMA tested Cadent's proposal, and variants of it, but found that these showed no improvement in explanatory power. GEMA found that all of the alternative CSV specifications it tested resulted in lower adjusted R-squared values, which suggested poorer model fit than the approach it used in RIIO-GD2.[401] GEMA also identified a number of statistical challenges with the approaches proposed by Cadent and observed that more complex or data-driven models, including models which utilised company-specific or annual weights, often exhibited poorer statistical performance or produced implausible outputs.[402]

6.262 SGN did not remark on the CSV construction nor propose a new method of weighting the CSV in its submitted Business Plan documents, including the Cost

[398] Callum Mayfield WS1, paragraphs 311 to 350.
[399] Callum Mayfield WS1, paragraph 315.
[400] Callum Mayfield WS1, paragraphs 315(i) and (ii); paragraph 328; paragraph 336.
[401] Callum Mayfield WS1, paragraph 338.
[402] Callum Mayfield WS1, paragraph 338.

Assessment and Benchmarking Annex.[403] However, it did so in its DD consultation response submitted on 27 August 2025.

6.263 Of that response, SGN noted in its evidence to us that it explained that, '… it was seeking a bottom-up CSV approach – consistent with that used in the ED2 modelling – to better address the regional activity differences of its networks.' It also said that the response, '…. noted the importance of scrutinising the model assumptions and ensuring that they accurately reflect operational realities….' and, '….we highlighted that using a bottom-up CSV approach facilitates a transparent allocation of allowances aligned to activities required within each region, ensuring that unique operational needs are reflected in the benchmarking process.'[404]

6.264 GEMA's evidence to us, meanwhile, stated that, in its response to the DD, '…SGN accepted the role of regression models in cost assessment, but disagreed with our proposed single model approach, arguing that it does not capture the full range of regional and operational complexities experienced by different GDNs'. GEMA's evidence also noted that SGN proposed that, instead of relying on a single top-down totex regression model, GEMA should reach a view on efficient costs by triangulating evidence from three different models. Those included a top-down model similar to that proposed by GEMA and the bottom-up CSV model it advanced in this appeal.[405]

6.265 SGN raised similar points with GEMA on other occasions at around the same time:

(a) in a cost bilateral discussion on 24 July 2025, [✂];[406] and

(b) at a senior level bilateral meeting on 14 August 2025, at which [✂].[407]

6.266 GEMA considered SGN's proposed CSV approach at various times:

(a) it reviewed [✂] on 17 August and set out a summary of how the calculations worked in its proposed CSV approach;[408]

(b) it considered SGN's proposed approach in an internal Decision Review meeting held 29 September 2025 during which GEMA records that it had considered different approaches to determine the CSV weights, including those proposed by Cadent and SGN; and

[403] Callum Mayfield WS1, paragraph 332.
[404] Daniel Brennan WS1, paragraph 55(b)(i).
[405] Callum Mayfield WS1, paragraph 346(i).
[407] Callum Mayfield WS1, paragraph 342.
[408] Callum Mayfield WS1, paragraph 343.
[408] Callum Mayfield WS1, paragraphs 342 and 344.

(c) it also tested SGN's bottom-up CSV proposal [✂] and found that it resulted in a similar, but slightly lower, adjusted R-squared.[409]

6.267 Based on the above, we find that GEMA carefully considered a range of alternative approaches to constructing the CSV. The alternatives included variants on the approach adopted by GEMA and alternative approaches to estimating individual CSV weights. We find that GEMA had a reasonable basis to dismiss these, based on their statistical performance.

Summary of the CMA's assessment of the Cost Structure Matter

6.268 Taking account of all the above, our conclusion is that GEMA was not wrong in adopting its cost modelling approach for the following reasons:

(a) We do not agree that there is a logical inconsistency between GEMA's pre-modelling workload adjustments and the efficiency assessment. The purpose of the pre-modelling cost driver and totex adjustments is to ensure sufficient comparability of submitted costs between GDNs, not to assess the efficiency of those costs and workloads. It is the totex benchmarking which then assesses the efficiency of submitted costs.

(b) We also do not agree that Frontier's mathematical example nor its simulation demonstrate that GEMA's model distorts the efficiency assessment when a GDN's cost structure deviates from the industry average.

(i) GEMA's choice of functional form is consistent with the Cobb-Douglas model, which is a model commonly used in regulatory cost benchmarking.

(ii) GEMA's decision to impose common, fixed CSV weights, as part of its Cobb-Douglas specification, was not wrong, given the challenges in estimating these parameters empirically.

(iii) GEMA's modelling approach allows for imperfect substitution between cost drivers and for cost driver unit costs to change with their own and other workloads. We consider these to be reasonable assumptions in the context of regulatory cost benchmarking. Both SGN's mathematical example and its simulation exercise deviate from these assumptions. Therefore, while the examples demonstrate worsening efficiency scores for a firm which deviates from the industry cost structure, the effect is

[409] GEMA describes the model it tested as using median expenditure shares (see Callum Mayfield WS1, paragraph 346(iv)). We consider, however, that it is clear from the referenced SGN document that this is incorrect, and that GEMA tested SGN's proposed bottom-up CSV model.

purely mechanical and does not establish that GEMA's model is distortive.

6.269 GEMA considered a range of options for constructing the CSV which were proposed as ways of addressing concerns now being raised by SGN in this appeal. It tested these alternatives, as well as testing SGN's bottom-up CSV model. GEMA found that none of the options put forward, or variants on these options, improved the statistical performance of its top-down CSV model.

