YWS's Response to the CMA's Leakage Enhancement Totex Allowances Working Paper

25 January 2021

Table of Contents

1. Summary

1.1 Overview

1.1.1 YWS welcomes the opportunity to respond to the CMA's Leakage Enhancement Totex Allowances Working Paper issued on 15 January 2021 (the **Leakage Working Paper**).

1.1.2 In summary, YWS supports the CMA's view, consistent with its Provisional Findings (the **PFs**), that there is a link between delivering higher performance on leakage and costs and that "*companies may need to incur additional enhancement spend to move from the AMP6 targets based on SELL assessments, to the new targets*".[1] This substantiates the argument that YWS has made throughout the redetermination that Ofwat's flawed approach to PR19 created a significant disconnect between costs and outcomes,[2] at least in relation to leakage. YWS also agrees with the CMA's view that the full reduction in leakage (47 Ml/d) should be funded.[3]

1.1.3 However, there are two aspects of the Leakage Working Paper where incorrect and incomplete analysis has led to the CMA reaching erroneous conclusions:

(a) the CMA has incorrectly used its assumed industry upper quartile (**UQ**) unit cost in both its assessment of the quality of YWS's evidence and to calculate YWS's enhancement allowance; and

(b) the CMA's analysis of YWS's evidence is deficient and, in spite of the quality of YWS's evidence being similar in quality to Anglian's, the parties' evidence has been treated entirely differently. This appears to have been mistakenly influenced by the CMA's comparison of its unit cost to the UQ unit cost.

1.2 The CMA's use of the assumed industry UQ unit cost

1.2.1 YWS does not contest the potential utility of comparing companies' costs to one another nor, where appropriate, applying an efficiency challenge in principle. However, the CMA's application of such principles in this context is flawed for the following reasons.

First, the CMA's use of the UQ unit cost is undermined by the large and unexplained variation in industry leakage unit costs[4]

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1 CMA, Water Redeterminations 2020 – Leakage Enhancement Totex Allowances – Working Paper, 15 January 2021 (the **Leakage Working Paper**), paragraph 39.

2 See, for example, YWS's Statement of Case, 2 April 2020, paragraphs 135-151.

3 Leakage Working Paper, paragraph 111.

4 For example, the highest unit cost (£4.8m per Ml/d) is around 15 times larger than the lowest unit cost (£0.3m). The median unit cost (£2.0m) is over three times larger than the UQ unit cost (£0.6m).

1.2.2 The unexplained variation in industry leakage unit costs is several times larger than the equivalent variation in efficiency scores that emerge from Ofwat's base cost modelling. For example, the UQ unit cost is almost 70% lower than the average unit cost – whereas the actual base cost of the UQ firm is around 4% lower than its modelled base cost. While YWS recognises that the unexplained variation need not be exactly the same to support the use of the same UQ benchmark, the scale of the discrepancy should have indicated that this analysis was unsound and the CMA's use of a UQ point of comparison was, as a result, based on deficient analysis.

1.2.3 YWS considers that the CMA's use of a UQ unit cost as a point of comparison in this context would go far beyond setting a stretching efficiency challenge and instead would result in incorrectly and punitively underfunding otherwise efficient activities. Section 2.2 provides further analysis of this issue.

Second, the CMA's cross-check with the unit costs submitted by the other companies is mistaken

1.2.4 The CMA notes that the UQ unit cost is broadly consistent with the unit costs submitted by Bristol and Northumbrian and that this is useful as a cross-check (albeit not the basis of the CMA's decision).[5] However, YWS's analysis of its costs in comparison to Northumbrian's show that they cannot and should not be compared without adjustments in recognition of the different usage of pressure management techniques between the two companies (see paragraph 2.3.3, below). Once these adjustments are made, YWS's unit cost is lower than that implied by Northumbrian's figures.

1.2.5 YWS considers that this analysis:

(a) demonstrates the analytical shortcomings of making high-level unit cost comparisons of the type in the Leakage Working Paper;

(b) insofar as Northumbrian's unit cost is close to the UQ unit cost, provides the CMA with another "*compelling explanation*"[6] of the level of its unit cost; and

(c) refutes the CMA's assessment of the relative quality of YWS's evidence (discussed further below).

1.2.6 Section 2.3 provides further analysis of this issue.

[5] Leakage Working Paper, paragraph 107.

[6] Leakage Working Paper, paragraph 101.

Third, the CMA is wrong to claim that there is "*limited evidence to support other approaches*"[7] and that it must use the UQ unit cost to calculate YWS's enhancement allowance

1.2.7 YWS does not agree with the CMA's assessment of the evidence that it has submitted and remains of the view that it would be appropriate to use its unit cost estimate (see Sections 1.3 and 3 below). Nevertheless, if the CMA ultimately concludes that there are deficiencies in YWS's evidence, it does not follow that the CMA's only option is to set the allowance using the UQ unit cost, or that it is the right option.

1.2.8 There are several other options that are supported by regulatory precedent and reflect a more reasonable approach to the available evidence as discussed further in Section 2.4.

