YorkshireWater

Post-hearing submission

17 December 2020

Table of Contents

1. Introduction

1.1.1 The Yorkshire Forum for Water Customers has confirmed that the CMA's Provisional Findings (**PFs**) represent a significant improvement on Ofwat's final determination and will be better for resilience, better at securing inter-generational fairness and better for ensuring continued investment – all of which adds up to a better proposition for YWS's customers and wider stakeholders in Yorkshire.[1] That being said, YWS hopes the evidence it has presented shows that the CMA can justifiably take certain further targeted steps to rebalance its risk and reward package in its final determination and mitigate any residual harm to those who depend on YWS.

1.1.2 Throughout the course of these proceedings YWS has consistently provided the CMA with sound evidence for the positions it has advocated, in each case reflecting its skill and experience in running an efficient water company. YWS would urge the CMA to follow the evidence in reaching its conclusions.

1.1.3 Ofwat continues to focus on the notional company and fails to account for the real conditions on the ground that YWS faces in Yorkshire. It is simply not credible to dismiss these as resulting from management under-performance. To the contrary, the specific constraints that YWS faces (for example those imposed by the Environment Agency (**EA**) on the delivery of its WINEP programme, or the number of cellared properties in Yorkshire's housing stock) are very real and must reasonably be taken into account.

1.1.4 YWS is committed to running the company efficiently and has a long-standing track-record of being a cost-efficiency leader according to Ofwat's own assessments. YWS is the leading performer in the sector in certain areas and is continuing to improve in others, as a result of its ongoing investment in service quality. Indeed, there is a telling difference between the picture of YWS's (relatively poor) performance that Ofwat has painted in these proceedings and its assessment of YWS's performance level in Ofwat's 2019/20 Service Delivery Report.[2]

---

[1] See paragraph 1.1.3 of YWS's Reply to Ofwat's Response to the CMA's PFs of 29 September 2020, dated 16 November 2020.

[2] Ofwat records YWS as being an average performer overall and as having improved performance in leakage, pollution incidents and meeting its Performance Commitments more generally.

1.1.5 It must be recognised that YWS has both met the historical performance targets that Ofwat has set and has invested the historical costs allowed in order to do so. In short, there is no room to argue that YWS's position on any one comparative measure is the result of underinvestment, as Ofwat wrongly suggests. This point is fundamental – YWS should not be criticised because the regulatory mix of performance targets and cost efficiency has now materially changed.

1.1.6 This point is of particular importance in the context of the required step change in performance at PR19. The evidence YWS has provided shows that there has been no systemic historical outperformance in the sector, meaning that this step change is purely an Ofwat policy decision. The CMA has accepted the principle that such changes require funding in the context of leakage, and YWS asks that similar logic be applied to internal sewer flooding (**ISF**), where the required increase in performance is similarly stretching, and in fact more severe than that faced by other companies, owing to YWS's regionally-specific factors. Whichever way one slices the data, it remains indisputable that the rate of such incidents in Yorkshire is disproportionately affected by the prevalence of cellared properties.

1.1.7 Turning to the cost of capital, the provisional findings were correct to identify this as the primary driver of financeability. The robust and sustainable approach adopted by the CMA represents a good precedent for the future, as any alternative, short-term method would be looked at by potential investors as a temporary and unsustainable fix to an unbalanced package. The CMA's approach is therefore essential to securing the infrastructure investment and financial resilience necessary to address the long-term challenges faced by the water sector. YWS does not recognise the claim in Ofwat's November hearing (**Ofwat's November Hearing**) that investors are "*queuing up to invest more*" in the sector under Ofwat's final determination[3] and are attracted by a 3% RoRE upside. It has presented its own evidence on these matters during this process.

1.1.8 YWS also does not recognise the assertion that an (allegedly) overgenerous WACC will lead to windfall gains and dividends to investors. As previously stated, this does not accord with YWS's track record in AMP6 and chooses to disregard the YWS Board's approved dividend policy that was shared with Ofwat.

[3] Ofwat November Hearing Transcript, page 50.

1.1.9 The evidence is clear that the CMA's PFs amount to a significantly more balanced package than Ofwat's final determination, but as YWS has explained, it is nevertheless a finely balanced package that presents a significant delivery challenge. YWS cannot stress enough that any material weakening of its allowed revenues (and therefore cash flows and credit metrics) would in all likelihood tip the balance against YWS and render it unfinanceable on a notional basis. YWS would respectfully ask that the CMA keeps this at the forefront of its mind when considering the parameters of its final determination.

1.1.10 With those initial thoughts as context, the remainder of this submission addresses certain targeted topics that arose during YWS's hearing of 1 December 2020 (the **YWS December Hearing**), either to supply the information requested by the CMA or to add further clarificatory remarks. Where necessary, YWS has also addressed some of the remarks made by Ofwat during its own hearings (**Ofwat's November/December Hearings**).

1.1.11 In the interests of brevity YWS has not sought to reiterate its position in full in this document and the CMA is referred to YWS's previous submissions to the extent that a particular topic is not addressed herein. In particular, YWS maintains that the CMA should take all of the steps outlined in YWS's submission of 27 October 2020 in response to the PFs.

2. Financeability and allowed return

2.1 Introduction

2.1.1 In this section, YWS addresses the points raised in the YWS December Hearing regarding financeability and WACC, along with other relevant points noted from various other hearings following the publication of the CMA's PFs.

2.1.2 In particular, YWS has significant concerns about certain comments made by Ofwat in its recent hearing which continue to overlook the importance of the allowed return in the price control and in achieving a financeable package, as YWS has highlighted previously to the CMA. YWS considers the CMA was correct in its PFs in gauging the impact on long-term investor confidence – and it is essential that the CMA maintains the balance between the interests of customers and long-term capital providers that is in its PFs in its Final Determination.

2.1.3 In the interests of being targeted and in responding to the specific points raised by the CMA during the recent hearings, the aspects covered in detail in this section are as follows:

(a) the appropriateness of CAPM in determining the allowed return (section 2.2);

(b) the cost of debt, in particular in carrying out a reasonable cross-check for embedded cost of debt allowance in the CMA's PFs (section 2.3); and

(c) additional points raised at the YWS December Hearing and Ofwat's hearings in relation to GOSM (section 2.4).

2.2 Methodological approach to cost of capital

2.2.1 During the YWS December Hearing, the CMA pursued a line of questioning around the merits of the CAPM model for estimating the cost of equity.[4] It is a generally held view, shared by YWS, that the CAPM model is the gold standard for regulation and for financial practitioners more broadly. Any departure from the CAPM framework would therefore be an unprecedented and worrying step, particularly at this stage of the proceedings. It would undermine investor confidence in the stability of the UK regulatory regime and have detrimental long-term consequences for the cost of finance.

[4] CMA Hearing with YWS, Transcript (1 December 2020) (the **YWS December Hearing Transcript**), page 76.

2.2.2 YWS views the issues raised by the CMA in the hearings as not bearing on the principle of CAPM as such but rather its application. YWS therefore encourages the CMA to continue to present its calculations of the cost of equity within a CAPM framework, and in doing so to explain the judgments that it is required to make about appropriate ranges and point value estimates within ranges, based on the full range of evidence that has been presented to it during the course of this redetermination.

2.2.3 YWS would like to emphasise again that the allowed return is the single most important driver of interest cover metrics and credit ratings. YWS is very clear that none of the alternative approaches that Ofwat has suggested[5] is likely to be any more acceptable to ratings agencies than Ofwat's failed pay-as-you-go adjustments.

2.3 Cost of debt

2.3.1 The CMA PFs set out a clear basis for determining a cost of debt allowance. At the YWS December Hearing, the CMA asked various questions regarding the subsequent debate between Ofwat and the companies as to how to carry out an effective cross-check of its PFs in this regard and as to what constitutes "actual" costs.

2.3.2 YWS supports the CMA's intention to perform further analysis on the embedded cost of debt, particularly to cross-check to actual sector costs on a comparable basis. However, it is imperative that any cross-check should be simply that: a cross-check for a notional approach and not an exercise in "actualisation", in which one makes an excessive number of adjustments to the notional iBoxx index such that what ought to be a notionally efficient allowance turns into a de facto industry-level pass-through.

2.3.3 Any attempt to "actualise" the cost of debt would undermine the notional approach in the CMA PFs. Further, if an "actualised" approach is adopted, YWS submits that its previous request to allow actual costs of debt on a company-specific basis would become appropriate in order to ensure that it is not unduly advantaged or disadvantaged by inevitable differences between its own and its peers' past actions as regards the quantum, timing and tenor of borrowing.[6]

---

[5] Ofwat, PFs Response (Risk and Return), paragraphs 3.15 and 3.73-3.82.

[6] See, for example: YWS, Response to Ofwat's Reply (May 2020), section 7.5; YWS, Response to Ofwat's submissions of 16 June (July 2020), pages 28-29; YWS, PFs Response (October 2020), paragraphs 3.3.9-3.3.12 and Table 1; and YWS, Reply to Ofwat's PFs Response (November 2020), section 2.6.

2.3.4 With these important points of principle in mind, YWS offers further comments below on a number of aspects of the discussion from the YWS December Hearing on cost of debt with the CMA regarding:

(a) **Cross-check:** the measurement of the actual industry cost of embedded debt where YWS's analysis results in a cross-check figure for the sector of c.4.8% which is consistent with the CMA's provisional finding for embedded debt of 4.81%;

(b) **Possible index adjustments**: YWS demonstrates that any potential adjustments to the notional trailing average index would still produce an allowance that is higher than the CMA's proposed 4.81% cost of debt allowance;

(c) **Leverage:** the lack of correlation between leverage and cost of debt; and

(d) **20-year trailing average**: YWS's strong opposition to any move away from a 20-year trailing average index.

a. Cross-check and measurement of the actual industry cost of embedded debt

2.3.5 When conducting a cross-check of actual sector debt, it is critical to ensure that:

(a) the dataset being used is correctly identified and defined – for instance, as YWS has noted previously,[7] Annual Performance Report (**APR**) data should be approached with caution and will require subsequent adjustments (as explained below); and

(b) the full sector is considered – one of Ofwat's proposed cross-checks, which only includes data from five companies, cannot be considered sufficient as it only represents 40% of total sector debt. It is clearly inappropriate for Ofwat to exclude both:

(i) large WoCs, which Ofwat suggests do not have materially different costs from WaSCs, both within its responses and its hearing;[8] and

---

[7] YWS, Reply to Ofwat PFs Response (November 2020), paragraphs 2.6.6-2.6.8.

[8] See, for example, Ofwat, Reference of the PR19 final determinations: Risk and return – response to provisional findings responses' (**Ofwat, Reply to PFs Response (Risk and Return)**), page 25; and CMA Hearing with Ofwat, Transcript 1 (30 November 2020) (the **Ofwat November Hearing Transcript**), page 39: [✂]: "*It is important to bear in mind that*

(ii) companies with gearing above a certain threshold. Gearing is irrelevant to weighted average interest rates, and evidence previously provided by YWS clearly shows variances in rates are due to timing and tenor, not gearing.[9]

2.3.6 In light of the above, YWS submits that the median cost of debt of the WaSCs and large WoCs (which cover 98% of total sector debt) provides the most appropriate reference value for a sector cross-check. In a small sample of 13 companies, the median most clearly shows the costs incurred by a "typical" water company. It is not unduly influenced by significant outliers, such as South West Water,[10] and avoids overweighting the financing choices of the larger companies. The median has also been the measure used by Ofwat throughout the PR19 process.[11]

2.3.7 Based on the data provided by Ofwat, the median of the WaSC and large WoC costs of debt as at 31 March 2020 is 4.41%.[12] YWS considers this to be the appropriate starting point for a sector cross-check.

---

two of the water-only companies, South East Water and Affinity Water, are both quite large, so thinking of them as small companies does not quite fit."

9 Annex 07 (Response), Centrus: 'Yorkshire Water Debt Portfolio Review' (May 2020).

10 South West Water is not an appropriate water sector comparator, as the debt was all raised by its parent company, Pennon plc, who also owned Viridor, a major recycling and waste management company.

