March 2020

Reference of the PR19 final determinations: Explanation of our final determination for Yorkshire Water

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1. Yorkshire Water: summary of our final determination

1.1 In reaching our final determination for Yorkshire Water, we considered the company's business plan in line with our statutory duties. We are satisfied that our final determination ensured that the company had adequate funding to properly carry out the regulated business, including meeting its statutory and regulatory obligations, and to deliver the outcomes within its final determination. As explained below, we took into account the evidence submitted by the company and **accepted its proposals where they were justified**, supported by sufficient evidence, and in line with comparative analysis across the industry. However, where the company's proposals were not adequately supported, we challenged assumptions and arrived at our own view.

1.2 In asking for a redetermination Yorkshire Water stated that the final determinations posed **long term risks to resilience and customers** as penalty measures over the next five years would focus the company on short term performance at the expense of longer term investment. Our final determinations **fully funds the additional costs of the company's proposals for improving resilience and for efficiently delivering the water industry national environment programme.** Our increased performance requirements on mains repairs and internal sewer flooding will ensure that the company delivers resilient services, both in the short term and over the longer term.

1.3 We anticipate that the following will be the key issues between us and Yorkshire Water in the main areas of our final determination:

- In relation to **costs and outcomes**, the company considers our **combination of reduced cost allowance and increased performance targets** is beyond what an efficient firm is able to deliver.
- As to the allowed return and financeability, the key areas of difference concern the **overall balance of risk and return** and our **approach to financeability.** Yorkshire Water estimates a higher allowed return, raising issues with our assessment of one particular estimation factor, beta.

1.4 We summarise below what was included in our final determination in each of these three main areas, and outline the key issues that arose between us and Yorkshire Water during the PR19 process.

The company

1.5 Yorkshire Water Services Limited is both a water undertaker and a sewerage undertaker. It is a wholly-owned subsidiary of Kelda Group plc, whose investors are:

- SAS Trustee Corporation (Australian pension fund);
- Pan-European Infrastructure Fund L.P;
- Gateway Infastructure Investments L.P., Gateway UK Water L.P., and Gateway UK Water II L.P – global infrastructure funds managed by Corsair Infrastructure Management L.P.; and
- GIC (a sovereign wealth fund established by the government of Singapore).

1.6 It supplies water and wastewater services to over 5 million customers in the north of England.

Cost and performance

1.7 Yorkshire Water is a **poor performer in many of the common performance measures** when compared with its peers. In its September 2018 business plan Yorkshire Water both included higher base costs than its historical spend and requested £315 million enhancement funding to meet its proposed stretching performance commitments. For example, it proposed upper quartile performance in the number of pollution incidents but requested £41.6 million enhancement funding to get there. By the time of its August 2019 representation on the draft determination, Yorkshire Water had removed its proposed enhancement funding but instead offered reduced performance commitments, and stated that it faced increased downside risk in its revised plan. In its August 2019 representation it reclassified some base costs as enhancement expenditure, but its proposed base costs were still 2.2% above its base spend in the last five years of reported expenditure (2014-15 to 2018-19).

Leakage and mains repairs

1.8 In its September 2018 business plan Yorkshire Water proposed a **25% reduction in its leakage** performance but requested £250 million for it. In doing so, Yorkshire **Water recognised its relative poor performance**. We did not allow Yorkshire Water any enhancement funding for improving leakage in its draft determination.

1.9 In its August 2019 representation on the draft determination Yorkshire Water **reduced its leakage reduction performance commitment to a 15% reduction,** which we considered to be a more appropriate level of ambition and aligned with its position of having a significant surplus of water. It removed any request for enhancement funding to meet this level, in line with our challenge to companies that they should step up to the challenges facing them without expecting customers to pay more.

1.10 In the final determination we set a performance commitment level in line with Yorkshire Water's proposed 15% reduction in leakage and **allowed no enhancement funding** or uplift to our base allowance. This was the same approach that we used for all companies proposing a performance level that was less than forecast upper quartile performance level.

1.11 We **adjusted our approach** on mains repairs performance expectations between draft and final determinations. In response to various company representations, we adjusted all companies' mains repairs performance commitment levels, making it less stretching in all years, to allow them the flexibility to deliver leakage reductions by proactively finding and fixing leaks on their network.