Finally, the CMA has set an unduly high evidential hurdle that YWS could not reasonably meet

1.2.9 Having made an erroneous comparison to the UQ unit cost, the CMA then wrongly concludes that YWS's unit costs are "*relatively high*" and requires YWS to provide a "*compelling explanation*" as to why this is the case.[8]

1.2.10 This evidential hurdle is not supported by the industry unit cost data for the reasons set out above. Indeed, taking the industry unit costs at face value, YWS has the median unit cost in the industry – it is neither unusually "high" nor unusually "low" in any objective sense, especially in view of the large variation in the industry unit costs.[9]

1.2.11 Even if this evidential hurdle were appropriate, however, it is unreasonable to expect YWS to be able to reliably compare its company-specific reasons for its "high" unit cost with others in the industry. YWS does not have access to sufficient industry-wide data to be able to replicate unit cost calculations for other companies. As noted above, since having access to other redetermination companies' data from the responses to RFI018A and RFI020, YWS has however been able to undertake comparisons with those companies which clearly demonstrate that YWS's costs are not "high" as suggested in the Leakage Working Paper which is therefore entirely predicated on an incorrect factual basis.

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7 Leakage Working Paper, paragraph 107.

8 Leakage Working Paper, paragraph 101.

9 Ofwat, 'Supply demand balance enhancement feeder model', December 2019, tab 'Unit costs', cells I15-I31.

1.3 The CMA's assessment of YWS's evidence

1.3.1 The CMA states that its decision to use a unit cost of £0.6m for YWS reflects "*the quality of evidence submitted*" by YWS since the PFs, compared to both the CMA's requirements[10] and also relative to the quality of evidence submitted by other companies.[11] The CMA ultimately concludes that YWS "*failed to justify its projected expenditure and hence unit cost*".[12] YWS is obviously disappointed and surprised by the CMA's position at this late stage in the redetermination – and fundamentally disagrees with it.

Inadequate reasoning provided by the CMA and flaws in its process

1.3.2 In its responses to RFI018A and RFI020, YWS provided sufficient information to fully evidence the process for calculating its efficient costs. As discussed below at Section 3.2, YWS presented all of the evidence that the CMA required for its analysis.

1.3.3 As explained in more detail below at Section 3.2, YWS's evidence was of a directly comparable quality to that of Anglian, yet the CMA considered it was in a position to evaluate bottom-up costs for Anglian and not for YWS. Though there are inevitable differences in the type of evidence submitted, explained by the companies' different leakage reduction strategies, the nature of the evidence given by Anglian and YWS is certainly not sufficiently different as to justify the radically inconsistent treatment between the two parties.

1.3.4 Instead, it appears that the CMA may have expected YWS to provide industry-wide/comparative evidence to which it cannot, and indeed does not, have access. YWS is concerned that the CMA may have attributed the genuine industry-wide difficulties associated with undertaking like-for-like cost comparisons in this area to a company-specific failure to provide robust evidence during the CMA process, and in so doing, wrongly excluded relevant YWS evidence.

1.3.5 The Leakage Working Paper does not provide any detail of the specific gaps and/or limitations that it has found in YWS's leakage plan and instead only provides a brief description of its concerns.[13] Nor does it describe how filling those gaps or addressing the limitations would have allowed the CMA to undertake a different or better cost assessment. The absence of such critical information in the Leakage Working Paper makes it impossible for YWS to understand the gist of the CMA's case and for YWS to make appropriate representations. YWS respectfully requests that the CMA identifies the specific

[10] Leakage Working Paper, paragraph 112.

[11] Leakage Working Paper, paragraph 73.

[12] Leakage Working Paper, paragraph 107.

[13] Leakage Working Paper, paragraph 103.

data points that it considers YWS should have had access to and that it should have provided.

1.3.6 YWS strongly rejects the CMA's analysis that its evidence was of poor quality. Nevertheless, to assist the CMA, YWS has provided at Section 3.2 a further breakdown of its proposed enhancement costs provided in response to RFI020 and at Section 2.3 a comparison of its unit costs with Northumbrian's unit costs.

1.4 Conclusion

1.4.1 As with other aspects of the redetermination, leakage funding cannot be considered in isolation. As the CMA is aware, while YWS concluded that it would be financeable on a notional basis under the CMA's package presented in the PFs, it remained finely balanced. YWS is concerned that were the working papers on cost of capital, the use of 2019/20 cost data and leakage to be included in the CMA's Final Determination, the combined effect would be to significantly shift the balance of risk and return beyond a reasonable range for YWS. YWS welcomes the CMA's commitment contained in the Leakage Working Paper to "*consider all aspects of our determinations in the round*"[14] and would urge the CMA to take sufficient time to conscientiously consider the parties' responses to the Leakage Working Paper and the other working papers.

1.4.2 The rest of this response is organised in the following sections:

(a) Section 2 evaluates the CMA's use of its assumed industry UQ unit cost;

(b) Section 3 discusses the CMA's evaluation of YWS's evidence;

(c) Section 4 provides brief comments on the leakage ODI; and

(d) Section 5 provides brief responses to the CMA's consultation questions.

[14] Leakage Working Paper, paragraph 117.