11 In December 2017, Ofwat stated that it took as its point estimate the company-level median (see Ofwat, 'Delivering Water 2020: Our methodology for the 2019 price review – Appendix 12: Aligning risk and return' (13 December 2017), page 80, available from: https://www.ofwat.gov.uk/publication/delivering-water-2020-final-methodology-2019-price-review-appendix-12-aligning-risk-return/). Ofwat has since moved towards the WaSC and large WoC median (see, for example, Ofwat, 'PR19 Draft determinations – Cost of capital technical appendix' (July 2019), page 78 (available from: https://www.ofwat.gov.uk/publication/pr19-draft-determinations-cost-of-capital-technical-appendix/)): "*Considering the difference between the benchmark used for our 'early view' assumption - the sector median - and the large company median calculated using our balance sheet approach, we consider that including smaller WoCs in the sample skews the median upwards*", resulting in a chosen index of 4.50% versus the WaSC and large WoC company median of 4.45%.

12 Ofwat, 'Rolling cost of embedded debt analysis' (i.e., the supporting calculations to Ofwat's Reply to PFs Response (Risk and Return) submission) (November 2020). Using the supporting calculations in Ofwat's spreadsheet, 4.41% is the median of the 13 companies excluding Bristol Water, Portsmouth Water, South Staffs Water, and SES Water.

2.3.8 It is then necessary to make adjustments to this figure for (a) inflation; (b) liquidity facilities; and (c) yield versus coupon.

(a) *Inflation*: an adjustment is necessary to reflect two elements that Ofwat has overlooked when adjusting the APR data in order to be consistent with the CMA's long-term inflation assumption.

(i) First, Ofwat has under-estimated the required adjustment in respect of CPI-linked debt. The differential between March 2020 CPI inflation and long-term CPI inflation (0.5%) was higher than the equivalent RPI differential (0.3%),[13] necessitating a higher upward adjustment than Ofwat has recognised to all-in CPI index-linked debt costs.

(ii) Second, higher RPI and CPI inflation has a greater impact on inflation swaps than Ofwat has identified.

Updating YWS's APR data fully for inflation rates of 2.0% (CPI) and 2.9% (RPI) results in an adjusted rate of 4.84%, which is 0.08% higher than Ofwat's estimated 4.76%.

(b) *Liquidity facilities*: as YWS has previously highlighted,[14] the costs associated with companies' RCFs and other liquidity facilities are covered by a separate, stand-alone allowance and therefore need to be removed from the reported APR data. In addition, YWS has noted in its Reply to Ofwat's PFs Response[15] the abnormal use of short-term liquidity facilities in the water sector at March 2020, as evidenced by the level of cash and deposits reported in company balance sheets.[16] YWS has calculated that removing all liquidity and revolving capital facilities from its March 2020 APR data would increase its reported weighted average interest rate by 0.22%.

(c) *Yield versus coupon*: APR data is based on coupon rates; however, the appropriate interest rate for the regulatory cost of debt calculation is yield at issue. A review of YWS's public

[13] CPI differential of 0.5% = CMA long term CPI assumption of 2.0% minus March 2020 actual CPI inflation of 1.5%. APR RPI differential of 0.3% = CMA long term RPI assumption of 2.9% minus March 2020 actual inflation of 2.6%.

[14] YWS, Reply to Ofwat PFs Response (November 2020), paragraph 2.6.5-2.6.8; and YWS December Hearing Transcript, pages 66-68.

[15] YWS, Reply to Ofwat's PFs Response (November 2020), paragraph 2.6.6.

[16] YWS, Reply to Ofwat's PFs Response (November 2020), paragraph 2.6.6.

debt by YWS's debt advisers, Centrus, has shown a further uplift of c.0.01% is required to reflect the equivalent yields at issue.

2.3.9 Reflecting all of the above, the table below shows that an additional 0.31% needs to be added to Ofwat's YWS cost of debt figure to provide an appropriate figure for cross-check purposes:

YWS - APR cross check reconciliation	Int rate (%)
APR - Ofwat inflation adjusted	4.76%
Additional inflation adjustment	0.08%
RCF / liquidity facility adjustment	0.22%
Yield vs coupon adjustment	0.01%
Total variance	0.31%
APR - Cross check adjusted figure	**5.07%**

2.3.10 Calculating a similar reconciliation for the sector would require the detailed APR workings for each company, which are not publicly available; however, YWS believes an appropriate estimate can be made using the publicly available information as follows:

(a) *Liquidity facilities*: YWS notes that the cash balances held at 31 March 2020 (which is publicly available information) represent a reasonable proxy for the scale of industry liquidity/credit facilities, enabling an estimate of the sector-wide impact to be calculated. If the APR cost of debt data is adjusted to be calculated on a net debt basis rather than a gross debt basis, the reported cost of debt would increase by 0.28%[17] as shown by the table below:

	Borrowings	Interest (£m)	Interest (%)
Gross sector debt	59,593	2,453	4.12%
Sector cash	-4,226	-21	0.5%
Net sector debt	55,366	2,432	4.39%
Liquidity variance			**0.28%**

(b) *Inflation and yield vs coupon*: Based on a combined YWS adjustment of 0.09%, YWS sees no reason why an equivalent

[17] As a cross-check of the validity of the assumptions above, the YWS variance within the calculation above is 0.20%, which is lower than the actual calculated figure of 0.22%. Therefore, the assumption above is considered to be reasonably prudent.

adjustment for the sector would not be in a similar 0.05% to 0.10% range.

2.3.11 Reflecting the above, the table below summarises YWS's indicative estimate of the average interest rate of the median company within the sector:

Sector - APR cross check reconciliation	Int rate (%)
APR - Median of WASC's and large WoC's	4.41%
RCF / liquidity facility adjustment	0.28%
Inflation and yield vs coupon adjustment	0.05% to 0.10%
Total variance	0.33% to 0.38%
APR - Cross check adjusted figure	**4.74% to 4.79%**

2.3.12 The above table results in a cross-check appropriate figure for the sector of c.4.8%, which is consistent with the CMA's provisional finding for embedded debt of 4.81%. It is worth noting that the above analysis reflects the total economic cost of all debt, including all floating-rate, index-linked, EIB and short-tenor debt.

2.3.13 As noted above, the purpose of the cross-check is to provide reasonable assurance of the cost of debt figure that emerges for a notional index; it should not be seen as a method to achieve an exact match to actual sector costs. YWS considers the evidence above follows this approach and provides sufficient assurance for the figure selected in the CMA's PFs.

b. Possible index adjustments

2.3.14 During the main party hearings, the CMA made reference at various points to potential arguments for augmenting its chosen notional iBoxx indices with additional data that might more accurately capture the costs of floating-rate debt, index-linked debt and/or EIB debt.[18]

2.3.15 YWS considers that there is no need for potential "actualisation" adjustments to notional index data in relation to floating rate debt, EIB debt, or any other company specific private debt, based on the cross-check evidence presented above in 2.3.11. In addition, adjusting purely

[18] On floating rate debt, see: YWS December Hearing Transcript, pages 68-70; CMA Hearing with Anglian Water (2 December 2020) Transcript (the **Anglian December Hearing Transcript**), pages 76-79; and CMA Hearing with Bristol Water (1 December 2020) Transcript, pages 14-15. On EIB debt and floating rate debt, see: Ofwat November Hearing Transcript, pages 34-35; Anglian December Hearing Transcript, pages 80-82; and CMA Hearing with Northumbrian Water (3 December 2020) Transcript, pages 74-75.

for any differential in the cost of these instruments does not reflect any additional risk borne by the company as a result of these instruments. The allowance for embedded debt is fixed on an ex-ante basis so by design does not reflect risks associated with floating rate debt. If the notional company raised floating rate debt and interest rates rise, there would be exposure to these movements.

2.3.16 However, notwithstanding the above, YWS considers that even if the CMA were to consider these possible index adjustments, then this should not necessitate a change to the CMA's PFs.

2.3.17 In order to illustrate this conclusion to the CMA, YWS has constructed an illustrative adjusted notional allowance that explicitly weights together the cost of fixed-rate debt, floating-rate debt, index-linked debt and EIB debt.

Table 1: YWS illustrative adjusted notional allowance

	Notional index component	Reference value	Weight
A	Fixed-rate debt	5.12% The average yield of the iBoxx £ non-financials 10+ years A and BBB indices over the period April 2000 to March 2020 (i.e. the corrected CMA PFs notional reference index)	60.5% Calculated as 100% minus the weights for non-fixed-rate debt given below
B	Floating-rate debt	2.53% The CMA's spot value of the iBoxx non-financials 10+ years indices as at September 2020 PFs (2.38%) plus a forward-rate adjustment of 15 basis points	6.0% APRs show that floating rate debt represented 13% of total sector debt as at March 2020. However, as noted above, there were significant atypical liquidity facility balances at March 2020, which will primarily be classified as floating-rate debt. An estimate of the value of these liquidity facilities can be obtained by making a similar gross debt to net debt adjustment as detailed in 2.3.10 above. The calculation in Annex 01 – Table 1 indicates that non-liquidity floating-rate debt is 6% of total industry debt. This excludes the full impact of derivatives. Adjusting further to fully reflect YWS's derivatives would reduce the proportion below 4%.
C	Index-linked debt	5.36% YWS's proposed reference value for the cost of index-linked debt uses the iBoxx calculation in row A. For debt issued before 2012, index-linked yields would have been 2.5% below nominal iBoxx values, reflecting then prevailing expectations around future RPI inflation. To calculate the all-in cost of debt for AMP7, it is necessary to add expected RPI inflation of 2.9%, consistent with the CMA's long-term inflation assumption.	29% 33% of the debt in Ofwat's notional PR19 balance sheet is index-linked debt. As per row E, 4% of this debt is EIB debt. The residual amount of non-EIB index-linked debt is therefore 29%.

	Notional index component	Reference value	Weight
		Yields on debt issued after 2012 would have reflected current RPI inflation expectations of 2.9% - i.e. no adjustment to iBoxx values is required. 5.36% = (5.12% + 0.4%) x (12/20) + 5.12% x (8/20) NB: YWS considers that it may also be necessary to add an illiquidity premium due to the lower market appetite / depth for index-linked debt vs nominal debt. If required, YWS will contribute further evidence on this point ahead of the cost of capital round-table.	
D	EIB fixed-rate debt	4.87% YWS does not recognise the claim that EIB debt is 100 basis points cheaper than public debt. YWS has examined its EIB borrowing and identified a discount of 25 basis points relative to iBoxx values on the date of issue. See Annex 01 – Table 3. 4.87% = 5.12% - 0.25%	0.5% YWS does not understand Ofwat's statement that there is £17bn of EIB debt currently outstanding in the water sector.[19] App20 data provided by Ofwat for the sector shows that there was a total of £4.5bn EIB debt at March 2018. As the majority of this debt is amortising, the value would be expected to be lower at March 2020; however, for simplicity, this value has been used. Based on total sector debt of £59.5bn at March 2020, the proportion of EIB debt is 7.5% of which 0.5% is fixed-rate, 3.1% is floating rate and 3.9% is index-linked. See calculation in Annex 01 – Table 2.
E	EIB index-linked debt	5.11% As per row C less the same 25 basis points EIB deduction	3.9% As per the explanation in row D
		Weighted average = **5.03%**	Total = 100%

[19] An examination of EIB's website indicates that this amount is similar to the "signed amount" of EIB debt, totalling €18.7bn. The more relevant figure is the total amount of outstanding EIB debt. In YWS's case, the total signed amount of €1.3bn would not be relevant to consider since the total outstanding amount of EIB debt for YWS at 31 March 2020 was £131m – see Annex 02: EIB loans to UK water companies.

2.3.18 Therefore, while there may be certain limitations within some of the assumptions above, the results show that any potential adjustments that the CMA might consider making to its PFs notional index would still produce an allowance that is higher than the CMA's proposed 4.81% cost of debt allowance.

c. Leverage and cost of debt

2.3.19 The CMA questioned during the YWS December Hearing whether it would be reasonable to expect a notional company to have a slightly lower cost of debt on the grounds that, on average, the industry is slightly more highly leveraged than a notional company.[20] However, YWS considers that the notional company should not have a lower cost of debt solely on the basis that it has lower leverage.