Internal sewer flooding

1.12 Most companies have a 2015-20 internal sewer flooding performance commitment. However, there have been **differences in definitions** between companies (see Box 1). When compared on a like for like basis with other companies, Yorkshire had a less stretching target than other companies. Based on comparative data, Yorkshire Water is now the worst performer of the eleven wastewater companies. Despite the less stretching PR14 target, we did not consider the difference was due to factors outside the company's control. **We do not consider that its customers should have to pay for the company to catch up with its peers**. For the final determination we applied the same target performance level by the end of the period, in 2024-25, which we defined in a consistent way for all the relevant companies.

1.13 While Yorkshire Water **accepted most of the draft determination 2024-25 common performance commitment levels** in its representation, it requested a revised glidepath and performance commitment levels for internal sewer flooding resulting in the delivery of the upper quartile level by 2029-30. **We do not consider that Yorkshire Water's customers should suffer a worse sewer flooding performance** than other companies, and so we rejected this.

However, for the final determination we **amended the underperformance collar** to protect the company from high financial exposure in the early years of the five year period while it improved. We increased the exposure in later years to ensure customers in Yorkshire Water's area were overall no worse off than those in other companies' regions. For more details on our assessment of Yorkshire's performance commitment level for internal sewer flooding for the 2020-25 period see paragraphs 2.39 and below.

Box 1: Yorkshire's internal sewer flooding performance

Internal sewer flooding is a common PR19 performance commitment which measures the number of flooding incidents per 10,000 connections. While all wastewater companies had an internal sewer flooding performance commitment at PR14, adjustments to performance commitment levels were made for some companies to include (formerly private) transferred sewers.

Despite having the worst comparative performance in the industry when measured using the PR19 common definition, Yorkshire Water is currently outperforming its PR14 internal sewer flooding performance commitment levels and is on track to receive an outperformance payment for the 2015-20 period. This is £16 million based on data from the first four years of the 2015-20 period, and expected to be £25 million for the full five years. It has also delivered the third worst improvement in performance over the period 2015-2019, with a reduction in the volume of incidents of only 15% since 2014-15 (compared to a maximum improvement of 51%).

We previously identified that Yorkshire Water's customers suffer repeat sewer flooding more than those of other companies and it is appropriate that the company faces strong incentives to improve its performance in this area. We also do not accept that a higher proportion of cellars is sufficient reason to allow worse performance for the company given other companies also have specific factors which will impact their performance, such as higher property density.

We also consider it is important to apply a common approach for performance commitments covering those key outcomes that matter most to customers. This is to ensure greater transparency of performance across companies for customers and stakeholders, and to allow us to set stretching performance commitment levels on the basis of consistent measures of comparative performance.

While we recognise that the transition to a new performance measure will require a step-change in performance by the company, all companies have been aware of the new definition for this performance commitment since 2017. Yorkshire Water was aware that the improvement in performance for internal sewer flooding was expected, and has been able to undertake preparatory work to improve its performance in sewer flooding.