2. The CMA's use of its assumed industry UQ unit cost

2.1 Introduction

2.1.1 A major problem with the CMA's analysis is the erroneous use of the UQ unit cost as both: (a) a means of testing whether the unit cost estimate submitted by YWS is justified [15] and (b) a means of setting YWS's enhancement allowance.[16]

2.1.2 In this section YWS identifies the causes of these errors, which are:

(a) in selecting the UQ unit cost as a point of comparison, the CMA has disregarded the large and unexplained variation in leakage unit costs (see Section 2.2 below);

(b) the CMA wrongly takes comfort from a mistaken cross-check with the unit costs submitted by other companies as part of the redetermination process (see Section 2.3 below); and

(c) the CMA wrongly claims that it must use the UQ unit cost to calculate YWS's enhancement allowance (see Section 2.3 below).

2.2 No regard to the large and unexplained variation in leakage unit costs

2.2.1 While the CMA correctly recognises that it "*can be challenging to identify the appropriate unit cost*" [17] in a top-down comparison, the CMA nevertheless decides that it is reasonable to use the UQ unit cost (£0.6m per Ml/d) as a point of comparison to YWS's unit costs (£2.0m per Ml/d).[18] The CMA does not provide any theoretical or empirical reasoning for why the UQ unit cost is an appropriate point of comparison. The CMA simply undertakes the comparison and concludes that YWS's unit costs are "high"[19] and that this obliges YWS to provide "*a compelling explanation why the unit cost of meeting its leakage reduction targets should be so much higher than the upper quartile level*".[20] In effect, the CMA uses the UQ unit cost to inform the height of the evidential hurdle that YWS is required to clear.

2.2.2 The decision of whether to use a top-down benchmarking approach and, if so, whether to set the benchmark at the UQ or elsewhere, requires the CMA to

[15] Leakage Working Paper, paragraph 65.

[16] Leakage Working Paper, paragraph 107.

[17] Leakage Working Paper, paragraph 45.

[18] Leakage Working Paper, paragraph 101.

[19] Leakage Working Paper, paragraph 100.

[20] Leakage Working Paper, paragraph 103.

balance its stated objectives of "*avoid[ing] funding inefficient investments*"[21] on the one hand, with risking underfunding on the other.[22] This decision is context-specific and so the fact that "*[i]n many circumstances it is a reasonable approach to base regulatory decisions on a upper quartile benchmark*"[23] does not imply that it is a reasonable approach to take in this context of setting leakage enhancement allowances.

2.2.3 Importantly, there are very clear differences between the "circumstances" associated with the CMA's decision to set a UQ benchmark on the basis of its econometric modelling of base costs and the circumstances here, including:

(a) the econometric modelling controls for some (but not all) known and measurable differences between companies' operating conditions – whereas a comparison of leakage unit costs does not control for any differences in companies' operating conditions;

(b) the econometric modelling uses actual costs – whereas the leakage unit costs are forecasts; and

(c) the unexplained variation in the leakage unit costs is much greater than the unexplained variation in base costs (discussed further below).

2.2.4 Together, these points mean that any inferences regarding companies' relative efficiency based on the unit cost comparisons are subject to significantly more uncertainty than inferences from the econometric modelling. Indeed, the unexplained variation in leakage unit costs is so large, it should have raised serious doubts as to the validity of this approach and whether any inference could be drawn. At the very least, it suggests that a far less stretching benchmark should be selected as a point of comparison to YWS's unit cost estimates.

2.2.5 To help illustrate the extent of unexplained variation, YWS has compared the triangulated efficiency scores from Ofwat's feeder model for modelled water base costs[24] with the leakage unit costs submitted by companies relative to the (unweighted) industry average unit cost.[25] Table 1 below shows the results of the comparison.

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[21] Leakage Working Paper, paragraph 58.

[22] CMA's Provisional Findings, 29 September 2020 (the **PFs**), paragraph 4.296.

[23] Leakage Working Paper, paragraph 107.

[24] Ofwat, 'Calculation of catch-up efficiency challenge', Version 1.0, 16 December 2019, tab 'Efficiency', cells U42-U58.

[25] Ofwat, 'Supply demand balance enhancement feeder model', December 2019, tab 'Unit costs', cells I15-I31.

2.2.6 Table 1 shows that the unexplained variation in leakage unit costs is much greater than the unexplained variation in modelled water base costs, as illustrated by the gap in costs between the "average firm" and the lowest and highest cost firms. Relatedly, Table 1 also shows that the gap in costs between the average firm and the UQ firm is multiple times larger (67% versus 4%). Put another way, applying a UQ efficiency challenge to the leakage unit costs is nearly 17 times more challenging than applying the same to the efficiency scores emerging from the econometric modelling. The benchmark is the same, but the challenges they imply are very different.

Table 1: Comparison of unexplained variation in costs

Comparison	Unexplained variation in wholesale water base costs	Unexplained variation in leakage unit costs
Lowest ranked firm relative to modelled costs / average unit costs	PRT actual costs are ***21%*** *lower* than its modelled costs	PRT unit costs are ***82%*** *lower* than the industry average unit cost
Highest rank firm relative to modelled base costs / average	WSH actual costs are ***17%*** *higher* than its modelled costs	SES unit costs are ***163%*** *higher* than the industry average unit cost
UQ firm to modelled base costs / average	UQ firm (DVW) actual costs are ***4%*** *lower* than its modelled costs	UQ firm (NWT/SWB) costs are ***67%*** *lower* than the industry average unit cost.