2.3.20 First, the cost of debt is reported on a weighted average basis; therefore, assuming two companies can both raise debt at the notional level, their leverage has no impact on their cost of debt as shown by the simple example below that compares two companies with 60% and 75% gearing:

		Company 1	Company 2
RCV	A	7,000	7,000
Gearing	B	60.0%	75.0%
Interest rate	C	4.8%	4.8%
Debt	D=A*B	4,200	5,250
Interest	E=D*C	202	253
Weighted Avg int rate	**F=E/D**	**4.81%**	**4.81%**

2.3.21 Second, the vast majority of the debt issued by companies over the last 20 years, including by companies with relatively high leverage, has been at credit ratings of at least Baa1/BBB+, consistent with regulatory obligations. As one example, over 90% of YWS's debt issuance has been at a rating of Baa1 or above, which is comparable with the notional company and other lower geared companies. Therefore, YWS sees no reason why the interest rate assumed in line C of the table above should be any different for differently leveraged companies. YWS has also evidenced previously[21] that the variations in cost of debt seen between the different companies is a function of timing and tenor, not leverage as Ofwat seeks to portray.

[20] YWS December Hearing Transcript, page 76.

[21] YWS, Response to Ofwat's Reply (May 2020), section 7.5; YWS, Response to Ofwat's submissions of 16 June (July 2020), pages 29-30; YWS, PFs Response (October 2020), paragraph 3.3.9 and Table 1; and YWS, Reply to Ofwat's PFs Response (November 2020), section 2.6.

2.3.22 On this basis, it is inappropriate for Ofwat to seek to exclude certain companies by reference to their leverage from the sector datasets used to perform cross-checks of the cost of debt.

d. 20-year average

2.3.23 The CMA, on certain occasions during the recent hearings,[22] explored the suggestion of moving away from a 20-year notional trailing average to a shorter trailing average period. The reason that the CMA offered such a change is that other regulators (e.g. Ofgem and certain overseas regulators) have used trailing averages of less than 20 years. However, YWS does not consider this to be a relevant consideration for this redetermination, for the following reasons:

(a) The circumstances in different industries are inevitably different, particularly as regards the vintage and tenor of debt that companies are currently servicing.

(b) In the specific case of the England and Wales water sector – as the CMA has seen in this redetermination – water companies are currently servicing around £10 billion of pre-2005 debt,[23] indicating that a 20-year trailing average provides a natural fit to industry costs, which is supported by the cross-check analysis above.

2.3.24 YWS submits that it does not follow that the water sector should have a short trailing average simply because other regulators who happen to be regulating in a sector where debt has been issued comparatively recently and/or with comparatively short tenors have judged 10- to 15-year trailing averages to be a suitable fit for their sectors. Such a decision would effectively strand a significant portion of the industry's financing, which would be incompatible with Ofwat's (and the CMA's) financing duty.

2.3.25 YWS would therefore be very strongly opposed to any move away from a 20-year trailing average index.

---

[22] See, for example: YWS December Hearing Transcript, pages 73 and 74; and Ofwat November Hearing Transcript, page 32.

[23] YWS, PFs Response (October 2020), paragraph 3.3.12 and Figure 3, where YWS identified £9.8 billion of water company bonds that were originally issued by companies prior to 31 December 2004 which were still outstanding as at 31 March 2020. Of the £9.8 billion, YWS estimates that £7.1 billion relates to bond issuance between 2000-2005.

2.4 Gearing outperformance sharing mechanism

2.4.1 YWS continues to support the omission of the GOSM by the CMA in its PFs. YWS has previously submitted extensive evidence that it has been a flawed initiative from the outset in seeking to address "benefit" sharing that did not exist. Below, YWS highlights three themes which arose from the recent hearings with the CMA where YWS considers it would be useful to restate its position that:

(a) there are existing regulatory protections in place to support financial resilience and it is not incumbent on the CMA to extend the scope of its work beyond the omitted GOSM as part of this redetermination;

(b) Ofwat has made unsupported assertions about YWS's gearing decisions; and

(c) there are arbitrary thresholds selected for the GOSM.

a. There are existing regulatory protections in place to support financial resilience

2.4.2 Ofwat's latest justification for the GOSM, given at its recent hearing, is that the GOSM would serve as an "*incentive mechanism*"[24] for higher leveraged companies to reduce gearing. However, Ofwat failed to provide any convincing evidence as to why this was required, or to reconcile this new line of argument with its original insistence that the GOSM was meant to be an "outperformance" sharing mechanism. Ofwat has also offered no semblance of a defence for the formula's faulty characterisation of the relationship between gearing and the cost of equity.[25]

2.4.3 Following a decision not to include a GOSM, YWS maintains that any changes to the overall regulatory framework, outside of the setting of allowed revenues, should be considered by Ofwat and not the CMA in the limited time remaining as part of the price control redetermination process. This would allow a measured assessment of existing financial

[24] Ofwat November Hearing Transcript, page 16 ([✂]: "*That is why we have shifted the incentives towards performance ODIs and now away from gearing, the GOSM*"); pages 93-95 (e.g., [✂]: "*That is the really difficult challenge I would face as a regulator is explaining to customers why did we allow our companies to gear up from 0 per cent to 85 per cent. […] That does lead us back to the question about what our role as a regulator is and why we think an incentive mechanism is appropriate at PR19*" (emphasis added)); and page 99.

[25] Ofwat, PFs Response (Risk and Return), paragraph 1.28.

resilience protections, as was recognised by Ofwat during its recent hearing,[26] including the recent change to company licences to strengthen regulatory ring-fencing protections with the obligation that an appointee *"must ensure"* that it maintains an investment-grade credit rating.[27]

2.4.4 These examples demonstrate that Ofwat already has existing tools to address genuine financial resilience concerns through the mechanism of licence changes. This is the more appropriate approach to address any gap in the regulatory framework and to ensure any proposed change is subject to proper consultation and scrutiny.

b. Ofwat's assertions about YWS's gearing decisions

2.4.5 In relation to the role of the GOSM, YWS was concerned by Ofwat's comment that YWS is "*all mouth and no money*"[28] without a financial incentive to reduce gearing. YWS believes this is a poorly judged statement, which highlights a very narrow view of resilience and an undue fixation on gearing.

2.4.6 YWS was clear in its responses to Ofwat's DD and FD that the ability to reduce gearing has been at best constrained, or more likely made wholly unfeasible, by Ofwat's unduly punitive price control determination. Looking forward, even with the CMA PFs, any decision to deploy capital to improve resilience would need careful consideration of de-gearing against alternatives.

2.4.7 The trade-offs that exist were demonstrated when YWS took decisions in AMP6 to improve operational and financial resilience, costing approximately £500m, which represented c.7% of RCV at 31 March 2020. YWS could have targeted gearing reduction but the decisions taken were viewed as the best for customers and long-term resilience. Ofwat was well aware of these decisions and the subsequent introduction of GOSM,

---

[26] Ofwat November Hearing Transcript, page 92.

[27] Ofwat, Modifications of the Conditions of Appointment of Yorkshire Water Services, July 2020, p.26 (available at: https://www.ofwat.gov.uk/wp-content/uploads/2020/05/Yorkshire-s13-modification-RF1_Redacted.pdf): the licence previously required that YWS used reasonable endeavours to maintain investment grade credit rating. See also earlier consultation on the ring-fencing changes from May 2020 (available at: https://www.ofwat.gov.uk/consultation/consultation-under-section-13-of-the-water-industry-act-1991-on-proposed-modification-to-the-largest-undertakers-licences-for-ring-fencing/#Consultation).

[28] Ofwat November Hearing Transcript, page 100, line 16.

with its narrow focus on gearing, underscores a fundamental flaw of this mechanism in addressing resilience.

c. Ofwat's gearing thresholds were arbitrarily selected

2.4.8 Ofwat's flawed approach is illustrated further by the choice of arbitrary gearing levels (initially set at 65% in April 2018[29] and then at 70% in July 2018[30]) without any convincing justification for the selected levels as trigger points. As highlighted during the YWS December Hearing, YWS considers that focusing on gearing as a risk indicator places excessive emphasis on one element of capital structure to the exclusion of others. Also, it completely disregards the relative risks of different financing arrangements in the sector and the ability to withstand a shock event.

2.4.9 Ofwat stated at its hearing that "*Ofwat for 15, 20 years took the view that it was indifferent to capital structures*"[31]. However, it is not correct to say that Ofwat was indifferent to capital structures – as YWS has highlighted in its previous submissions, Ofwat actively promoted the benefits of higher gearing and securitised structures.[32]

2.4.10 Furthermore, Ofwat has recently stated in its 2020 Monitoring Financial Resilience report, *"[t]he existence of the common terms and security package means that a company with a securitised structure may support a higher level of gearing with limited impact on interest costs than a non-securitised company while maintaining a similar investment grade credit rating*".[33] Contrary to Ofwat's suggestion that this leads to companies

[29] In April 2018, Ofwat proposed a deadband of 5% above the notional gearing level of 60% (i.e., outperformance sharing would apply to companies with actual gearing levels above 65%). See Ofwat, Putting the sector back in balance: Consultation on proposals for PR19 business plans (April 2018), page 17 (available from: https://www.ofwat.gov.uk/wp-content/uploads/2018/04/Putting-the-sector-back-in-balance-consultation-on-proposals-for-PR19-business-plans.pdf).

[30] In July 2018, Ofwat proposed to amend the mechanism "*to incorporate a 10% deadband (and so a gearing trigger for benefit sharing at 70%)*". See Ofwat, Putting the sector in balance: position statement on PR19 business plans (July 2018), page 50 (available from: https://www.ofwat.gov.uk/wp-content/uploads/2018/04/Putting-the-sector-in-balance-position-statement-on-PR19-business-plans-FINAL2.pdf).

[31] Ofwat November Hearing Transcript, page 89.

[32] Exhibit 011 (Response), Ofwat, Water 2020: consultation on the approach to the cost of debt for PR19, September 2016, page 19; see also Exhibit 063 (Response), Ofwat, Monitoring financial resilience, November 2016, page 28.

[33] Ofwat, Monitoring Financial Resilience Report (December 2020), slide 36 (available from: https://www.ofwat.gov.uk/wp-content/uploads/2020/12/Monitoring-financial-resilience-report-2019-20.pdf).

being "*constantly worried about a breach of its investment rating*",[34] a securitised structure in fact strengthens and provides numerous protections for YWS's financing.[35]

2.4.11 It is therefore all the more inappropriate for Ofwat, as it did in its hearing, to raise examples such as Carillion[36] and suggest these are relevant to the water sector, particularly given the existing protections in place both in the financing structures and the licence protections.[37] YWS has already provided substantial and compelling evidence specifically rebutting any such comparisons and explaining why any such risk is negligible, with which Ofwat has failed to engage.[38]

2.4.12 Therefore, any direct intervention by Ofwat in capital structures must be substantiated by credible evidence, including a thorough cost benefit analysis, to support such unprecedented action. Nothing close to this standard has been presented to justify the GOSM. Instead, there have been a number of unsubstantiated and changing assertions that indicate a lack of proper consideration of the different financing arrangements in place across the sector.

---

[34] Ofwat November Hearing Transcript, page 90.

[35] See, for example, YWS, PFs Response (October 2020), paragraph 4.4.4. Moreover, as noted by YWS in paragraph 4.4.4 of its PFs Response, Ofwat has itself previously cited evidence that securitised structures are "*viable and sustainable over the longer term and did not necessarily present a higher risk for customers*".

[36] Ofwat November Hearing Transcript, page 89.

[37] See YWS, Response to Ofwat's Reply, Annex 2, EI report "An evidence based approach to Ofwat's GOSM", May 2020, which refers to evidence from the water sector which identifies no examples of the types of concerns articulated by Ofwat. Even where there was a firm failure, such as in relation to Azurix (owned by Enron, which collapsed in the early 2000s) which owned Wessex Water, a report by the NAO confirms that Wessex Water customers were protected from Enron's failure (specifically licence conditions prevented Enron extracting excessive dividends; the sale did not disrupt service; and there was no cost of capital impact).