The Data Matter: Did GEMA err in placing undue weight on historical data when determining CSV weights and failing to account for exogenous, industry-wide changes to efficient cost structures?

SGN's submissions

6.270 SGN submitted that GEMA placed undue weight on historical data from GD1 and GD2 in determining CSV weights. SGN said that reliance on GD1 and GD2 to define the 'notional' company in GD3 failed to place appropriate weight on, and is incompatible with, industry-wide developments that have materially altered efficient cost allocation over time.[410]

6.271 SGN submitted that, by setting a CSV that is predominantly weighted towards historical data from GD1 and GD2, the 'notional' company does not reflect the actual efficient cost structure of any GDN today.[411]

6.272 SGN further submitted that, because of the disconnect between forecast and historical data, 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.[412] The use of historical averages results in a benchmark cost structure that no network will deliver over GD3.[413]

6.273 In its response to our PD SGN submitted that the PD did not engage with SGN's argument that the average cost share over the whole GD1-GD3 period does not provide a reasonable basis for defining a notional company in GD3 because it does not account for how cost structures of individual GDNs have evolved over time:[414]

[410] SGN NoA, paragraphs 313 and 314.
[411] SGN NoA, paragraph 316.
[412] SGN NoA, paragraph 321.
[413] SGN NoA, paragraph 322.
[414] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 2, row 1.289.

(a) Time trends only capture changes in costs that are common across GDNs but do not allow the contribution of individual activities to vary with each GDN's workload mix and SGN evidenced that cost structures do vary significantly by GDN and over time;[415]

(b) SGN does not dispute the use of historic data to inform the CSV weighting, but how the data is used and combined into the CSV: GEMA relies on an average-industry expenditure shares whereas SGN relies on activity-level costs;[416] and

(c) SGN submitted that it is not established that the industry-level cost structure has remained broadly stable and SGN's submissions show material sector-wide changes in cost shares over time.[417]

GEMA's submissions

6.274 GEMA stated that SGN's approach relies on the same underlying data sets as GEMA's, ie cost data for an 18-year period 2013/14 to 2030/31. Both approaches rely on a combination of 11 years' historical data (2013/14 to 2023/24) and seven years' forecast data (2024/25 to 2030/31) to determine the industry averages.[418] Thus, GEMA noted, both its and SGN's approaches applied the same data across all years (historical and forecast) and all networks and that '[i]t follows that SGN's remedy would place similar weight on historical data, and would allow for changes through time in similar ways to GEMA's approach.'[419]

6.275 GEMA also submitted that, within the totex model, it used annual cost and cost driver data. The cost data was used both as the dependent variable in the regression (ie for each GDN), and also to determine the industry average weights used in the specification of the totex cost driver. By using the resulting 144 data points, ie one for each network in each year, GEMA incorporates changes in the share of costs through time, reflecting changes to the structural and operational characteristics of the network, and reflects these in the structure of the cost driver. Changes in company cost drivers through time are captured directly by the input data. This characteristic of the model is also found in SGN's proposed alternative approach.[420]

[415] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 2 row 1.289(a).
[416] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 2 row 1.289(b).
[417] SGN's Response to CMA RIIO-3 Totex PD (Confidential), Annex 2 row 1.289(c).
[418] GEMA's Response to Appellants' NoAs, paragraph 230.1.1.
[419] GEMA's Response to Appellants' NoAs, paragraph 239.
[420] GEMA's Response to Appellants' NoAs, paragraph 240.

6.276 Further, ahead of its DDs, GEMA submitted, it tested different options for specifying the totex CSV, which included approaches where totex CSV cost driver weights varied each year in accordance with the observed industry cost structure for the year in question. GEMA's conclusion was that such approaches led to models that were less statistically robust than the approach used at FDs, and some models which utilised company-specific or annual weights suffered from potential conceptual weaknesses of allowing increased endogeneity within the CSV cost driver.[421]

CMA assessment

6.277 We find that GEMA did not err by placing undue weight on historical data in estimating the weights to be used in the construction of the CSV. We do so for four reasons:

(a) First, we consider that GEMA is correct in stating that the time trends will on average capture any systematic time-varying cost trends.[422] To the extent that the costs projected by a CSV with average-industry cost share weights systematically over-then-under predict totex on average (or vice-versa), the time trends can be expected to address that. Insofar as SGN's contention is that the time trends will not capture non-systematic changes (ie where the costs trend goes up for one GDN and down for another), we do not consider that SGN has established that GEMA's top-down model is systematically distortive (see paragraphs 6.255-6.262).

(b) Second, it was reasonable for GEMA to rely on historical data in setting the industry cost share weights to be used in constructing the CSV because, as GEMA explains, the cost benchmarking exercise requires it to use historical data on the performance of different networks over time.[423] The use of historical data ensures that the cost model is estimated using realised values of input and other cost driver data and corresponding totex incurred by GDNs fulfilling their statutory obligations in the most recent regulatory periods.

(c) Third, it was open for GEMA to rely on the observation that the industry-level cost structure of the gas distribution market has been, and is expected to continue to be, broadly stable over the RIIO-GD1 – RIIO GD3 period.[424] Nevertheless, it tested alternative models that use annual cost structure weights but found that these models were less statistically robust than the

[421] GEMA's Response to Appellants' NoAs, paragraph 241, Callum Mayfield WS1, paragraphs 338 and 391.
[422] Callum Mayfield WS1, paragraph 390.
[423] Callum Mayfield WS1, paragraph 390.
[424] Callum Mayfield WS1 paragraph 17 and Figure 1; and paragraph 390.

approach chosen.[425] While we do not dispute that there is variation in cost structures between GDNs and over time, we concluded above that imposing a single set of industry structure weights was a reasonable simplification (see paragraph 6.268).