2.2.7 For these reasons alone (others are set out in the rest of this section), it is incorrect for the CMA to use a UQ unit cost as a benchmark as a means of testing whether unit cost estimated submitted by YWS is justified or a means of setting YWS's enhancement allowance. To the extent that there is any utility in the comparison of YWS's unit cost to the industry unit costs, YWS notes that its unit cost of £2.0m is at the industry median and therefore YWS rejects the CMA's incorrect position that its unit costs are "high".

2.3 Flawed "cross-checks" with other appealing companies' unit costs

2.3.1 In reaching its conclusion, the CMA also notes that the UQ unit cost figure of £0.6m is "*broadly consistent with the company implied rates of Bristol and Northumbrian in their latest submissions for the four redeterminations*"

although states that "*it is a useful cross-check, but not the basis of our decision*".[26]

2.3.2 With this in mind, YWS has undertaken a more detailed comparison of YWS's unit cost to Northumbrian's unit cost on the basis of the information provided in response to RFI020 and has identified major issues of comparability in relation to (a) the use of pressure management techniques and (b) the assumptions made relating to the costs associated with repairing leaks. Once adjustments are made to address these issues, YWS's unit cost is, in fact, lower than the equivalent unit cost implied by Northumbrian's figures.

Differences in the scope to use pressure management

2.3.3 Northumbrian's response to Q1 of RFI020 shows that 60% of its planned leakage reduction will be delivered by pressure management activity at a unit cost of £0.09m per Ml/d.[27]

2.3.4 The information provided by YWS in response to RFI020[28] shows that YWS's use of pressure management is highly mature and that the scope for using additional low-cost pressure management is limited, as acknowledged by Ofwat.[29] While pressure management is exploited within YWS's plan for base expenditure to maintain AMP6 leakage levels, YWS has not claimed for additional enhancement funding for pressure management because it has already been largely exhausted. In contrast, the data provided by Northumbrian in response to RFI018A suggests that its use of existing pressure management is less extensive.

2.3.5 The average AMP6 scheme cost of £9,775 demonstrated in Northumbrian's RFI020 Appendix 3, which is the cost basis for the delivery of the additional 118 scheme in AMP7 at a cost of £1.18m, implies that these schemes most likely consisted of the installation of a single pressure reducing value (**PRV**) with limited enabling works, network reconfiguration (e.g. additional mains laying) or mains renewal. In their responses to RFI020, both YWS and Anglian highlighted that for companies with a greater level of maturity in the delivery of pressure management, low-cost solutions of this nature have been largely exhausted in prior AMPs, leaving only more hydraulically complex and costly schemes to be pursued.

2.3.6 Therefore, since the scope for YWS to use pressure management is materially lower than Northumbrian's, YWS concludes that (a) it is not valid to compare

[26] Leakage Working Paper, paragraph 107.

[27] Northumbrian Water response to Q1 of RFI020, Appendix 1.

[28] YWS response to Q2 of RFI020, paragraph 2.10.

[29] Note that Ofwat acknowledged this to be the case, as recognised by the CMA in Leakage Working Paper, paragraph 60(d).

Northumbrian's proposed mix of activities to YWS's and (b) equally, it is not valid to compare Northumbrian's unit cost for pressure management – and hence its overall unit cost – to YWS's unit cost.

2.3.7 Even if the comparison were valid, it is evident that the implied unit cost of pressure management presented by Northumbrian is too low:

(a) Northumbrian's method of estimating the benefit of pressure management involves a comparison of leakage levels at two points in time in AMP6 pre- and post- additional pressure management. However, since the schemes were delivered in response to an extreme weather event, it is likely that the "pre-" level of leakage is inflated and thus potentially overstates the causal effect of pressure management.[30]

(b) Consistent with this, Anglian's unit rate for pressure management is £1.0m – over 10 times higher than Northumbrian's figure – though YWS recognises that there may be several reasons for the differences between the figures.[31]

Low or zero costs included to fix the additional leaks detected

2.3.8 Northumbrian's response to Q1 of RFI020 shows that the remaining 40% of its planned leakage reduction will be delivered by active leakage control (**ALC**) at unit cost of £1.3m per Ml/d.[32] This is lower than YWS's figure of £2.0m per Ml/d.

2.3.9 Relatedly, Northumbrian's response shows that it proposes a repair cost of £1.02m relative to a detection cost of £8.57m – a 10:90 ratio in favour of detection. In contrast, YWS proposes a detection to repair cost ratio of 60:40 in favour of repair.

Figure 1: Northumbrian's ratio of detection to repair costs[33]

NES Combined						
Description	Category	Amount (£m)	AMP7 yr5 annual reduction	Average cost per Ml/d (£m)	AMP7 yr 5, 3 yr avge leakage reduction	Average cost per Ml/d (£m)
Additional leakage detection	Opex	8.57	13.30	1.10	11.1	1.31
Additional leak repairs	Opex	1.02				
Additional sensors	Capex	5.00				

2.3.10 As noted by Northumbrian, "*additional leakage detection activity provides no benefit in its own right unless the leaks discovered are then repaired*".[34] YWS

[30] Northumbrian Water response to RFI018A, Appendix 2.