[38] Annex 02 (Response), Economic Insight, 'An evidence-based approach to Ofwat's Gearing Outperformance Sharing Mechanism' (27 May 2020).

3. Costs

3.1 Growth

3.1.1 During the December Hearing [✂] queried YWS's position that Ofwat's asymmetrical unit rate adjustment should be reinstated because of the potential for double counting.[39]

3.1.2 The reason for this position is that:

(a) some forward-looking population growth is included in the base model variables (for example load at sewage treatments works and number of connections in water), meaning that YWS's relatively lower growth[40] causes its predicted costs to be lower in the base cost modelling; and

(b) the unit rate adjustment also adjusts YWS's costs downwards to account for its relatively lower growth.

3.1.3 Accordingly, if a symmetrical unit rate adjustment is applied, then YWS's costs are wrongly reduced twice for the forward-looking population growth reflected in the base cost modelling (and correctly reduced only once for such growth that is not captured in such modelling). On the other hand, an asymmetrical unit rate adjustment increases the likelihood that the unit rate adjustment captures only the forward-looking population growth not reflected in the base cost modelling. In other words, it reduces the probability of a double count.

3.1.4 YWS therefore respectfully requests that the CMA reverts to the asymmetrical unit rate adjustment to avoid this issue arising.

3.1.5 The DSRA would not protect YWS against this issue because this is applied from the unit rate corrected position, so if the unit rate is applied symmetrically, and a degree of double counting occurs, then the DSRA will correct from that artificially low starting point.

3.1.6 [✂] also asked for YWS's view on Ofwat's alternative adjustment mechanism for growth costs that it has proposed for Anglian Water (as set out in A2.45 of Ofwat's response to the CMA's PFs).[41]

---

[39] The YWS December Hearing Transcript, page 20.

[40] Note that YWS's own forecasts of properties growth over AMP7 predict that growth will increase. Therefore, YWS would dispute the statement that YWS is a "low growth" company. For example, see YWS's Statement of Case (2 April 2020) (**YWS's SoC**), paragraph 198.

[41] The YWS December Hearing Transcript, pages 18-19.

3.1.7 YWS's view is that it was only the reasonably predictable growth investment that should have been bundled into the base cost modelling, whereas the other lumpy investment (such as Wastewater Treatment Works (**WWTW**) growth) should have been assessed through shallow/deep dive enhancement as has occurred in previous periods.

3.1.8 However, given that this bundling has occurred, it is appropriate to include all growth costs in the DSRA mechanism, as the CMA has in its PFs. Subject to the concerns outlined above, this will, on average, protect the company in the event that growth is higher than the ONS figure and protect YWS's customers if it is lower.

(a) YWS sees no reason to exclude other growth costs (growth in hydraulic flooding) from any mechanism as this is a cost impacted by population growth among other factors.

(b) YWS would expect the Population Equivalent (**PE**) increase in load due to growth to be approximately proportional to the growth in population so would make little difference in an adjustment mechanism but could be used as an alternative.

(c) Using the expected PE Treatment Capacity growth is an unnecessary complication, and inappropriate as an adjustment mechanism for the following reasons:

(i) The costs for growth have been set using the Botex plus models which do not use PE Treatment Capacity as a driver. Given this driver is not linked to the cost allowance neither should it drive any adjustment mechanism. (PE Treatment Capacity follows the lumpy investment profile of YWS's growth programme which is not linear to actual population growth. As YWS's cost allowance does not reflect this, neither should the mechanism.)

(ii) PE Treatment Capacity is a factor within company control, whereas the DSRA mechanism should aim to protect customers and companies against variables outside of management control e.g. population growth, load increases.

3.1.9 It should be noted that YWS's submitted data tables (WWn4 L25 – quoted by Ofwat in response to RFI026 Q5) include increased capacity from quality schemes delivering to future growth horizons.

3.1.10 Moreover, no additional cost was requested for the growth associated with the quality programme in any area of YWS's Business Plan. However,

it is best practice and efficient to build in capacity headroom when installing new processes so that WWTWs do not require expansion every AMP as incremental growth occurs.

3.1.11 If the CMA does decide to create a mechanism using PE Treatment Capacity it is vital that the baseline be restated to reflect the specific activity that YWS's WWTW growth costs cover (disaggregating the WINEP growth) – and to update it to reflect the WWTW growth activity set out in YWS's response to Ofwat's Draft Determination.

3.2 WINEP

3.2.1 During the December Hearing [✂] asked why YWS is arguing for P-removal costs to be modelled using a variable measuring the extent to which sites are subject to the Urban Wastewater Treatment Directive (**UWWTD**), when many of YWS's site are also subject to tighter consents under the Water Framework Directive (**WFD**).[42]

3.2.2 In summary:

(a) While the CMA is right that the WFD consents are more stringent, it is important to factor into the cost assessment both: (i) how much pre-existing P-removal infrastructure companies have in place, which affects their forward-looking costs; and (ii) what restrictions are in place on the means by which they can meet their obligations.

(b) If a company already has P-removal infrastructure in place to achieve UWWTD consents, then only an incremental investment is required to achieve the more stringent WFD consents. Moreover, on WFD-only sites, companies may have the opportunity to use cheaper, catchment-based solutions to meet these requirements, instead of the more expensive end-of-pipe solutions required by the UWWTD.

(c) The proportion of first time P-removal consents for YWS in AMP7 is high (c. 99% of load) i.e. sites where there were no pre-existing UWWTD or WFD consents. This distinguishes YWS from other companies that are now subject to WFD consents but already have P-removal infrastructure in place to deal with pre-existing UWWTD consents, because YWS is required to comply with both the UWWTD and more stringent WFD standards in one step. Of the 81 sites where P-removal is required, only four have historic

[42] YWS December Hearing Transcript, pages 24-25.

P-removal consents. This is equivalent to 1% of YWS's impacted PE, compared to an industry average of 52%.

(d) Where a site has dual drivers, the EA's approach to cost benefit analysis under the WFD is based on only the incremental cost between achieving the UWWTD limits and the WFD limits, rather than the full cost of achieving compliance with both drivers; whereas the whole benefit is assumed. The result is that the YWS's WFD programme is larger as a result of UWWTD and WFD consents being applied at the same time (dual drivers). 97.4% of YWS's load subject to P-removal is impacted by UWWTD compared to the industry average of c. 25%.

(e) Moreover, YWS has proportionally fewer WFD-only sites. Less than 3% of PE subject to P-removal has a WFD only driver due to the high number of sites with dual drivers, meaning that YWS has less opportunity to use cheaper, catchment-based solutions.

(f) YWS's particular circumstances are only partially captured by the CMA's approach to P-removal modelling, which means that YWS's costs may erroneously appear inefficient:

(i) The CMA has triangulated models including first time P-removal consents with those that do not, and has averaged: (i) results from models including six United Utilities sites that use catchment solutions/onsite solutions but have undemanding requirements; with (ii) results from models that exclude these sites. This dilutes the estimated impact of first time P-removal consents and lack of access to catchment solutions on YWS's efficient costs.

(ii) By failing to adjust the WINEP-in-the-round benchmark, which is based on Ofwat's FD models, the CMA continues to benchmark YWS against companies, particularly United Utilities, which enjoy significant cost savings from deploying catchment solutions. Ofwat's FD models are biased downward for YWS, and by design, upwards for some other companies.

The impact of first time P-removal and dual drivers on installation

3.2.3 The physical differentiating factors in complying with each standard are demonstrated in the following figures that explain the incremental nature of investment possible if the two drivers are applied over different time periods.

3.2.4 Figure 1 below shows the basic process diagram for a typical sewage treatment works, prior to the installation of any plant and machinery to enable P-removal. This is the case for the majority of sites in the YWS programme.

Figure 1: Basic Installation. The orange highlighting represents preliminary processes, the green secondary treatment, and the blue tertiary treatment. "PST" stands for "Primary Settlement Tanks" and "SAF" stands for "Submerged Aerated Filter".

3.2.5 Figure 2 below shows the additional process units and equipment that are typically installed to comply with UWWTD (gold areas) i.e. treating raw sewage influent to a standard of between 1-2mg/l.

Figure 2: UWWTD Installation. The gold highlighting represents additional process units and equipment typically installed to comply with the UWWTD. "TSR" stands for "Tertiary Solids Removal".

3.2.6 To achieve compliance with the WFD P-removal standard of between 0.5 - 0.2mg/l, additional process units and equipment may be required. This is shown in Figure 3 and highlighted in purple. Thus, companies that have historically received funding to comply with UWWTD standards, and are now required to comply with the WFD standard in AMP7, may not need to expend on additional equipment or may be required only to supplement existing equipment.

Figure 3: WFD Installation. The purple highlighting represents additional units that are typically installed to achieve the more stringent WFD consents.

3.2.7 On the other hand:

(a) YWS is required to install all the process units and equipment coloured gold in Figure 2 to meet its UWWTD obligations; and

(b) where the site in question has dual drivers, it typically requires the installation of the process units and equipment shown purple in Figure 3 to meet the WFD obligations.

3.2.8 The necessity of installing the units and equipment coloured gold in Figure 2 is the factor that differentiates YWS's efficient cost requirements from that of other companies with historical UWWTD designations, resulting in a comparatively high cost for YWS to meet the P-removal obligations. This is the result of YWS having a high number of first time P-removal consents (see paragraph 3.2.2(c) above).

3.2.9 In summary, YWS's position is not that UWWTD consents are more stringent and binding relative to WFD, but that YWS has significantly more first time UWWTD consents and more sites with dual obligations than other water companies. Since the statutory obligations placed on YWS require the two consents to be met in this AMP, YWS has to put more infrastructure in place than other companies to meet its P-removal obligations, leading to additional costs.

Availability of catchment solutions

3.2.10 Owing to the fact that catchment solutions are only applicable to WFD drivers, this limits YWS's ability to deliver catchment solutions for the vast majority of its load (97.4% of load subject to UWWTD compared to the industry average of c. 25%). The statutory requirement to use of end-of pipe solutions was tested with and specifically confirmed by the EA and DEFRA.[43] This means that even if YWS has some scope to deploy catchment solutions, they are available only on very small sites: WFD-only sites account for c. 3% of YWS's total PE at enhanced P-removal sites.

3.2.11 By contrast, the six United Utilities sites identified by the CMA, which form the WINEP-in-the-round benchmark, accounts for 48% of United Utilities' total PE.

3.2.12 Even if the three sites, which Ofwat asserts are costed on the basis of on-site treatment, were reinstated, the remaining sites still account for 35% of United Utilities' PE. YWS's previous submission explained that this adjustment does not have any impact on YWS's efficient allowance.[44]

3.2.13 Ofwat asserts that the largest of the three remaining sites, Davyhulme STW, was costed on the basis of an undemanding on-site requirement, and accepts there is a case for Davyhulme to be excluded from the dataset.[45]

3.2.14 While the CMA has accounted for these facts by removing the six United Utilities sites (to the extent that there are no other material catchment solutions in the industry), the CMA has diluted the impact of this correction via triangulation and continuing to use Ofwat's FD models to determine the WINEP-in-the-round benchmark.

---

[43] For example, see paragraph 15.3 and 20.2 of YWS's response to RFI006.

[44] YWS Reply to Ofwat's response on the PFs, paragraph 4.3.2.

[45] Ofwat, 'Reference of the PR19 final determinations: Costs and outcomes – response to provisional findings responses', November 2020, page 22.

EA approach to cost benefit assessment

3.2.15 The WFD requires a cost benefit assessment to be carried out before any consents are imposed thereunder. As indicated in paragraph 3.2.2(d), the EA's approach to this is based on only the incremental cost between achieving the UWWTD limits and the WFD limits, rather than the full cost of achieving compliance with both drivers. On the other hand, the EA's analysis takes into account the whole benefit of achieving the more stringent WFD consent. The result is that the EA's approach considers WFD schemes to be more favourable from a cost benefit perspective if there is also a UWWTD driver at the site. This means that YWS's WFD programme is large as a result of UWWTD and WFD being applied at the same time in many of its sites.