(d) Fourth, SGN's proposed alternative approach relies on the same underlying data as GEMA's. That is, a combination of 11 years' historical data (2013/14 to 2023/24) and seven years' forecast data (2024/25 to 2030/31). While we agree that the way in which the historical data is combined into the CSV is done differently by SGN when compared to GEMA, we do not consider that SGN has established that GEMA's top-down CSV model systematically distorts the efficiency assessment (see paragraphs 6.247 to 6.258). Further, we also conclude that SGN's approach is not materially better, for reasons discussed in paragraphs 6.286 to 6.298.

The Top-down Matter: Did GEMA err in justifying its approach to CSV weights and in its reasons for rejecting SGN's 'bottom-up' approach?

SGN's submissions

6.278 SGN submitted that 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, but are either erroneous, unevidenced or inadequately supported by the available evidence.[426] In particular, SGN said that:

(a) GEMA's 'notional' company does not account for significant, genuine differences in cost structures between GDNs or changes in cost structures over time, while SGN's proposed bottom-up approach to CSV weights provides a more accurate representation of the 'notional' company by more appropriately accounting for genuine differences in workloads.[427] GEMA also contradicted comments it made in the context of ED3 (in reference to the same model SGN proposed).[428]

(b) GEMA's statement that the median expenditure share may be less representative of the 'notional' company 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.[429]

[425] Callum Mayfield WS1, paragraph 391.
[426] SGN NoA, paragraph 328.
[427] SGN NoA, paragraph 329.
[428] SGN NoA, paragraph 330.
[429] SGN NoA, paragraph 331.

(c) There is no plausible engineering rationale for assuming that all GDNs have uniform cost structures.[430]

(d) While GEMA says SGN's bottom-up approach produces a slightly lower R-squared value than GEMA's model, the difference is negligible and both models generate high R-squared values that would satisfy any reasonable R-squared test.[431] In addition, the R-squared test should only be treated as part of a broader range of assessment criteria.[432]

(e) The bottom-up approach is transparent and well-understood since GEMA used a bottom-up approach for CSV weighting in ED2 to define the notional company.[433]

(f) GEMA has adapted its approach to CSV weighting in the past, as the current methodology was only introduced in GD2, and consistency with previous price controls is a weak justification for adopting a methodology that contains significant errors.[434]

(g) GEMA's justification for not adopting SGN's approach based on lack of consultation at DD is inconsistent with its approach elsewhere in the DD and the FD and does not constitute a valid justification for the choice of benchmarking approach.[435] This underscores more serious procedural concerns that SGN has in relation to GEMA's consultation on CSV weightings.[436]

(h) 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 and inconsistent with GEMA's own statements in ED3.[437] The bottom-up CSV approach does not appear to entail any endogeneity concern, can be robustly implemented with the available data, and is potentially more accurate than the top-down CSV.[438]

[430] SGN NoA, paragraph 332.
[431] SGN NoA, paragraph 334.
[432] SGN NoA, paragraph 336.
[433] SGN NoA, paragraph 338.
[434] SGN NoA, paragraph 339.
[435] SGN NoA, paragraph 340.
[436] SGN NoA, paragraph 341.
[437] SGN NoA, paragraph 342.
[438] SGN NoA, paragraph 342.

(i) GEMA's contention that SGN's approach cannot be robustly implemented with the available data is incorrect.[439]

(j) GEMA's current cost assessment approach is too tightly constrained by the econometric model, which, as recent experience in the water sector demonstrates, overlooks the specific issues relating to each GDN's own network assets and geography, and places too great a focus on achieving the highest possible levels of statistical robustness, disconnected from the operational reality facing GDNs and from GEMA's own engineering and technical assessment of what GDNs should deliver in GD3.[440]

(k) SGN submitted that its bottom-up CSV approach represents a materially better alternative to GEMA's methodology because it 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, and satisfies GEMA's stated criteria for cost assessment.[441] SGN also submitted that the use of a top-down approach significantly distorts efficiency scores across the industry, whereas a bottom-up approach corrects the distortions by accounting for the workloads that GEMA expects companies to deliver, with material effects on allowances.[442]

6.279 In response to our PD, SGN submitted that the PD did not provide any basis for distinguishing between the top-down and bottom-up approaches or overriding the clear benefit of SGN's model. SGN submitted that the justification for its bottom-up approach is that it remedies the inconsistency error in GEMA's top-down model ensuring that the cost modelling achieves its intended purpose.[443] SGN also submitted that:

(a) the PD recognises that GEMA's reasons for preferring a top-down approach have fallen away in the course of the appeal, in particular that GEMA does not dispute that the bottom-up approach is statistically valid[444] but that the PD has not diminished GEMA's reasons for preferring the top-down model accordingly;[445] and

[439] SGN NoA, paragraph 343.
[440] SGN NoA, paragraphs 344-346.
[441] SGN NoA, paragraph 348.
[442] SGN NoA, paragraphs 349-353.
[443] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 163 and 168.
[444] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 164.
[445] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 166.