[31] Anglian Water response to Q1 of RFI020.

[32] Northumbrian Water response to Q1 of RFI020, Appendix 1.

[33] Northumbrian Water response to Q1 of RFI020, Appendix 1.

[34] Northumbrian Water response to Q1 of RFI020, paragraph 1(2).

considers that this repair cost is too low to lead to the claimed leakage reduction. It is possible that Northumbrian has assumed that the repair costs will be funded by base expenditure, but since its base expenditure is efficient, YWS considers that base expenditure is only sufficient to maintain leakage at an AMP6 "steady state" level, not the step change required in AMP7.[35]

2.3.11 By way of further comparison, Northumbrian's figures equate to a repair cost of £6k per FTE per annum, whereas YWS's is £60k per FTE per annum.[36] Applying Northumbrian's assumed cost of £1,000 per job, a leakage FTE employed by Northumbrian would promote seven jobs per year, whereas a leakage FTE employed by YWS would promote 60 jobs. YWS considers that Northumbrian's promotion rate is unlikely to deliver the leakage reduction required unless they are able to detect and promote very "high value" leaks, which seems doubtful because to drive down leakage it is necessary to promote leaks of decreasing value. Bristol provides a further point of comparison in its response to RFI018A[37] where it outlines its assumption that *"leak inspectors will identify an average of 3 leaks per FTE per week."* Bristol does not include its assumptions around cost or benefit per leak. The decreasing value point has been observed in YWS's performance in AMP6 and in particularly in the changing distribution of cost from 60:40 in favour of detection in the first three years of the AMP to the reverse ratio in the final two years during which YWS significantly reduced its leakage.

2.3.12 Similarly, Anglian does not include any repair costs in its estimates, as shown in the screenshot below. Again, it is not clear how the leaks detected would be repaired without any additional expenditure. Bristol provides limited detail on the build-up of its ALC costs although it does include additional expenditure for both detection and repair.

Figure 2: Anglian's ratio of detection to repair costs[38]

Category Category	Category (opex/capex)	Capex (£m)	Opex (£m)	Amount (£m)	AMP7 Leakage reduction (Ml/d)	Average Cost £m per Ml/d
ALC: additional leakage detection	opex		2.56	2.56	3.3	0.8
ALC: additional leak repairs				0	0	

[35] Consistent with this, YWS notes that in its breakdown of costs provided in response to Q1 of RFI020 Bristol proposes a ratio of 45:55, which is closer to YWS's experience.

[36] Northumbrian Water response to RFI020 Appendix 1: additional leakage repair cost of £1,017,667 / 34 additional ALC FTE = £29,931.38 repair cost per FTE over AMP7 or £5,986.28 per year.

[37] Bristol Water response to RFI018A, page 9.

[38] Anglian Water response to Q1 of RFI020.

Adjustments to Northumbrian's figures

2.3.13 The table below shows what Northumbrian's unit costs for ALC would be if a reasonable allowance for repair costs is added in line with YWS's ratio of detection to repair costs (40:60) and Bristol's ratio of detection to repair costs (45:55).

Table 2: Adjustments to Northumbrian's unit costs

	As presented	Adjusted using a 40:60 ratio	Adjusted using a 45:55 ratio
Northumbrian unit cost	£1.3m per Ml/d	£2.4m per Ml/d[39]	£2.2m per Ml/d[40]

2.3.14 The table shows that using YWS's ratio increases the unit cost to £2.4m per Ml/d, which is higher than YWS's unit cost for ALC. Using Bristol's ratio would increase the unit cost to £2.2m per Ml/d, which is also higher than YWS's unit cost.

Other company-specific factors

2.3.15 YWS's response to RFI020 Q2(b) and (e) showed further company-specific factors that illustrate the inappropriateness of over-reliance on using industry comparisons. YWS highlighted, for example, its underlying asset stock, i.e. its high proportion of old cast iron mains, which add to leakage levels – the prevalence of cast iron pipes has been highlighted by Ofwat as an aggravating factor in levels of leakage.[41] It also pointed out that companies with water scarcity have previously been funded to install meters at domestic properties, which makes leakage detection (and therefore reduction) easier. YWS has never been funded for a significant metering programme. All of these factors increase YWS's unit cost compared with other companies.

Conclusion

2.3.16 The analysis set out in this section:

(a) demonstrates the unreliability of the £0.6m unit cost (insofar as Northumbrian's unit cost is at or close to the UQ unit cost);

[39] £8.57m + (£8.57m x 60/40) + £5.00m = £26.4m. £26.4 / 11.1 Ml/d = £2.38m per Ml/d.

[40] As above: £8.57m + (£8.57m x 55/45) + £5.00m = £24.0m / 11.1 Ml/d = £2.17m per Ml/d.

[41] See Ofwat's response to the Provisional Findings, 'Costs and outcomes – response to provisional findings responses', 19 November 2020, pages 63-64.