3.2.16 There are 32 WFD only sites in Yorkshire, which are assessed on the basis of the full costs and full benefits. There are 39 sites (88% of the PE subject to P-removal) where the incremental cost between the UWWTD and the WFD and the full benefit (of both the UWWTD and the WFD) is considered.

Proposed remedies

3.2.17 YWS has requested that the legislative driver (UWWTD/WFD) be incorporated effectively into cost models for the reasons outlined above. Whilst the CMA has not done this directly, it has found a solution that incorporates first time consents and the ability to deliver catchment solutions:

(a) Model 5 includes a variable for the number of sites experiencing first time consents, which captures the impact of the UWWTD being applied to YWS for the first time (though it should be noted that a PE cost driver would likely be more reflective of activity than one based on the number of treatment sites, as used by the CMA).

(b) The parallel set of models that exclude six United Utilities catchment schemes[46] partially recognise that under UWWTD (to the extent that these are the only material set of catchment sites in the industry), YWS cannot deploy catchment schemes, even if a WFD driver is also present.

3.2.18 However, by triangulating the models and then averaging the set of models that exclude the catchment approaches, the CMA only partially captures YWS's unique circumstances. This triangulation step is not

[46] Parallel model set excludes the largest outlier, United Utilities (Davyhulme) which due to a catchment option results in P-removal for a large PE at a low cost.

appropriate. On a modelling basis, it is clear that triangulation dilutes the impact of catchment solutions and first-time consents, understating YWS's efficient costs. The results without triangulation are robust as they are aligned with results had the (UWWTD/WFD) drivers had been built into the modelling. Oxera has also noted that given the small data sample, economies of scale and consent level are captured through general correlation in the data in Model 5 once the UWWTD/WFD drivers are directly built in.[47]

3.2.19 The CMA should also adjust its WINEP-in-the-round benchmark to be based on its updated models (without triangulation) rather than Ofwat's models at the FD. On a principled basis, this is to avoid benchmarking YWS to companies that have relatively advantageous cost drivers, particularly United Utilities as it has significant access to catchment solutions and forms the WINEP benchmark (and others that define the benchmark but do not have the same complexity of YWS's P-removal program). On a mathematical basis, since the CMA and Ofwat collectively accept that the P-removal FD models are biased against YWS, thereby overstating its inefficiency, the nature of the estimation approach (OLS) means it will mathematically be the case that Ofwat's FD models understate the inefficiency of some of the other companies. Hence, Ofwat's FD models are not an appropriate basis to determine the WINEP benchmark.

3.2.20 Figure 4, which was previously submitted in YWS's response to RFI006, has been annotated to highlight why triangulation of costs between models is inappropriate.

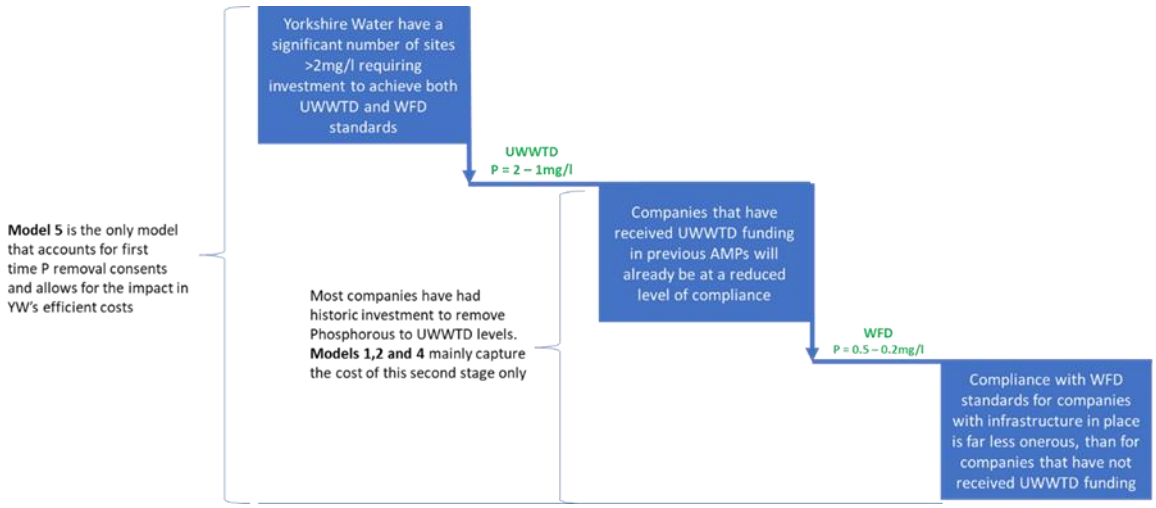

Figure 4: Cost model application

[47] See Annex 02 (YWS PFs Response), Oxera, 'Responding to the CMA's provisional findings', 26 October 2020.

3.3 Living With Water (LWW)

3.3.1 During the December Hearing [✂] asked whether there should be any time limit on the delivery of sufficient LWW schemes to deliver the full targeted risk reduction under the associated ODI.[48]

3.3.2 Stepping back, the primary intention of the ODI was to protect customers should the LWW enhancement expenditure not be spent as intended. Moreover, it is important that the way in which YWS can use the costs in question remains flexible – setting the targets as expenditure rather than a particular number or type of scheme allows principles of multi-stakeholder partnerships to be upheld, and the best cost-beneficial and practical schemes to be implemented.

3.3.3 The performance gateway for flood risk reduction is proposed to be set as a reputational gateway. If this were set as a financial gateway, YWS would be penalised if specific service improvements were not met. Introducing a financial penalty for the full performance level would expose YWS to significant risk outside of its control, as delivery of the full benefit is a shared responsibility with (and to some extent dependent on) the LWW partners.

3.3.4 If the expenditure allowance is fully spent but the flood reduction gateway is not delivered, then it would be incumbent on YWS to undertake any further work needed to reach the flood risk reduction, either through the normal regulatory allowance (subject to totex sharing rates), or by encouraging further partnership funding. Working in partnership by its very nature can increase the risk of not delivering an outcome as YWS has less control over the timescales associated with delivery. This needs to be taken into account when setting a time limit to redress any shortfall in flood risk reduction.

3.3.5 In this regard, a period of five years (to 2030) to complete any additional schemes is considered to be appropriate. Owing to the often-mismatched timing of available funding in partner organisations, a shorter timeframe may not allow appropriate matched funding to be secured from the LWW partners for the additional work. Moreover, such a time period would allow a reasonable window to meet the significant design, consultation and planning requirements when solutions involve changes to the urban fabric.

3.3.6 In summary, YWS and CMA appear to agree that partnerships should be supported and that normal regulatory processes are difficult to use in

[48] YWS December Hearing Transcript page 31.

this area, particularly an ODI based on outcome. YWS accordingly proposes that the best interests of customers and the LWW partners' success at delivering the risk reduction should be assessed as part of PR24, with a view to encouraging similar partnerships, as reflected in its approach to this ODI.

3.4 IED

3.4.1 It is necessary briefly to address Ofwat's statement during its December Hearing that, in relation to YWS's IED costs, "*it is possible to say that there is an expectation of an upper exposure for customers*".[49]

3.4.2 YWS's position is one of scope uncertainty causing cost uncertainty and the establishment of scope is not directly under YWS's control. The EA has not yet agreed the scope required for each site and as the CMA itself notes "*the range in costs could potentially be quite large*".[50] The scope of required works will be identified by the EA and is therefore beyond management control. Indeed, Ofwat itself accepts this position.[51]

3.4.3 On this basis YWS does not understand how a cap of the amount that would fall under the 25/75 sharing rate could be reasonably established. This would make any such cap arbitrary in nature. Moreover, the price control objective is to allow funding to meet the efficient costs of regulatory obligations, so any attempt to limit such costs below the efficient level would result in a failure to meet that objective and contribute to a downside skew in the price control.

Cost Sharing Rates

3.4.4 In relation to the discussion of cost sharing rates during Ofwat's December Hearing,[52] YWS would ask the CMA to bear in mind that Ofwat's approach meant that half of the cost sharing rate was established before material items, such as the inclusion of 2018/19 actual costs and the confirmation of the scope and time criticality of YWS's largest ever WINEP programme, had been taken into account. Taking such an early view of half of the sharing rate means that costs at that stage that are classed as inefficient penalise the sharing rate even if they are later found to be efficient as further information is revealed.

---

[49] Ofwat December Hearing Transcript, page 54.

[50] Ofwat December Hearing Transcript, page 53.

[51] Ofwat December Hearing Transcript, page 53.

[52] Ofwat December Hearing Transcript, page 54.

3.4.5 It is also noteworthy that Ofwat's position that the cost sharing mechanism is beneficial in revealing additional information about companies' true costs (presumably to be taken into account)[53] is wholly inconsistent with its view that the 2019/20 outturn data should not be included in the CMA's cost modelling.

[53] Ofwat December Hearing Transcript, page 55.

4. Costs and Outcomes

4.1 Leakage

The necessity of an enhancement allowance for leakage

4.1.1 Ofwat's continued position is that the 15% improvement in leakage over AMP7 can be funded through base funding and that no enhancement funding should be given.[54]

4.1.2 In its December Hearing Ofwat gave several reasons why it considers this to be the case, none of which are convincing. To address some of those points:

(a) Ofwat points to the industry's 7% leakage reduction in 2019/20 as an indication that the 15% reduction is possible over AMP7.[55] YWS agrees that a 15% reduction, while being a challenging target, is achievable. Ofwat actually points to the reason for the 7% improvement: this was achieved by companies "*pre-investing*",[56] i.e. the industry, including YWS, used money beyond its base costs to pay for this improvement (in addition to 2019/20 being a benign year in terms of weather, as mentioned by the CMA).

(b) Ofwat stated on several occasions that YWS's position in its original Business Plan supports the argument that a 15% reduction in leakage could be delivered from base funding.[57] As Ofwat is well aware, the contemporaneous evidence does not support Ofwat's assertion and YWS is surprised that these unfounded submissions were made at its recent hearing. Throughout the PR19 process, from its Business Plan through to its DD representations, YWS has maintained the consistent position that a 15% reduction in leakage cannot be delivered through base funding alone.[58] As maintained in its PR19 representations and in this redetermination, the 15% leakage reduction in Ofwat's FD required additional cost (£94.7m). YWS

[54] Ofwat December Hearing Transcript, page 10.

[55] Ofwat December Hearing Transcript, page 16.

[56] Ofwat December Hearing Transcript, page 17.

[57] Ofwat December Hearing Transcript, page 10; page 14; and page 23-24.

[58] See, for example, YWS's Business Plan, page 235; YWS's IAP Response, page 11; and YWS, DD Representation – 'Delivering outcomes for customers', pages 34-35.

would have been forced to divert funding from other areas under Ofwat's FD.

(c) Ofwat also asserted that the PR14 Performance Commitment levels (**PCLs**) for leakage were based on asking companies "*whether they could actually go beyond*" the sustainable economic level of leakage (**SELL**).[59] This does not accord with YWS's experience of PR14 or with Ofwat's documents published at PR14. In fact, Ofwat discouraged companies from deviating from setting PCLs at anything other than the SELL, either above or below. As YWS highlighted in its SoC, companies had to demonstrate strong customer support to move away from the SELL.[60] See Annex 03, below, which details Ofwat's approach to leakage Performance Commitment rates at PR14.

(d) In addition, Ofwat has continued incorrectly to paint YWS as a "*relatively poor performer*" on leakage.[61] As can be seen from Ofwat's latest service delivery report, YWS is in fact in the middle 50% for its comparative performance and has significantly outperformed its AMP6 leakage target.[62]

4.1.3 Indeed, several of the points that Ofwat made at its hearing actively support the conclusion that enhancement funding is necessary to reach the 15% improvement over AMP7.

4.1.4 YWS agrees with Ofwat's assertion that "*in areas which are more stressed or greater need for new water resources, they will be the areas that companies have been usually funded and focused on to reduce leakage, because clearly before you bring in new sources of supply, there is a question about how far you can drive down leakage*" (emphasis added).[63] Yorkshire is not such an area that has been "*usually funded*" and YWS welcomes Ofwat's agreement that Yorkshire is one such area that has had "*less pressure and less drive on them to reduce leakage over time*".[64]

---

[59] Ofwat December Hearing Transcript, page 12-13.