(b) the PD did not engage with the substance of the criticisms identified by SGN.[446]

GEMA's submissions

6.280 GEMA submitted that there are material similarities between GEMA's approach and SGN's proposed alternative, in that:

(a) SGN accepts the use of a CSV (in other words, SGN accepts the need to make assumptions about the industry 'average' cost structure);

(b) both approaches rely on the same underlying datasets;

(c) both approaches use data from all eight GDNs;

(d) both approaches apply a single set of weights to every network in every year; and

(e) both approaches use the same input values for the cost drivers.[447]

6.281 GEMA stated that the main differences between the two approaches are:

(a) GEMA's approach to weightings uses the mean while SGN's uses the median;

(b) GEMA's approach uses average industry cost shares while SGN's uses median industry unit cost; and

(c) GEMA's approach uses a Cobb-Douglas function with a multiplicative functional form whereas SGN uses an additive formulation to combine the individual cost drivers, which is not strictly speaking consistent with using a Cobb-Douglas function to represent totex.[448]

6.282 GEMA said that, in RIIO-ED2, the bottom-up CSV model was used as part of a wider modelling suite, representing a different context to RIIO-GD3.[449]

6.283 GEMA further noted that, given the overall similarities between the two approaches, it was not surprising that there was no material impact on overall totex at an industry level (less than 0.3%). GEMA submitted that SGN's Southern network is more sensitive to the choice of approach, reflecting a difference of around 2% (in allowed totex) as compared to GEMA's approach. However, GEMA

[446] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraph 165.
[447] GEMA's Response to Appellants' NoAs, paragraph 230.
[448] GEMA response to Appellants' NoAs, paragraph 231.
[449] GEMA response to Appellants' NoAs, paragraph 232.

said, this does not mean that its model is distortive. Rather, the position is reflective of the fact that SGN has cherry-picked its suggested alternative methodological adjustment as an approach that works in its own financial interests for that particular network. That is far from demonstrating that the approach adopted by GEMA is 'wrong' under any of the statutory grounds of appeal.[450]

6.284 GEMA also submitted that there is no 'right way to calculate a CSV' and that each approach has advantages and disadvantages.[451] GEMA stated that it had strong and valid reasons for favouring its approach to CSV formulation:[452]

(a) It was consistent with GEMA's preferred functional form for the totex model, which SGN is itself supportive of using.

(b) It is simple, transparent, tested and supported by the other GDNs.

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

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

6.285 GEMA submitted that it is wrong to assume that a single approach to calculating the CSV is appropriate for every sector.

(a) GEMA used a combination of different approaches in RIIO-ED2 and is consulting on a different approach from RIIO-GD3 for RIIO-ED3. This reflects the different features of the electricity distribution sector, including the greater degree of variance between licensed entities.[453]

(b) Similarly, while SGN sought to rely on comments from the Independent Water Commission's Final Report, GEMA noted that this report relates to the regulatory context of water. In GEMA's view, that sector has a more complex operating structure resulting in greater variation between the activities and

[450] GEMA response to Appellants' NoAs, paragraph 233.
[451] GEMA's Response to Appellant's NoAs, paragraph 243.
[452] GEMA's Response to Appellants' NoAs paragraph 243.
[453] GEMA's Response to Appellants' NoAs, paragraph 244.

outputs of each water company and is therefore of no direct application to the question before the CMA in this appeal.[454]

CMA assessment

6.286 We conclude that GEMA did not err in justifying its approach to CSV weights and in its reasons for dismissing SGN's alternative approach.

6.287 In reaching that conclusion, we have taken into account that some of SGN's submissions in relation to this matter overlap with those it made in respect of the Cost Structure Matter (see paragraph 6.292(a) below).

6.288 We have further considered below whether:

(a) GEMA's reasons for rejecting SGN's proposed alternative approach were flawed; and

(b) SGN's bottom-up CSV model is materially better than GEMA's top-down CSV model (or GEMA's is just as good).[455]

Were GEMA's reasons for rejecting SGN's proposed alternative approach flawed?

6.289 SGN appears to be primarily referring in its submissions to the following statements made by GEMA in its FD:

> 'We consider that our approach has a strong engineering and economic rationale, it is transparent and well understood by industry and is statistically robust. We also note that it is consistent with previous price controls. While alternative approaches are available, we find that they either depart from the idea of a notional efficient company, increase the risk of controlling for endogenous factors, or cannot be robustly implemented with the available data.[456]
>
> ….
>
> SGN argued for what it called a 'bottom-up' CSV approach, which it claimed better reflects actual activity shares and regional needs. Specifically with respect to CSV weighting, SGN proposed that instead of using the average expenditure share for each cost

[454] GEMA's Response to Appellants' NoAs, paragraph 244.
[455] Taking account of the judgment in *R (Wales and West Utilities Ltd)* at paragraphs 156-159.
[456] GEMA RIIO-3 FD, paragraph 5.345.

category we instead use the median expenditure share amongst the seven GDNs. SGN did not provide a clear justification for why it considers that its median approach would provide a more appropriate representation of the cost structure of a notional efficient company.'[457]

6.290 In its Response, GEMA stated that the first statement quoted above was not made only in relation to SGN's alternative approach but also contained GEMA's reasons for favouring its chosen model over a range of others. GEMA stated that it does not follow (contrary to the way it is presented by SGN) that each reason is a 'justification for rejecting SGN's approach'.[458] We agree – that position is consistent with the evidence put forward by GEMA in its subsequent submissions. Nonetheless, we have considered further below whether these are valid reasons to dismiss SGN's model.