(b) highlights the broader shortcomings of comparisons using the industry unit costs; and

(c) provides further "*compelling explanation why the unit cost of meeting its leakage reduction targets should be so much higher than the upper quartile level*" – it would appear that the CMA failed to consider the extent to which the UQ unit cost may be based on using pressure management to a degree that is not efficient for YWS and/or exclude costs necessary to fix the leaks detected.[42]

2.4 The CMA wrongly claims that it must use the UQ unit cost to calculate YWS's enhancement allowance

2.4.1 Having concluded that YWS's unit costs are "high" and that YWS has not provided a satisfactory explanation of why they are "high" (amongst other criticisms of YWS's evidence, addressed below), the CMA decides that there is "*limited evidence to support other approaches*"[43] and thus chooses to use the UQ unit cost to set YWS's enhancement allowance. In effect, the CMA effectively applies a 70% efficiency challenge to YWS's unit costs.

2.4.2 It is not correct to state that "*there is limited evidence to support other approaches.*" Indeed, given that a proper evaluation of the strengths and weaknesses of the UQ unit cost suggests that little or no weight should be attached to it, YWS is concerned that the CMA has wrongly supplanted the task at hand – arriving at a best (albeit inevitably imperfect) estimate of the unit cost of leakage reduction – with a company-specific penalty for providing "*poor evidence*."[44]

2.4.3 There are several approaches that the CMA could consider that would not result in the unsupported, unprecedented and punitive 70% efficiency challenge that it has chosen to adopt. For example, the CMA could:

(a) use an average unit cost instead of the UQ unit cost (£1.8m);

(b) apply a 20% optioneering challenge to YWS's unit cost estimate (£1.6m); or

(c) use an average of both approaches (£1.7m).

2.4.4 All of these approaches would be supported by the evidence.

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[42] Leakage Working Paper, paragraph 103.

[43] Leakage Working Paper, paragraph 107.

[44] Leakage Working Paper, paragraph 106.

3. The CMA's assessment of YWS's evidence

3.1 Introduction

3.1.1 The CMA makes various statements regarding the "poor quality" of the evidence submitted by YWS in response to its RFIs. In particular, the CMA expresses concerns that YWS's cost forecasts:

(a) were not based on "*sufficient consideration of the scope for alternative lower cost options and approaches*";

(b) did not take "*sufficient account of its productivity improving investments in AMP6*";

(c) did not provide "*a compelling explanation why the unit cost of meeting its leakage reduction targets should be so much higher than the upper quartile level*"; and

(d) did not provide "*sufficiently detailed*" evidence to facilitate a robust "*bottom-up assessment*".[45]

3.1.2 As discussed above, the Leakage Working Paper does not set out the specific deficiencies or gaps in YWS's evidence that justify its concerns. Nevertheless, this section shows both that YWS has submitted evidence that meets the CMA's requirements and has also submitted evidence of a comparable quality to that submitted by others, including Anglian, on which the CMA has chosen to rely.

3.2 YWS has provided the CMA with the evidence it required

3.2.1 YWS considers that it has provided the CMA with sufficient evidence to show that its approach to leakage enhancement funding was sufficiently robust and properly optioneered to be as cost-efficient as possible. Table 3, below, shows that YWS's responses to RFI018A and RFI020 provided the CMA with the information it required to assess YWS's bottom-up assessment of its costs.

3.2.2 It is clear from analysing the below table in conjunction with Anglian's responses to RFI018A and RFI020 that the responses of both companies provided sufficient evidence for the CMA to be able to undertake a bottom-up analysis. The only qualitative difference between Anglian's and YWS's responses to those RFIs is that Anglian's response to RFI020 Q1 provided more line entries than YWS's equivalent. However, the different aspects of Anglian's table fall into the same categories as described at 2(a) of Table 3, below. While YWS does not accept that this changes the analysis, please see Table 4, below, which provides a further breakdown of capex and opex elements of its ALC plan.

[45] Leakage Working Paper, paragraph 103.

Table 3: Evaluation of the evidence submitted by YWS against the CMA's requirements

Requirements	Relevant sub-requirements[46]	Provided by YWS?	References
1. Sufficient detail for bottom-up assessment	a) Identifies and describes activities	✓	YWS gave details of the elements of its overall plan for leakage control and prevention (i.e. both the base and enhancement sections of the plan) in YWS's response to RFI018A Q1(a),[47] including increased detection and repair, asset management, network optimisation, quantification / insight and operational performance improvement. The part of the overall leakage plan that falls under enhancement costs is described in YWS's response to RFI018A Q2(b), which gives further details of the ALC activities planned as well as productivity enhancing initiatives.
	b) Quantifies relationship between activities and leakage reduction	✓	YWS quantified in its response to RFI020 Q1 that the activities it was undertaking would as a whole reduce leakage by 47Ml/d. YWS would suggest that the leakage reduction cannot be broken down further per line item (see further paragraphs 3.2.4-3.2.5, below). To put it simply, (i) detection is needed to detect a pipe leaking, (ii) the capex element is required to provide a replacement pipe and (iii) the opex element is required for repairs to a pipe. All are necessary for leakage to be reduced: none of them reduce leakage alone. Additional items of expenditure are required to make those three processes more efficient. YWS also described the relationship between its proposed activities and leakage reduction in RFI018A Q2(b).
	c) Provides estimates of activity-level unit costs / unit costs of key inputs into activities	✓	YWS provided the cost of key elements of the enhancement costs section of its leakage plan in response to RFI020 Q1. YWS recognises that the CMA may consider the large ALC figure capex spend listed there as not being sufficiently detailed, so it has provided the CMA with a more detailed breakdown of those costs at Table 4 of this submission.