[60] YWS's SoC, paragraph 32.

[61] Ofwat December Hearing Transcript, page 15.

[62] Ofwat, Service delivery report 2019/20, 3 December 2020, available at https://www.ofwat.gov.uk/publication/service-and-delivery-report-2019-20-data/, page 14.

[63] Ofwat December Hearing Transcript, page 11.

[64] Ofwat December Hearing Transcript, page 11.

This contradicts Ofwat's conclusion that YWS should not be allowed enhancement funding.

4.1.5 YWS supports Ofwat's position that it is "*not saying there are zero costs from reducing leakage*"[65] and believes that Ofwat has not brought forward any convincing arguments that enhancement funding should be disallowed.

The appropriate size of an enhancement allowance for leakage

4.1.6 Similarly, Ofwat made a series of unconvincing arguments concerning the size of a potential enhancement allowance for leakage.

4.1.7 **Base/enhancement**: Ofwat continues to confuse the issue of when base costs will suffice for a particular measure and when enhancement costs are necessary. Ofwat has sought to categorise all costs relating to repair and replacement of assets as base costs.[66] Simply speaking, base costs are designed to maintain leakage levels and enhancement costs are designed to reduce leakage levels. There is no risk of "*double-counting*"[67] the activity because the enhancement activity is undertaken as an addition to base maintenance. The necessary enhancement costs in the CMA's PFs are designed to help YWS reach the shift in performance necessary to achieve its 15% leakage reduction target. It is not delineated along the lines of types of activity. Of the options open to YWS to reduce leakage from its base level, all of the options ultimately require a pipe to be fixed or replaced.[68] Without fixing or replacing the pipe, the leak would self-evidently continue. Other costs included in the leakage enhancement plan help YWS more efficiently carry out quick identification of leaks – but the fixing and/or replacement of assets remains a crucial element in the process.

4.1.8 **Assurance:** Ofwat stated at its December Hearing that it would like to see more information on the levels of assurance that YWS has undertaken to understand the level of active leakage control (**ALC**)

---

65 Ofwat December Party Hearing Transcript, page 30.

66 Ofwat December Hearing Transcript, page 20.

67 Ofwat December Hearing Transcript, page 20.

68 This does not necessarily apply to pressure management, which, as explained in YWS's responses to RFI018A and RFI020, consists part of YWS's base maintenance plan, but is not part of its enhancement plan because it has already been largely optimised to the efficient level over AMP6 and would therefore be prohibitively expensive.

activities necessary to achieve the AMP6 leakage targets.[69] As described in its SoC,[70] YWS undertook a broad, robust programme of assurance over all elements of the PR19 Business Plan, including data science assurance on the leakage model and engineering assurance on the approach to meeting leakage Performance Commitments (i.e. assurance that YWS's proposed level of ALC activity is suitable). YWS's three-tier assurance programme included third-party assurance from data science and engineering consultants. Ofwat has had oversight of the assurance process throughout PR19 and the redetermination,[71] and it has not previously expressed any reservations as to how this was conducted.

4.1.9 As well as the Business Plan, YWS also assured its 'early-start' programme from both a data science and an engineering perspective. As described in RFI018A and RFI020, this data is a key input to understanding efficient costs for AMP7.

4.1.10 **Optioneering/benchmarking:** Ofwat implies that YWS undertook insufficient optioneering in its assessment of efficient costs, particularly that YWS had not benchmarked its enhancement claim sufficiently.[72] This assertion does not, however, reflect the true position: in fact, YWS's leakage enhancement costs have been thoroughly benchmarked.

4.1.11 As explained in RFI018A, YWS has entered into a new 'Water Services Agreement', which outsources the ongoing repair, maintenance and optimisation of the clean water distribution network.[73] This accounts for over 60% of YWS's enhancement claim. The contract will renew in June 2021, and as part of the renewal YWS undertook a significant benchmarking exercise as explained in further detail in the response to Q2(d) of RFI018A.

4.1.12 The rest of YWS's enhancement claim is also benchmarked as a standard part of YWS's procurement processes and frameworks. For example, water mains replacement or rehabilitation can be delivered through a framework called the 'Partnership for Yorkshire', a new capital delivery scheme under which suppliers are appointed through a stringent

[69] Ofwat December Hearing Transcript, page 20.

[70] YWS's SoC, paragraph 107 et seq.

[71] See, for example, YWS's Business Plan assurance approach as outlined in YWS, Business Plan, Chapter 4, particularly page 28.

[72] Ofwat December Hearing Transcript, page 19.

[73] YWS, Response to RFI018A, paragraphs 2.25-2.28.

selection process. Among other things, the 'Partnership for Yorkshire' requires the supplier to demonstrate benchmarked competitive pricing.

4.1.13 As well as cost benchmarking, YWS has also undertaken process and performance benchmarking by commissioning the Isle Utilities report comparing UK and international water companies, as YWS presented in the response to Q6b of RFI020. Among other things, the report has helped share best practice and aid companies' performance by sharing experiences.

4.1.14 YWS is confident that the costs in its AMP7 leakage delivery plan are efficient. YWS has previously explained that the costs for the plan were developed based on its experiences from the 'early-start' programme proactively funded by YWS during the last two years of AMP6.[74] To be clear, the 'early-start' programme was funded without the prospect of securing additional funding in AMP6. This strongly incentivised YWS to ensure that its costs were efficient and YWS significantly challenged itself to do so. Therefore the efficiencies from that programme have already been carried into the AMP7 leakage delivery plan.

4.1.15 **Unit costs:** In any event, Ofwat's estimate of the industry median unit costs for ALC is around £2m/Mld, as highlighted by Ofwat at its hearing.[75] While YWS believes that this estimate has limitations, its own unit cost of £2.01m/Mld is nevertheless aligned with Ofwat's estimate.

4.1.16 As YWS has previously explained in response to RFI018A and RFI020, there are several extraneous reasons why direct comparison between YWS's costs and those of other companies may vary for reasons outside of management control, such as the maturity of the pressure management programme, historic allowed investment, data allocation issues, the underlying asset stock and domestic meter penetration. For these reasons, too simplistic a unit cost comparison between companies can be misleading.

4.1.17 **Innovation:** YWS would also like to remind the CMA about its recent spending on innovative solutions. YWS does not consider Ofwat's conclusion that "*the sector has not taken advantage of this available technology*"[76] to be correct in relation to YWS. Much of this technology is very recently available, but YWS has spent previously on innovation. Its enhancement programme also seeks investment in innovative

[74] See, for example, YWS's response to RFI018A, paragraph 2.13.

[75] Ofwat December Hearing Transcript, page 18.

[76] Ofwat December Hearing Transcript, page 16.

productivity-enhancing programmes, as well as continuing to work along the lines of the YWS innovation roadmap to introduce further innovations as they become available and/or viable.

Impact of 2019-2020 data

4.1.18 During YWS's December Hearing, the CMA asked for YWS's views on the inclusion of the 2019-20 outturn data in the cost models, particularly regarding leakage and the potential for a double count with the PFs' enhancement allowance.[77] In addition to emphasising that there is no double count, YWS observes that the information submitted to the CMA as part of RFI020 specifically focuses on the necessary incremental enhancement expenditure from 2020 to achieve the performance target. These costs do not include any base expenditure already accounted for in achieving the leakage performance level up to 2020.

4.1.19 To further assist the CMA, YWS asked Oxera to comment on the merits and evidential strength of the hypotheses advanced by Ofwat regarding leakage expenditure in 2019-20. This is provided in Annex 04. Oxera's headline conclusion is that without substantial additional analysis of the multiple factors and omitted variables, the models used provide no econometric support for the hypotheses advanced.

4.2 Internal Sewer Flooding

Stantec report

4.2.1 During YWS's December Hearing the CMA asked some clarificatory questions on the Stantec report submitted as Annex 05 to YWS's response to the CMA's provisional findings.[78] Please see the updated report at Annex 05 to this submission and a redline against the previous version at Annex 06. It includes a wider explanation of the points discussed at the December Hearing.

Factors affecting internal sewer flooding

4.2.2 During YWS's December Hearing, the CMA asked what factors other than cellars could influence ISF and/or factors that could advantage YWS.[79] YWS's experts have worked with Stantec, YWS's strategic planning partner, to identify the factors that influence the propensity for ISF incidents.

[77] YWS December Hearing Transcript, pages 13 and 45.

[78] YWS December Hearing Transcript, pages 36-37.

[79] YWS December Hearing Transcript, pages 43-44.

4.2.3 As explained in Annex 07 below, there are multiple factors that have the potential to contribute to increased instances of ISF in parts of Yorkshire. One common feature to almost all of the factors identified is that they lie beyond management control (or substantial influence). Throughout the PR19 process, Ofwat has advanced a hypothesis that all companies face the same conditions and have control over causal factors giving rise to incidents of ISF – and so that the only factor that explains differential performance between companies is the efficiency of management. Stantec's report explains why this hypothesis is not correct.

4.2.4 To the CMA's question, there are some factors where YWS could be in an advantageous position compared to some others in the industry. For example, the rainfall levels in Yorkshire are lower than in western areas of England and Wales, and Yorkshire's soil is generally more permeable than in areas of North West England, however any benefit is not observed in practice or material. Beyond cellars, there are also several other factors where YWS could be disadvantaged compared to other areas of the country. Yorkshire's lower temperatures compared to areas of south England and its history of mining compared to other areas may increase the risk factors surrounding ISF. Again, these specific disadvantages are not observed in practice or seen as material.

4.2.5 YWS has identified and evidenced its housing stock, and more specifically the number of cellared properties, as a regional differentiating factor which is the single most critical factor in its ISF performance. The implication of the high number of cellars is that YWS's operational region has a higher number of high-risk ISF receptors; the probability of an ISF incident occurring is greater in a cellar than in a property without a cellar.[80]

4.2.6 In addition, the prevalence of cellars means that ISF incidents are more difficult to predict and remedy because cellared properties are often associated with property and sewer system access constraints. This is fully explained, with graphics, in the Stantec report at Annex 05.

Data sources

4.2.7 During Ofwat's hearing, Ofwat stated that it had not been provided with Office of National Statistics (**ONS**) census data by YWS and instead it had been presented with "*manipulated data*".[81] YWS would note that the raw

[80] See Annex 05, Stantec, 'Evaluation of the CMA's findings related to internal sewer flooding'.

[81] Ofwat December Hearing Transcript, page 71.

ONS census data is publicly available. In any event, in its ISF case study[82] YWS adjusted the census data in order to address Ofwat's criticism that the data was out-of-date: the data was updated with the latest house building data to reflect the contemporaneous position.

4.2.8 To explain that adjustment: census data after 2001 did not contain data on basements/cellars in housing stock. As a result, YWS compared the percentage increase in properties built in each WaSC region using ONS data.[83] From this basis, YWS hypothesised the potential effects the number of cellared properties in Yorkshire has on performance if a similar proportion of cellars existed in Yorkshire compared to other WaSCs.[84] Stantec considered this to be a "*reasonable interpretation of a plausible revised outturn of flooding*".[85]

4.2.9 This hypothesised position in relation to the impact of cellars is used to calculate the 'cellar adjusted' PCL, which represents the level of performance that is funded by base costs once the prevalence of cellars in the Yorkshire region is taken into account.[86]

4.2.10 More generally, Ofwat's response to YWS's evidence on ISF has focused on suggesting that the evidential bar for proving "*Yorkshire is different from other areas*" has not been met, despite YWS having provided detailed and compelling data and extensive engineering assessment. YWS is disappointed that Ofwat has not engaged with the reality of the situation that YWS faces, which critically includes the fact that over 70% of recorded instances of ISF occur in cellars. Irrespective of whether Ofwat believes this is different from other companies (and we note that Ofwat has presented no evidence to the contrary) the practical reality facing YWS's customers and staff is that the solutions deployed by YWS must necessarily be focussed on solutions for cellars. The economic problem that YWS is being asked to solve is wholly conditioned by this simple fact, not by comparisons with others. Between year 5 of AMP6 and year 5 of AMP7, YWS's regulatory targets require YWS to reduce ISF

---

82 YWS, Annex 06 (Response), 'Internal sewer flooding case study'.

83 Note the data were derived on a 'lower-layer super output area' scale, i.e. the scale designed to improve the reporting of small area statistics in England and Wales.