6.291 Our understanding, in light of its submissions, is that GEMA does not dispute the following:

(a) in relation to SGN's submission in paragraph 6.278(d), that SGN's bottom-up CSV approach is statistically valid;[459]

(b) in relation to SGN's submission in paragraph 6.278(e), that the bottom-up CSV approach is transparent and well-understood by the industry;[460]

(c) in relation to SGN's submission in paragraph 6.278(f), that GEMA changed its approach in GD2 (we note, however, that GEMA did not use SGN's proposed bottom-up CSV approach in GD1);[461] and

(d) in relation to SGN's submissions in paragraph 6.278(i), that SGN's proposed bottom-up CSV approach can be robustly implemented with the available data.[462]

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[457] GEMA RIIO-3 FD, paragraph 5.348. GEMA also provided further reasons for rejecting SGN's approach in paragraph 5.349 of the RIIO-3 FD.
[458] GEMA response to Appellants' NoAs, paragraph 242.
[459] Transcript of the hearing for Totex Model Allowances session on 19 June 2026, page 105, lines 7-14.
[460] GEMA has confirmed that SGN's proposed bottom-up CSV approach has been used in previous gas and electricity distribution price controls (see GEMA RFI03 Response (Non-confidential), Q1 and Q2).
[461] The 'bottom-up' approach used in GD1 involved using seven regressions, one per cost activity, to derive seven efficient cost drivers, which when summed make up the efficient totex. (From RIIO-GD1: Initial proposal, section 5). This approach was ultimately dropped at GD2 given concerns about its statistical robustness and validity, and GEMA chose to utilise the top-down CSV only. (Draft Determinations - RIIO-GD2 Step-by-Step Guide to Cost Assessment. paragraphs 1.64-1.66).
[462] GEMA has explained that it tested SGN's proposed CSV weighting approach. GEMA states that it found no significant improvement in the performance of the totex model. It does not suggest that the approach could not be robustly implemented (see Callum Mayfield WS1, paragraph 347).

6.292 With respect to the other alleged reasons GEMA may have had for dismissing SGN's model, we note the following:

(a) In relation to SGN's submission in relation to the Top-Down Matter in paragraph 6.278(a) above (that GEMA's 'notional' company does not account for significant, genuine differences in cost structures between GDNs or changes in cost structures over time),[463] we consider that this is similar in substance to its submission in relation to the Cost Structure Matter (in paragraph 6.214). Namely, that, for the purposes of the cost assessment, a 'notional' company should reflect a 'notional' company carrying out the workloads that GEMA has agreed that each company should deliver.[464] As set out in paragraphs 6.239 to 6.268 above, we find that GEMA did not err in failing to reflect genuine differences between GDNs' cost structures (by defining the notional company in the way that it did). Nor accordingly, did it, in our view, err in its approach to CSV weights or in its reasons for adopting that approach.

(b) In relation to SGN's submission in paragraph 6.278(b) (that GEMA misunderstood SGN's approach by referring to the median expenditure share), we consider that GEMA's reference at paragraph 5.348 of the FD to 'median expenditure share' is a misdescription but does not imply that GEMA misunderstood SGN's model. The attached code suggests that GEMA did, in fact, test SGN's suggested approach using median cost-to-cost driver ratios as CSV weights.[465] Further, we note that GEMA agreed with the description of SGN's model in the context of ED3.[466] Accordingly, GEMA was sufficiently well-informed on the assumptions and properties of SGN's model when forming its assessment in its FD.

(c) In relation to SGN's submission in paragraph 6.278(c) (that there is no plausible engineering rationale for assuming that all GDNs have uniform cost structures), GEMA acknowledged that the characteristics of the notional network will not necessarily mirror those of individual networks and that, in practice, the actual network could have different operating, reporting and cost structures to the notional network.[467] As discussed in relation to the Cost Structure Matter, there is no dispute that it was reasonable for GEMA to use the concept of a notional company for assessing modelled costs by using a single totex model with a single explanatory composite scale variable (the

[463] SGN NoA, paragraph 329.
[464] SGN NoA, paragraph 279.
[465] Callum Mayfield WS1, paragraph 347, footnote 288.
[466] Frontier Economics (2026) Assessment of two aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraph 5.81(a).
[467] Callum Mayfield WS1, paragraph 381.

CSV) (see paragraphs 6.212 - 6.213 above). There is also no dispute that, due to a lack of sufficient independent variation in the data, both SGN and GEMA construct CSVs by assigning fixed, but different, weights that implement a form of 'averaging' between the scale cost drivers in their preferred models (see paragraph 6.250 above). Finally, as discussed in relation to the Cost Structure Matter, we do not agree that SGN has established that GEMA's model distorts the efficiency assessment for firms with cost structure different to the industry average (see paragraphs 6.254-6.257 above).

(d) In relation to SGN's submission in paragraph 6.278(f) (that consistency with previous price controls is a weak justification for adopting a methodology that contains significant errors), GEMA stated that it did not anticipate that there will be large-scale, systematic changes to the gas networks during RIIO-3 and, as such, considered that its approach to regulation did not need to change significantly from RIIO-GD2.[468] We consider that, in these circumstances, it is reasonable for GEMA to give weight to regulatory consistency given, in particular, GEMA's duty to have regard to the principles under which regulatory activities should be consistent.

(e) In relation to SGN's submission in paragraph 6.278(g) (that GEMA's justification for not adopting SGN's approach based on lack of consultation is not a valid justification for the choice of benchmarking approach), GEMA tested SGN's proposed bottom-up CSV approach after SGN submitted it in response to the DD but found that it showed no significant improvement in the statistical performance of the totex model compared to its preferred CSV approach.[469] SGN does not dispute this finding. In particular, SGN accepts that its proposed approach has a slightly lower R-squared than GEMA's approach.[470]

(f) In relation to SGN's submission in paragraph 6.278(j) (that GEMA's current cost assessment approach is too tightly constrained by the econometric model, contrary to recent experience in the water sector), we agree with GEMA that the findings in the Independent Water Commission's Final Report on regulatory benchmarking are largely specific to the water sector and have no direct application to the particular methodological differences in calculating a CSV in the gas sector.[471]

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[468] GEMA (2024) RIIO-3 Sector Specific Methodology Decision – GD Annex, para 1.9.
[469] Callum Mayfield WS1, paragraph 347.
[470] Frontier Economics (2026) Assessment of Two Aspects of GEMA's RIIO-GD3 Cost Assessment Methodology, paragraph 1.32 a).
[471] GEMA response to Appellants' NoAs, paragraph 244.