[46] The Leakage Working Paper does not explain in detail what information the CMA was lacking from YWS's evidence on its leakage costs. Note that these categories have been formulated by YWS from the plausible information that the CMA could need to ascertain whether bottom-up costs have been efficiently costed. It is also influenced by the questions contained in the CMA's RFI018A and RFI020 and all companies' responses to those questions.

[47] YWS response to Q1(a) of RFI018A, paragraph 1.12.

Requirements	Relevant sub-requirements[46]	Provided by YWS?	References
2. Sufficient consideration of the scope for alternative lower cost options and approaches (sufficient optioneering)	a) Identifies / describes the alternative options	✓	Broadly speaking, there are two major options (and one minor option) for reduction of leakage. • The first option is detecting and fixing existing leaks through repairing or replacing assets. As above, YWS has described at length how its plan is based around ALC techniques, including the use of technical and operational innovations.[48] • The second option is through pressure management. YWS has explained in its response to RFI020 Q2(b) that it has extensively exploited pressure management in AMP6 to reduce leakage, meaning that further leakage reduction through pressure management would not be cost-effective. Pressure management is used within YWS's plan for base expenditure to maintain AMP6 leakage levels, but YWS has not claimed for additional enhancement funding for pressure management because it has already been largely exhausted (i.e. the unit costs for reduction outside of base are higher than the unit costs for ALC). • The third (minor) option is innovative solutions that fix leaks without the need for traditional ALC. None of the water companies have shown enhancement investment in the third option, and YWS has provided an explanation of why it discarded some such options (which it has trialled) in its responses to RFI018A Q2(g) and RFI020 Q2(d). The reason that techniques such as self-healing networks, "no dig" repair techniques and internal repair clamps are not currently in YWS's enhancement plan is that such solutions are currently too expensive or insufficiently effective.
	b) Presents qualitative evaluation of them / reasons for not choosing discarded options	✓	YWS's responses to RFI020 Q2(d) shows various innovations that have not been made part of YWS's enhancement plan. As YWS explained in its response to RFI018A Q2(g), its leakage plan is flexible and YWS will constantly assess the cost-effectiveness and efficacy of these and other innovative solutions as they come to market.

[48] See, for example, YWS response to Q2(b) of RFI020A.

Requirements	Relevant sub-requirements[46]	Provided by YWS?	References
	c) Provides estimates of their unit costs per Ml/d	✓	See YWS's response to RFI020 Q2(f), which explains the costed rationale for using some techniques over others, for example showing that for YWS to use pressure management outside of its base costs would be unduly expensive (up to £7.78m per Ml/d).
3. Sufficient account of productivity improving investments in AMP6	a) Identifies / describes investments made	✓	YWS illustrated in response to RFI018A Q2(c) that, having ascertained that reliance on find-and-fix is necessary, it has sufficiently ensured that its costs within that plan are efficient. Its costs are based on costs actually incurred (which were not funded, so which would naturally be as efficient as possible). These are described in YWS's response to RFI018A Q2(d). This includes productivity improving investments from AMP6 – for example, YWS demonstrated in paragraph 2.7 of its response to RFI018A and in its response to RFI020 Q2(f) that its investment in acoustic loggers achieved up to 30% efficiency in ALC. These and other efficiency gains from AMP6 were taken into account when costing the ALC levels in YWS's enhancement claim.
	b) Describes impact on productivity	✓	In response to RFI018A Q2(d), YWS described the £5.7m of efficiency gains that it had taken into account in calculating the £94.7m enhancement figure due to the retendering of its repair and maintenance "Water Services Agreement".
	c) Quantifies impact on productivity and adjusts costs	✓	See 3(b), above.
4. Compelling explanation of why unit costs are higher than UQ level	a) Identifies reasons why unit costs are higher than UQ level	✓	YWS provided evidence throughout RFI020 showing why its unit costs may be different to other companies'. This includes "shadow" leakage being accounted for by reaction to other Performance Commitments and levels of historic funding. See particularly YWS's response to RFI020 Q2(e), which discusses YWS's inability to rely on pressure management (which, as well as being exhausted in AMP6, also relates to Yorkshire's topography); Yorkshire's underlying asset stock (i.e. its large level of old cast iron mains adding to leakage levels); and the number of metered domestic properties – this increases leakage detection and YWS has never been funded for a significant metering programme, unlike other water companies. See also YWS's response to Q2(b), which discusses some

Requirements	Relevant sub-requirements[46]	Provided by YWS?	References
			of these factors in more depth. All of these factors increase YWS's unit cost compared with other companies.
	b) Provides supporting evidence showing that the reasons are valid	✓	See 4(a), above.
	c) Quantifies impact of reasons on UQ unit cost	✗	YWS does not consider that quantifying the impact of the factors identified in RFI020 is possible with the evidence available to it or the other water companies. This comparative assessment is available only when YWS is presented with the costs of other companies. Please see Section 2.3 above for a comparison to other companies' enhancement plans as ascertained from RFI018A and RFI020.