84 See Annex 07, which is the data spreadsheet underlying the comparative ISF data referenced in YWS, Annex 06 (Response), 'Internal sewer flooding case study'.

85 See Annex 05, Stantec, 'Evaluation of the CMA's findings related to internal sewer flooding', page 3.

86 Annex 04 (YWS Response to PFs), Economic Insight, 'Funding and incentives for internal sewer flooding'.

incidents by 73%. The cost of addressing this step change in performance has not been adequately reflected in YWS's cost allowances.

4.3 PC/ODI Asymmetry

4.3.1 During YWS's December Hearing, the CMA asked if there had been asymmetric downside risk in performance incentives in previous price controls.[87] As the regulatory framework for performance incentives has changed dramatically between PR09, PR14 and PR19, direct comparisons are challenging.

4.3.2 However, it is clear that across the key components of performance incentives, the risk that companies bear for PR19 has increased significantly and is asymmetrically skewed to the downside.[88] The problem of asymmetric risk at PR19 is also compounded by the size of potential penalties and the recovery through revenue, rather than RCV adjustments as at previous price reviews. Further details are included in Annex 09 below.

4.3.3 Of further serious concern is that the regulatory analytical tools for understanding and assessing the extent of risk in the performance incentives for the industry are undeveloped and Ofwat has consistently failed to engage with the detailed modelling analysis presented since the IAP stage. It has only belatedly provided a response.[89] Throughout the PR19 and redetermination processes, YWS has highlighted Ofwat's failure comprehensively to assess the performance risk associated with the ODI packages it had set. In particular Ofwat has failed to: (i) set the outcomes targets where their marginal benefits are equal to the marginal cost; and (ii) to assess the true risk range around these. The analysis presented in Ofwat's response to the Disputing Companies' responses to the CMA's PFs does nothing to alleviate these concerns.[90]

4.3.4 The fundamental flaw of Ofwat's methodology is to take its assessment of the distribution of under- and out- performance at PR14 and apply it to the ODIs set in the CMA's PFs to estimate ODI returns across 2020 to 2025. Ofwat's analysis is incorrectly framed and does not address the key

---

87 YWS December Hearing Transcript, page 58.

88 Annex 06 (YWS SoC), Economic Insight, 'Top-down analysis of the financeabilty of the notionally efficient firm', 20 March 2020.

89 Ofwat's response to the Disputing Companies' response to the CMA's PFs, Annex 4, 'Reference of the PR19 final determinations: Risk and return – response to provisional findings responses', November 2020.

90 Ibid.

issues in determining performance risk in ODIs. Specifically, Ofwat's analysis rests on the assumption that because (in its view) there was marginal outperformance at PR14, there will be outperformance at PR19 – regardless of the substantial stretch in the individual PCLs set at PR19 and the broader package of incentives applied. However, under this logic, Ofwat could assert that the returns will be positive at PR19 under targets set at absolutely any arbitrary level. For example, leakage could be set at a 1.5% reduction, or even a 50% reduction – and under Ofwat's analysis the returns will exhibit the same slight positive return. Clearly, this cannot be the case. Furthermore, in reviewing Ofwat's analysis YWS has found a number of inappropriate analytical steps and errors as highlighted in Annex 10.

4.3.5 More fundamentally, it is also important to understand what the downside skew in the performance incentives is intended to achieve. If it is to drive a "*step change in performance*" as argued by Ofwat, then it should naturally only be focussed where management has a genuine ability to control the outcome. Currently, the performance incentives include all regional and weather-related factors. Much of the extent of the downside skew on performance incentives cannot therefore be readily addressed by companies. If the performance incentives are asymmetrical, then it is important for retaining confidence in the regulatory approach that they are appropriately targeted, and the full extent of risk is analytically understood.

5. Impacts of COVID-19

5.1.1 During YWS's December Hearing [✂] asked whether YWS had any update on the impacts of COVID-19.[91]

5.1.2 The impact of COVID-19 on the company is ongoing and there are important elements that remain subject to uncertainty. As such, YWS remains of the view that the impacts of COVID-19 should be assessed by Ofwat at the end of the financial year. Analysis of the impact of COVID-19 on the water sector as a whole is underway through a joint project between Ofwat and WaterUK.

5.1.3 From a YWS perspective, the impacts are:

(a) **Revenue** – YWS continues to experience an impact on revenue. This is a combination of reduced income from business customers offset to a degree by increased household consumption from housebound customers during lockdowns and increased demand over the dry summer period. As of October, revenue is broadly neutral compared to YWS's internal business plan for FY21.

(b) **Operating Costs directly attributable to COVID-19** – Costs related to COVID-19 are linked to the need for additional vehicle fleet to maintain social distancing, additional personal protective equipment and costs due to deferral of capital activity on the clean water network. Additional opex costs as of October 2020 are c. £12m.

(c) **Savings directly attributable to COVID-19** – YWS has not made any material savings, with some minor reductions related to fuel savings and some facilities savings such as cleaning of corporate buildings which remain largely unoccupied.

(d) **Bad debt** – YWS reflected an additional COVID-19 specific bad debt provision in its accounts of 31 March 2020, which included c. £2.5m for the potential impact on household customers. YWS did not materially change that provision for its 30 September 2020 interim reporting. YWS is continuing to monitor the collectability of bills and is experiencing an increase in household arrears. YWS will reassess its potential bad debt provisions in the New Year, taking into account the UK economy coming out of the second lockdown, tiered restrictions, vaccinations, and the anticipated end of the furlough scheme.

[91] YWS December Hearing Transcript, page 93.

(e) **Impact on Performance Commitments and ODIs** – Notable areas of impact include:

(i) YWS's ability to meet its Performance Commitment to deliver learning hours to raise understanding of the value of water, delivered through a combination of lessons, workshops, talks and school assemblies.

(ii) YWS's ability to access and repair customer owned pipes to support its leakage reduction target.

(iii) Per capita consumption – due to changing living and working patterns as a result of COVID-19.

(iv) Bathing water quality – owing to the EA being unable to carry out its sampling programme as originally planned.

(f) **Impact on the capital programme** – There were approximately 125 live projects in various stages of delivery at the start of the lockdown in March 2020 that were impacted by COVID-19 restrictions. YWS continues to assess the impact of the subsequent delays.

(g) **Help for our customers** – At the start of the spring lockdown YWS re-designed its late payment strategies to highlight the financial help and support available to customers whose ability to pay has been impacted by the pandemic. YWS has issued over 300,000 letters with this message.

5.1.4 To improve engagement with hard to reach customers, YWS has engaged with 127 partners throughout lockdown, such as;

(a) large housing associations, such as Sheffield & Wakefield District Housing;

(b) support organisations, such as Job Centre Plus, Step Change & Christians Against Poverty; and

(c) local support, such as St Vincent's in Leeds.

5.1.5 YWS's strategies have ensured it has remained engaged with customers and through referrals it has supported over 43,000 customers over the last 12 months:

(a) Through social tariffs YWS has reduced 33,000 customers' bills. These are customers on the lowest incomes; and

(b) YWS has supported 10,000 customers through payment matching schemes to resolve their debt.

5.1.6 In addition to this YWS has supported 15,000 customers by offering a payment break. This has allowed customers to defer payments by up to three months. By the end of the year, YWS plans to have supported over 58,900 customers with a package of measures worth c. £15 million.

Annex 01: Supporting calculations to Table 1 - YWS illustrative adjusted notional allowance

	Borrowing by debt type (£m)				Share of total borrowings (%)			
	Fix	Float	IL	Total	Fix	Float	IL	Total
Industry gross debt	23,141	7,563	28,888	59,593	38.8%	12.7%	48.5%	100.0%
Cash / liquidity adjustment		-4,226		-4,226	3.0%	-6.7%	3.7%	0.0%
Industry net debt	**23,141**	**3,337**	**28,888**	**55,366**	**41.8%**	**6.0%**	**52.2%**	**100.0%**

Table 1

EIB debt	Debt (£bn)	% Total sector debt
Fixed	0.3	0.5%
Floating	1.8	3.1%
Index-linked	2.3	3.9%
Total EIB debt	**4.5**	**7.5%**

Table 2

Issue date	APR Coupon	iBoxx A/BBB at issue date	Variance
03/10/2005	4.95%	5.36%	0.41%
21/11/2005	5.03%	5.28%	0.25%
19/12/2005	4.94%	5.22%	0.28%
06/06/2006	5.39%	5.56%	0.17%
25/08/2006	5.37%	5.45%	0.08%
Average	**5.13%**	**5.37%**	**0.24%**

Table 3

Annex 03: Ofwat's approach to leakage at PR14

1. In its final methodology for PR14, Ofwat provided detailed advice on its expectations on the form of leakage outcome commitments:

   "However, since a leakage outcome commitment is a consistent outcome incentive required from all companies, we are providing some further advice on the form of leakage outcome commitments.

   - *In setting the outcome commitment, companies should have regard to the sustainable economic level of leakage (SELL) as developed in their WRMPs taking account of the recommendations for improving the way SELL calculations include non-economic factors set out in 'Review of the calculation of the sustainable economic level of leakage and its integration with water resource management planning'.*
   - *Companies must include effective evidence for their proposed outcome commitments generally, but in particular if the proposed leakage outcome commitment does not reflect an overall reduction in leakage over 2015-20, companies must include robust evidence that this is appropriate, given the views of their customers and bearing in mind that it is well established that generally water customers care strongly about leakage.*
   - *We expect to see outcome commitments and incentives that are robust, challenging and evidence based. If our assessment, under our risk-based review, is that a company's proposed outcome commitment, performance measure and (or) delivery incentives are inadequate, then we will replace it with our assessment of the appropriate outcome commitment and incentive on leakage. We would expect to take a robust and challenging approach, including on appropriate incentive penalties, when we imposed our view over an inadequate proposal."*[92]

2. YWS particularly notes the emphasis on non-economic factors regarding the SELL calculation and the expressed intent to replace company commitments with Ofwat assessments where the company proposals were inadequate. It was clear that companies were expected to reduce

[92] Ofwat, 'Setting price controls for 2015-20 – final methodology and expectations for companies' business plans', pages 73-74, available at: https://webarchive.nationalarchives.gov.uk/20150604030339/http://www.ofwat.gov.uk/pricereview/pr14/pap_pos201307finalapproach.pdf.

leakage over AMP6, but also that SELL was still very much the centrepiece of the methodology.

3. The different approach that Ofwat subsequently applied was explained at length in the technical appendix on outcomes published only at the PR14 draft determinations stage:

> *"Our horizontal check for leakage follows a slightly different approach than our approach in the other areas discussed above. Leakage was the only area where companies were required in our methodology to incorporate a performance commitment in their outcomes packages for 2015-20 and so it has 100% coverage and seemingly high comparability. All 18 companies responded to this challenge with 17 proposing financial reward and penalty based incentives and one company (Dŵr Cymru) proposing a penalty-only incentive.*
>
> *Our horizontal check of leakage recognises that companies' proposals are aligned with the sustainable and economic levels of leakage (SELL) determined through the companies' individual Water Resources Management Plans (WRMPs). The SELL is significantly influenced by a number of local issues including the general availability of water resources and any statutory abstraction reductions. For this reason, it is not appropriate to determine performance commitments with reference to a single upper-quartile performance threshold across the whole sector.*
>
> *Our final methodology also stated that if the proposed leakage PC does not reflect an overall reduction in leakage over 2015-20, companies must include robust evidence that this is appropriate. We regard reward and penalty deadbands as appropriate where justified by historic or projected weather-related variability so that risks and rewards are not affected by such short-term uncontrollable fluctuations.*
>
> *Therefore, the extent of leakage PC stretch needs to be assessed based on each company's starting position, changes in leakage levels driven by supply/demand constraints and sustainable economic levels, and variations in the desire for outperformance*

from customers determined through each company's customer engagement, with input from their CCGs."[93]

4. Ofwat was very clear that it was not appropriate to determine leakage Performance Commitments with reference to a single upper-quartile threshold. Ofwat had also made clear in the methodology that if it regarded the company proposals as inadequate, it would intervene to impose its own assessments. So absent large numbers of interventions on the level of leakage Performance Commitments, the only possible conclusion is that Ofwat regarded the company proposals as being adequate.