6.293 Accordingly, none of the arguments above suggest that GEMA erred in its reasons for rejecting SGN's model.

6.294 The outstanding issue raised by SGN relates to whether GEMA's reasoning was flawed and inconsistent in its dismissal of SGN's model for the reasons given in paragraph 6.278(h). Namely, that GEMA's rejection of alternative models was flawed and inconsistent with its own statements in ED3 when they 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.[472]

(a) We agree with SGN that these reasons (on their own) are not a sufficient basis to dismiss SGN's bottom-up CSV model and indeed do not fully apply to SGN's model.

(b) However, we consider that GEMA considered the various competing models in front of it (which is discussed in more detail in paragraphs 6.259 to 6.267 above in relation to the Cost Structure Matter) and in relation to the specific points in paragraph 6.294, GEMA noted in its Response the following:

(i) GEMA submitted that 'both approaches are constructing some form of notional licensee' as part of a list of material similarities shared by both models.[473] In other words, there is no dispute that both models are based on a concept of a notional efficient network.

(ii) GEMA highlighted its concern that, because a median measure of central tendency is used by SGN, overall cost driver weights might not be representative of one that any reasonable notional company might achieve.[474]

(iii) Furthermore, GEMA acknowledged that both modelling approaches had advantages and disadvantages and it was aware of them in reaching its FD.[475] GEMA recognised that both models offer a coherent definition of a notional company but differed in their characterisation of the average relationship between costs and cost drivers. GEMA submitted, as noted in paragraph 6.290 above, that it considered the issues raised by SGN as potential strengths of its top-down CSV model that gave GEMA reasons to support that model. They were not considered by GEMA as

[472] By acknowledging that SGN's model is statistically valid (paragraph 6.291(a), we consider that GEMA does not dispute that SGN's model can be robustly implemented.
[473] GEMA response to Appellants' NoAs, paragraph 230.
[474] GEMA response to Appellants' NoAs, paragraph 231.2. SGN recompute their model using mean, rather than median unit cost weights. SGN submitted that its model's results are not sensitive the measure of central tendency used. SGN RFI02 Response (Confidential), paragraphs 43 and 44.
[475] GEMA response to Appellants' NoAs, paragraph 232.

flaws in SGN's model that gave GEMA reasons to reject the bottom-up CSV model.[476]

6.295 Taking all the above points together, we conclude that SGN has not made the case that its model was dismissed by GEMA based on flawed reasoning. In any case, in order for there to be an error in GEMA's approach, the more relevant question is whether SGN's bottom-up CSV model has been shown to be materially better, as opposed to simply being one of the possible modelling approaches GEMA could have adopted.

Is SGN's bottom-up CSV model materially better than GEMA's top-down CSV model?

6.296 Finally, we turn to the question of whether we find SGN's bottom-up model to be materially better than GEMA's top-down model.

6.297 Our view is that SGN has failed to demonstrate that its proposed approach is materially better than GEMA's. In particular:

(a) The ability of SGN's bottom-up CSV model to explain variations in totex across companies and over time is, at best, similar to GEMA's top-down model. It does not pass any relevant statistical test that GEMA's model fails (see paragraph 6.284(d)).

(b) SGN has not provided a strong economic or engineering justification to support its additive CSV assumption as an improvement to GEMA's multiplicative CSV inside the Cobb-Douglas totex model.

(c) SGN's bottom-up CSV approach shares a similar conceptual criticism to GEMA's model. Namely, that the weights it applies to the cost drivers are assumed and not estimated (see paragraph 6.250(b)).

(d) In SGN's additive CSV each activity is priced at an assumed unit cost that is the same for all GDNs and is unaffected by the workloads of other activities. Competition for shared inputs or overheads therefore cannot raise the assumed unit cost as other costs activity workloads increase. In a sector where a single totex benchmark model is used so that companies can make trade-offs across activities that are delivered together and share some common finite resources (subject to companies meeting their statutory and other licence and compliance obligations), it is not clear that SGN's fixed unit cost assumption is appropriate. GEMA's multiplicative form, by contrast,

[476] GEMA response to Appellants' NoAs, paragraph 242.

does allow one activity's implied unit cost to depend on the scale of the others. On the dependence of one activity's costs on the workload of others through shared, limited inputs, we do not consider that the SGN model offers a material improvement.

(e) We do not consider that there is any inconsistency between GEMA using the top-down CSV model in gas distribution and using the bottom-up CSV model (as part of a modelling suite) in electricity distribution, as these are different sectors with different contexts.[477]

Summary of the CMA's assessment of the Top-down Matter

6.298 Accordingly, our overall assessment of the Top-down Matter is that:

(a) GEMA was not wrong in its approach to constructing CSV weights in its model and its reasoning was not flawed;

(b) GEMA's rejection of SGN's model was not based on flawed reasoning; and

(c) SGN has not demonstrated that its alternative bottom-up CSV model is materially better than GEMA's top-down CSV model, either conceptually or empirically.