3.2.3 Nevertheless, to assist the CMA, Table 4, below, provides a further breakdown of the £45m of capital expenditure costs that YWS included in its response to Q1 of RFI020 (the additional information is provided in blue). The breakdown is based on the mix and scale of additional capital expenditure costs that it incurred while rapidly reducing leakage in the last two years of AMP6 relative to the first three years of AMP6 – and therefore YWS considers it to be an accurate reflection of the on-going additional capital expenditure required to continue rapidly reducing leakage in AMP7.

3.2.4 The CMA criticised YWS's breakdown of link between expenditure and leakage reduced: "*Yorkshire's submission was the most limited in terms of the information provided about the link between activities and leakage reduction*".[49] YWS disagrees that its response did not contain sufficient detail. As explained in its response to Q1 of RFI020, YWS did not provide further breakdown of leakage reduction by repair method because the interventions work in combination to drive the required reductions. YWS considers the reduction of leakage through its interventions to be a holistic process: the detection of a leak, the various choices of solution and increased efficiency in the process as a whole (through new sensors and innovative / new techniques line items) together produce the reduction of 47Ml/d. Taking any individual element away would hinder the entire process.

3.2.5 For example, without the ability to detect leakage, YWS would be unable to reduce leakage at all – but while that is the case, YWS considers that it is inappropriate to ascribe all of the leakage reduction to costs associated with leakage detection. The same principle applies to the engineering solution applied to a leak that has been detected; again, these costs are part of the overall process. YWS therefore considers that any purported apportionment of leakage reduction to specific costs in Table 4 would be artificial and unsuitable for the CMA's purposes.

[49] Leakage Working Paper, paragraph 73.

Table 4: Further breakdown of ALC capex and opex costs (note figures have been rounded – any discrepancies with headline figures are rounding errors)

Description	Category (opex/ capex)	Amount (£m)	AMP7 Leakage reduction (Ml/d)	Average Cost £m per Ml/d
ALC: additional leakage detection	Opex	14.8		
ALC: additional repair of leaking assets *of which approximately:* • *mains* • *communication pipes* • *customer-side (supply pipes and internal)* • *other distribution fittings*	Opex	21.2 *6.4* *7.4* *2.0* *5.3*		
ALC: additional renewal / replacement of leaking assets *of which approximately:* • *mains* • *communication pipes* • *customer-side (stop taps and supply pipes)* • *other distribution fittings*	Capex	45.0 *6.8* *15.1* *13.3* *9.8*	47.0	2.01
New sensors to allow more rapid detection of leaks	Capex	8.8		
Innovative / new techniques	Opex	4.9		
Targeted mains renewals for leakage	Capex	0.0	0.0	
New pressure management	Capex	0.0	0.0	
Optimisation of existing pressure mgt	Capex	0.0	0.0	
Smart meters: customer side leaks	Capex	0.0	0.0	
Others (please specify)	Capex	0.0	0.0	
Total		**94.7**	**47.0**	**2.01**

3.2.6 In short, as is evident from the above, there is no legitimate basis for the criticism which has been levelled at YWS's evidence. This is demonstrated by a comparison with the data provided by Anglian, which the CMA does rely on. Moreover, the Leakage Working Paper provides insufficient detail in relation to the CMA's reservations about YWS's evidence to

allow it a proper opportunity to respond to those criticisms now. This failure to provide sufficient reasons is a material deficiency in this Leakage Working Paper consultation.

4. Brief comments on the leakage ODI

4.1.1 In relation to the leakage ODI, the Leakage Working Paper notes that the CMA is not proposing any revisions to the level of the Performance Commitments and YWS remains of the view that this is appropriate.[50] However, as set out in its response to the PFs,[51] YWS remains of the view that the CMA should remove the "penalty" component of the Tier 1 incentive. Also, to the extent that the CMA's Final Determination allows a lower enhancement allowance than in the PFs, it should also reduce the "clawback" element of the Tier 1 incentive.

[50] Leakage Working Paper, paragraph 9.

[51] YWS, 'Response to the CMA's provisional findings of 29 September 2020', 27 October 2020, paragraph 6.7.9 et seq.

5. Summary responses to the CMA's consultation questions

5.1.1 This section provides summary responses to the CMA's consultation questions and should be read alongside the earlier sections of this response.

5.2 Is the assessment approach used by the CMA, using a tailored mixture of top-down and bottom-up assessments where applicable, a suitable approach?

5.2.1 In principle, YWS agrees that using a mix of approaches is sound and that it may be sensible to tailor its approach if that is supported by a balanced assessment of the available evidence. However, in practice, the CMA's use of the UQ unit cost in its top-down assessment is incorrect (see Section 2 above) and the CMA's decision to attach no weight to YWS's estimate of its unit costs is an erroneous assessment of YWS's evidence (see Section 3 above).

5.3 Are there alternative approaches or amendments to this approach that should be considered?

5.3.1 YWS considers that an alternative approach is to attach little or no weight to the UQ unit cost in its top-down assessment (potentially replacing it with a more appropriate benchmark in view of the quality and comparability of the unit cost data) and to attach weight to YWS's estimate of its unit costs in its assessment (see Section 2.4 above).

5.4 Are there company-specific points that the CMA should consider in coming to a Final Determination?

5.4.1 Please see our answers to questions (1) and (2) above and the supporting analysis in the earlier sections of this response.