5. This is inconsistent with Ofwat's assertions at the main party hearing that it encouraged companies to go beyond SELL.[94] At PR14, companies such as YWS managed their leakage performance to be in-line with SELL because it (i) was supported by customers; (ii) met statutory obligations in respect of the WRMP process; (iii) was in line with the stated regulatory policy; and (iv) established an economic balance between the costs and benefits of reducing leakage. As YWS has consistently maintained, the approach at PR19 reflects a very clear change of regulatory policy.

[93] Ofwat, 'Setting price controls for 2015-20, Draft price control determination notice: technical appendix A2 – outcomes', pages 36-37.

[94] Ofwat December Hearing Transcript, pages 12-13.

Annex 07: factors impacting internal sewer flooding performance

This table has been produced in response to a question from the CMA at YWS's hearing[95] – see paragraphs 4.2.1-4.2.5, above. There are many factors that influence sewer system performance and a large number of these are outside of management control, resulting from the geographic characteristics of the location. However, while there is a lot of published information on the factors impacting on sewer performance more widely, there is an absence of material concerning internal sewer flooding specifically. Therefore, experts within YWS have worked with Stantec, YWS's strategic planning partner, to identify aspects that could influence internal sewer flooding in the table below. The table below identifies 15 possible causal factors, only three of which are even partially within management control. The impact of any one measure on a company's performance would only be considered a regional specific factor if evidence shows it to be a prime and material contributor to incidents.

Factor	Implication(s)	Management Control	Differing regional impact
Housing stock	The quality and type of housing stock influences the type of flooding incident experienced – external or internal.[96] Existence of cellars increases the number of receptors for ISF incidents.	N	Y Yorkshire Water has the highest proportion of cellars in its operational area[97]

[95] YWS December Hearing Transcript, pages 43-44.

[96] YWS, Annex 06 (Response), 'Internal sewer flooding case study', pages 4-5.

[97] See, for example, Annex 06 (Response), 'Internal sewer flooding case study', page 9.

Factor	Implication(s)	Management Control	Differing regional impact
Housing density	Influences the number of direct connections to sewer. This is an influencing factor in frequency of blockage formation[98] which directly impacts ISF performance.	N	Y Based on type and density of housing stock
Urban regeneration	Extent of urban regeneration impacts on the housing stock (see housing stock and housing density). Lack of housing stock turnover in Yorkshire resulted from the historic exploitation of a loophole by Local Authorities in The Public Health Act 1875, resulting in a prevalence of low quality back to back cellared properties that are still occupied today.[99]	N	Y
Impact of World War 2 bombing	WW2 bombing lead to regeneration of some locations which means that the housing stock and sewer network was rebuilt. An example here could be Hull – we know the sewer network was re-engineered after WW2 and the rates for flooding as a result of non-hydraulic causes in Hull is very low.[100]	N	Y
Topography	Slope gradient/pipe gradient[101] impacts ability of pipes to achieve self-cleansing velocity. Low velocities due to 'flat' gradients can play a role in blockage formation.	N	Y YWS has steep catchments in west and flatter in East.

[98] Dr S. Arthur, Dr H. Crow and Mr L. Pedezert, 'Understanding Blockage Formation in Sewer Systems – A Case-by-Case Approach', 2006, page 6.

[99] YWS, Annex 06 (Response), 'Internal sewer flooding case study', pages 4-5.

[100] The incidence of ISF as a result of 'other causes' (blockage; collapse and equipment failure) is low in Hull. Hull faces significant flood risk from other sources (pluvial; fluvial; coastal and ground water).

[101] Whilst gradient may influence deposition in larger sewers, fieldwork undertaken by Digman (2003), Spence et al (2016) showed that significant solid deposition can still occur in steep networks, as measured in the field in Sheffield, Yorkshire. This was in catchments considered relatively steep, typically between 1 in 20 and 1 in 50. Digman, C.J., 'Predicting Aesthetic Pollutant Loadings in Combined Sewerage Systems', 2003; Spence, K.J, Digman, C.J., Balmforth, D.J.,

Factor	Implication(s)	Management Control	Differing regional impact
Geology	Areas with minimal soil depth coverage results in increased run off, which could increase the risk of property flooding.	N	Y Variation across Yorkshire region.
Soil type	Clay soils result in less permeable ground, which tend to result in increased run off, increasing the risk of property flooding. More porous soils can result in infiltration to sewer systems impacting on available sewer capacity.	N	Y Variation across region but more permeable than North West England
Groundwater levels	High groundwater tables can result in ingress to the sewer, impacting on available sewer capacity.	N	Y Some areas of high groundwater in East Yorkshire
Temperature	Lower temperatures result in less evaporation, therefore impacting on the catchments ability to reduce run off.	N	Y Lower average temperatures than southern areas.
Rainfall levels	High rainfall levels can impact sewer system performance, with sewer capacity being exceeded on a more frequent basis, potentially increasing the risk of property flooding.	N	Y Lower average rainfall than western areas.
Extreme weather events	Significant rainfall events; prolonged dry periods and freeze/thaw action. Impact the hydraulic performance or the structural integrity of the network due to ground movement.	N	Y All areas impacted at different times by different events.
Mining Areas	Old mine workings impact on the structural integrity of pipes through subsidence. Risk of mining water ingress to sewers reducing available capacity.	N	Y Mining activity differs by region.

Houldsworth, J., Saul, A.J. and Meadowcroft, J., 'Gross solids from combined sewers in dry weather and storms, elucidating production, storage and social factors', Urban Water Journal, 2016 Vol. 13, No. 8, pages 773–789.

Factor	Implication(s)	Management Control	Differing regional impact
Sewer construction techniques	Different designs; materials; pipe laying techniques have historically been used in different parts of the country – performance can be particularly impacted by the type of 'joint' used between pipe lengths. Pipe diameter – most blockages occur in pipes with a diameter less than 225 mm.[102]	Historic – N Future - Y	Y
Pipe condition	Impacted by pipe material, ground movement and traffic loading. Influenced by sewer rehabilitation rates and techniques. Poor pipe condition increases the risk of service loss.	Y	Y
Sewer misuse	Disposal of inappropriate materials to sewer resulting in blockage formation and potential property flooding impact.	Part - Education campaigns	N

[102] Solid movement in small diameter sewers differ to that in larger sewers where there is steady flow. Deposition in small diameter sewers occurs naturally (Swaffield and McDougall (1995)) where solids progressively move along a pipe due to unsteady flow and infrequent discharges. Solid movement requires frictional forces to be overcome, typically when the hydrostatic force is great enough. It is possible for solids to easily 'catch' on minor defects. Littlewood (2000) highlighted that a 0.5mm joint was found to affect the solids transport. This was at velocities of less than 0.25m/s. Studies such as Arthur et al (2008) concluded that small diameter sewers are 3 times more suspectable to blockages than larger sewers. Swaffield, J.A. and McDougall, J.A., 'Modelling Solid Transport in Building Drainage Systems. International Conference on Sewer Solids', 1995, pages 15-30; Littlewood, 'Movement of Gross Solids in Small Diameter Sewers', (2000); Arthur, S., Crow, H. and Pedezert, L., 'Understanding Blockage Formation in Combined Sewer Networks', Proceedings of the Institution of Civil Engineers— Water Management, 161, pages 215-221.

Annex 09: Description of asymmetry of performance incentive risk between PR09, PR14 and PR19

Performance Component	PR09	PR14	PR19	Asymmetry of Risk
Performance				
Comparable Performance Commitments	Very limited number of comparable measures, with companies' leakage targets set with reference to SELL, and primarily to maintain performance.	Industry comparative metrics introduced for 4 performance commitments (Supply Interruptions, Water Quality Contacts, Internal Sewer Flooding and Pollution). Targets set at the PR09 UQ level.	Comparable targets for Supply Interruptions, Internal Sewer Flooding, Pollutions incidents, Water Quality set, based on a forecast of future of PR19 UQ in year 5.	Increased significantly for companies at PR19 as much larger improvements in performance required.
Asset Health	Targets set based on a company specific level of service across the metrics in the 'Serviceability' basket. The level of service expectations was to 'maintain' the existing service level (so 0% improvement across metrics). A standard methodology, set out up front in the methodology was used for all metrics.[103]	As at PR09	Targets set based on a mix of justifications across measures (e.g. UQ improvement levels, best of 5-year performance, glidepath to forecast median). Significant improvements required, some within a single year (e.g. 20% level of stretch in Mains Repairs and 19% improvement in the target for Sewer Collapses[104]). Regulatory methodology for determining	Increased significantly for companies at PR19, as much larger improvements in performance required. Targets are also based on ad-hoc regulatory interventions with no link to customer preferences or impacts on customers.

[103] Annex 05 (YWS SoC), Economic Insight, 'Ofwat's approach to ODI interventions in the Final Determinations', 30 March 2020.

[104] Annex 04 (YWS Response to Ofwat Reply), Economic Insight, 'Framework for Asset Health', 27 May 2020, Table 1.

Performance Component	PR09	PR14	PR19	Asymmetry of Risk
			targets only set out at draft Determination stage.	
Speed at which targets must be met	Glidepath over the control.	Glidepath over the control.	Immediate.	Increased significantly for companies at PR19 as larger performance improvement required immediately.
Uncertainty Mechanisms	Extreme weather events excluded from reporting for internal and external sewer flooding. 'Tramlines' around serviceability metrics included as standard to reflect the natural variability of performance.	Extreme weather events excluded from reporting for internal and external sewer flooding. Deadbands included as standard for performance commitments to reflect the natural variability of performance.	No exclusions for extreme weather events. Deadbands only allowed in exceptional circumstances.	Increased significantly for companies at PR19 as extreme events are included in performance measures.
Incentives				
Incentive Size	50% capital expenditure in service area 'at risk' (but never materialised, very limited penalties levied apart from exceptional examples, e.g. for Southern Water).	The average ODI risk range at PR14 was -1.7% to +0.6%.[105]	Ofwat instructed companies to include an increased incentive package of between +/- 1% to 3% RoRE for PR19. Ofwat's approach to risk analysis makes it difficult to calculate the industry average for PR19,	

[105] Ofwat, 'Final Price Control Determination Notice: Policy Chapter A7 – risk and reward', December 2014, available at: https://www.ofwat.gov.uk/wp-content/uploads/2015/10/det_pr20141212riskreward.pdf.

Performance Component	PR09	PR14	PR19	Asymmetry of Risk
			however YWS penalty range has increased significantly and the reward element has reduced, to +0.19% to -2.78%.	
Form of recovery	RCV.	Primarily RCV (although companies were allowed the choice between RCV and revenue).	Primarily revenue.	Asymmetric risk for companies has increased at PR19 as larger incentives have a direct impact on revenue recovery.
Length of time incentive set	5 years.	5 years.	Annual.	Asymmetric risk for companies has increased at PR19 as larger incentives have a direct impact on revenue recovery, with no opportunity for impacts to be smoothed over several years.
Protection Mechanisms	Not applicable.	+/- 2% RoRE Cap.	+/- Indicative 3% range.	Asymmetric risk for companies increased at PR19 as RoRE downside is essentially 'uncapped'
Risk analysis	Not applicable.	RoRE analysis directly from companies' own analysis, subject to regulatory review but no interventions.	RoRE analysis amended by Ofwat to reflect its own view of risk. For example, the assumption that the targets are equal to P50 performance. As the common targets are based on a forecast of industry UQ performance at the end of the	Asymmetric risk of the company is significantly understated in the regulatory assessment.[106]

[106] Annex 02 (YWS SoC), Economic Insight, 'Ofwat's approach to Risk Analysis in the Final Determinations', Economic Insight, 31 March 2020, section 4.2.1.

Performance Component	PR09	PR14	PR19	Asymmetry of Risk
			PR19 period, it does not follow that the probable performance outcome in the early year of the period will be equal to the target.	