Conclusions on Ground 2B

Failure to properly have regard to and to give the appropriate weight to statutory duties

6.299 SGN contends that GEMA failed properly to have regard, or to give appropriate weight, to its principal objective and relevant statutory duties because:

(a) Underfunding SGN to deliver necessary workloads is incompatible with GEMA's duty to consider current and future customers and contrary to the finance duty.[478]

(b) 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

[477] Transcript of the hearing for Totex Model Allowances session on 19 June 2026, page 101, lines 2-8, and page 109, lines 9-10.
[478] SGN NoA, paragraphs 261(i)(a) and 354 (i)(a).

unnecessary and/or disproportionate step in determining efficient costs. GEMA applied a different 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).[479]

6.300 We conclude that GEMA did nor err in respect of the regard it had, and the weight it gave, to the relevant matters.

6.301 In respect of SGN's contention that underfunding SGN to deliver necessary workloads is incompatible with GEMA's duty to consider current and future customers and contrary to the finance duty, we note that:

(a) A regulator cannot, in setting a price control, meaningfully consider the effect that each element of its overall analysis will have on the ability of regulated companies to raise finance. The appropriate way for a regulator to approach this duty is for it to consider whether the total allowances provided for in the price control package as a whole allow the companies to raise the finance they need. In making its assessment, the regulator should have regard, '…to the need of each licence holder, and not just licence holders as a collective or group, to be able to finance their activities.'[480]

(b) GEMA made the appropriate assessment, as set out in Chapter 5 of the Finance Annex to the decision, by considering the financeability of each of the GDN licence holders, including SGN, in the context of the RIIO-3 price control as a whole.[481] That is, the price control including totex allowances for each GDN was set using GEMA's top-down CSV model. GEMA concluded that the package was consistent with SGN's and other GDNs' financeability, supporting strong credit ratings and ensuring that companies, including SGN, can raise the capital needed to deliver their statutory obligations.

(c) In making its financeability assessment, GEMA stress-tested downside totex scenarios consistent with GDNs, including SGN, overspending their allowances (consistent with SGN spending in line with the totex allowances it has requested under Ground 2 during the course of this appeal).[482] It

[479] SGN NoA, paragraphs 261(i)(b) and 354 (i)(b).
[480] *R (Wales and West Utilities Ltd),* paragraphs 161 and 170.
[481] GEMA said: 'We focus on the notional company for assessing price control parameters and review notional company financeability analysis for individual notional licensees with reference to modelled credit metrics and ratings under different scenarios.'
[482] SGN noted in its NoA that the aggregate impact of the Ground 2A and Ground 2B errors is £[✂]. SGN NoA, paragraph 141. GEMA considered a 10% totex overspend in its downside stress testing, for SGN this equates to c. £[✂]. GEMA (December 2025), RIIO-3 Draft Determinations Finance Annex paragraphs 5.46-5.68; RIIO-3 Final. Determinations – Finance Annex paragraphs 5.13-5.18.

concluded that licence holders, including SGN, would be financeable even in that scenario.[483]

6.302 In its response to our PD, GEMA contended that our approach to the finance duty was inconsistent with the appeals framework. Its submissions were, however, predicated on GEMA having made the specific errors that SGN alleged in this appeal.[484] We note four further points in this connection:

(a) First, in reaching its conclusions, GEMA tested alternative approaches to constructing the CSV. It found that these did not improve the statistical performance of its top-down CSV model (see paragraphs 6.259 to 6.267 above).

(b) Second, the Frontier analysis for SGN does not demonstrate that the use of industry average expenditure shares as CSV weights, or any other feature of GEMA's model, distorted efficiency scores and therefore underfunded SGN (see paragraph 6.256 above).

(c) Third, GEMA did not, for the four reasons we set out in paragraph 6.277 above, place undue weight on historical data in estimating the weights to be used in constructing the CSV.

(d) Fourth, we also find, as set out in paragraphs 6.286 to 6.298, above that:

(i) GEMA was not wrong in its approach to constructing CSV weights in its model, and its reasoning was not flawed;

(ii) GEMA's rejection of SGN's model was not based on flawed reasoning; and

(iii) SGN has not demonstrated that its alternative bottom-up CSV model is a materially better alternative than GEMA's model, either conceptually or empirically.

6.303 In all those circumstances, it appears to us that the judgements GEMA made in using its top-down approach to CSV weights were at least as good as the alternative judgements SGN contends GEMA should have made:

(a) That is so in terms of GEMA's duty to have proper regard, and give appropriate weight, to the need to secure that licence holders are able to finance the activities which are the subject of their statutory obligations. The

[483] RIIO-3 FD - Overview (2025), and RIIO-3 Final Determinations – Finance Annex paragraph 5.27.
[484] SGN's Response to CMA RIIO-3 Totex PD (Confidential), paragraphs 26-30.

GDNs, including SGN, are likely to be financeable and funded to deliver their statutory workloads under GEMA's chosen approach.

(b) It is also so in relation to GEMA's principal objective. The interests of existing and future consumers are likely to be served where the GDNs, including SGN, are funded under a charge control that carefully assesses and funds the networks' efficient costs for delivering their statutory workloads.

6.304 We observe in the context of the comparison between GEMA's top-down CSV model and SGN's bottom-up model that no one modelling approach is perfect. Each will have competing advantages and disadvantages. SGN has not shown that its bottom-up approach to CSV weights would be materially better than GEMA's approach in the sense that, weighing up the pros and cons of the two approaches, SGN's offers more than GEMA's. In particular, SGN has not demonstrated that its model performed better statistically.

6.305 As to SGN's contention that GEMA's approach to CSV weights is inconsistent with regulatory best practice:

(a) We find, as set out in paragraphs 6.268 to 6.269 above, that:

(i) there were no inconsistencies in (1) GEMA's pre-modelling workload and totex adjustments and (2) its use of the average-industry cost structure in the CSV weights of a notionally efficient network company, since GEMA did not approve the workloads as SGN contends and because those two steps each had different functions;

(ii) GEMA's approach is consistent with the overall RIIO framework where companies have some flexibility how best to allocate funding across the different areas of spend; and

(iii) GEMA's approach is also consistent with its stated purpose of the totex modelling – to assess the relative efficiency of overall submitted totex, rather than of individual activities.

(b) We further find, as set out in paragraphs 6.247 to 6.268 above, that:

(i) GEMA followed a fair process which involved consulting the GDNs about its modelling approach, and considering alternatives they advanced;

(ii) GEMA adopted an approach that was consistent with the Cobb-Douglas cost model - a widely accepted approach in econometric cost modelling, the use of which is well established in price control regulation;

(iii) it was reasonable, in circumstances where neither it nor SGN advocate using alternative statistical data-driven approaches, for GEMA to

exercise its judgement in setting values for CSV weights informed by its industry expertise and regulatory experience; and

(iv) SGN has not demonstrated that GEMA's CSV cost weights are themselves wrong.

(c) Neither do we find that GEMA acted inconsistently by applying a top-down model in relation to gas distribution and a bottom-up one in electricity distribution. It does not follow that an approach suitable in one sector is suitable in another. Nor do principles of best regulatory practice require that the same approaches be necessarily taken in different sectors.

(d) In these circumstances,[485] our conclusion is that GEMA did not err in the regard it had to the principles that regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed. GEMA's approach was, in light of those principles and the way it applied them, at least as good as that for which SGN contends (and SGN has not shown that latter approach to be materially better).

Failure to achieve the stated effect(s)

6.306 SGN alleges the licence modification(s) resulting from the decision **failed to achieve, in whole or in part, its (their) stated effect**, in that:

(a) By taking a 'notional' company approach to cost driver weightings, and in doing so failing to reflect genuine differences in GDNs' cost structures and applying average weights to cost drivers, 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.[486]

(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 GEMA deemed necessary and, therefore, implicitly intended to fund.[487]

6.307 SGN's contentions appear to us to be misconceived. GEMA set out the effect of the licence modifications that were necessary to implement its final determination on the RIIO-3 price control in the document 'RIIO-3 Licence Drafting modifications

[485] Those in sub-paragraphs (a) to (c).
[486] SGN NoA, paragraphs 261(ii)(a) and 354(ii)(a).
[487] SGN NoA, paragraphs 261(ii)(b) and 354(ii)(b).

- reasons and effects.'[488] SGN has not identified any statement made by GEMA about the effect of the licence modifications in this document that has not been achieved. Instead, SGN refers[489] to the stated effect as being to enable GDNs to carry out 'their activities and deliver an appropriate level of service for consumers', which was (SGN said) a primary objective in GD3.

6.308 Even if the assessment on this statutory ground called for a broader consideration of the statements made by GEMA about the basis for assessing notional efficient company costs, it still appears to us that SGN's case does not succeed. For the reasons we set out in paragraphs 6.268 to 6.269, 6.277, and 6.286 to 6.298 above, we find that GEMA was not wrong in its totex modelling (and the setting of totex allowances). Its approach enables the GDNs, including SGN, to raise finance, deliver their statutory workloads and recover their efficient costs.

Wrong in law

6.309 SGN contends that the Decision was **wrong in law** because, by failing to reflect genuine differences in GDNs' cost structures and applying average weights to cost drivers as part of its notional company approach:

(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.[490]

(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'.[491]

(c) 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 workloads which GEMA itself has approved which vary by region).[492]

6.310 We do not find that any of these errors have been made out and accordingly confirm GEMA's Decision as far as Ground 2B is concerned:

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[488] RIIO-3 Licence Drafting modifications - reasons and effects.
[489] SGN NoA, paragraph 258, footnote 175 referring to DD GD Annex, paragraph 5.1 and SGN NoA paragraph 354(ii)(a) footnote 245 referring to SSMC, paragraph 5.1.
[490] SGN NoA, paragraphs 261(iii)(a) and 354(iii)(a).
[491] SGN NoA, paragraphs 261(iii)(b) and 354(iii)(b).
[492] SGN NoA, paragraphs 321 and 355.

(a) As set out in paragraphs 6.268 to 6.269 above, there was no inconsistency between the separate steps of GEMA (i) accepting pre-modelling workload adjustments and (ii) using the totex modelling to determine the efficient costs of the resulting workload. GEMA did not approve the workloads as SGN contends, and step (i) determines the inputs for step (ii) and does not determine nor constrain the assessment and outcomes in that second step.

(b) Nor in any event did GEMA make any error of law in determining the totex cost allowances and judging that the allowances it set would fund the efficient costs of the workloads, or by taking account of irrelevant considerations (namely, the average cost structure of the industry for setting the efficient allowances for companies to carry out 'their activities'). Neither did GEMA fail 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 workloads which GEMA itself has approved which vary by region).

(c) Rather, for all the reasons set out in this chapter of this decision, the matters in the preceding sub-paragraph involved regulatory judgements which GEMA was entitled to make, based on the facts and evidence. We should afford GEMA a margin of appreciation, even if there were other judgements it might also have made.