Taking into account customer views

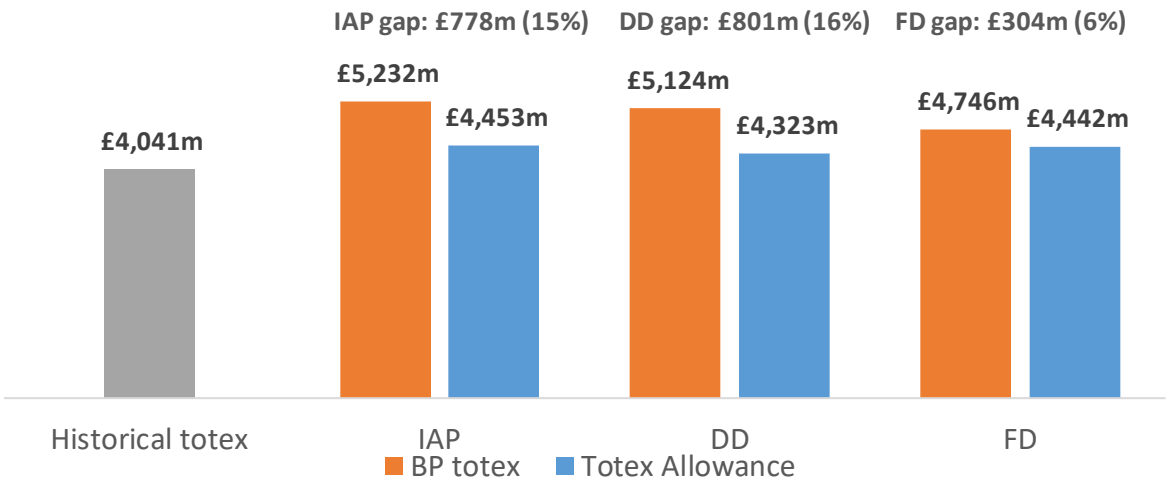
1.14 The company considered that we disregarded our methodology by not sufficiently considering the views of customers on priorities and incentive rates. As described in 'Cross cutting issues', we set out in our price review methodology that **customer preferences were one factor companies should consider** in setting performance levels alongside historical and comparative information. Similarly we said in our methodology that we would **compare companies' outcome delivery incentive rates** and challenge their proposals where appropriate.

1.15 Our final determination cost allowance covered **almost the full scope of work** the company proposed in its business plan after consulting with its customers. The scope we have not allowed costs for is:

- £1.5 million for costs we consider will not be required because Defra plans a slug pellet (metaldehyde) ban, but we have included an uncertainty mechanism to allow these costs should the ban not happen; and
- £0.3 million for short term supply-demand balance enhancement on the grounds of insufficient need as the company forecasts a surplus in its water resources management plan.

Base and growth costs

Figure 1.1 Overview of totex allowances for Yorkshire Water (2017-18 prices) [1]



1.16 Yorkshire Water **reduced its requested total costs by £378 million**, including reducing its base costs by £168 million, between its April 2019 submission and its August 2019 representation on the draft determination. This was achieved in part by moving £137 million from wholesale base to enhancement for phosphorus (P) removal costs. It also removed £300 million from its enhancement programme for meeting common performance levels.

1.17 In our final determination we made a wholesale totex allowance £4,120 million. This was £122 million higher than in our draft determination and £353 million lower than included in the company's August 2019 representation on our draft determination.

1.18 Our approach to econometric modelling was to **reward efficient companies** by making an allowance in line with our model outputs even if a company requested less money. Yorkshire Water was efficient in its retail cost proposals and in the final determination we allowed **almost £49 million more** than it requested for its residential retail costs. In relation to wholesale base costs the

[1] We present our totex allowance as the sum of base and enhancement expenditure, including allowances for residential retail. We exclude operating lease adjustments, third party service costs, pension deficit recovery payments, atypical expenditure and non-section 185 diversion costs. If we included these items, our final determination totex allowance would be £4,487.4 million (£4,165.5 million for wholesale services, £321.9 million for retail services) compared to a requested cost of £4,808.7 million (£4,535.5 million for wholesale services, £273.2 million for retail services). Historical totex refers to actual spending over 2014-2019. See 'Key elements of the methodology appendix' for further details on our definition of totex expenditure.

company asked for more than our model outputs and the gaps are £17.6 million in wholesale water and £121.8 million in wholesale wastewater.

1.19 In its representation the company presented **revised data** related to a wastewater cost driver where it stated it had made errors in its previous submissions. In addition Yorkshire Water made a representation on our forecasts for treatment complexity which is a cost driver in both our water and wastewater econometric models.

1.20 On the basis of company representations we changed our approach to the treatment complexity and used company forecasts. We did not adjust the data inputs for this revised wastewater cost driver due to a **lack of assurance** of the new data.

1.21 Yorkshire Water, along with other companies, made a representation on **including growth costs in our econometric models**: "the fact that the modelling now incorporates growth expenditure but there are no drivers in the models that can reflect differing levels of growth between the companies calls into question the validity of the change". We decided that growth expenditure could be included in our econometric models because it is similar to base expenditure (recurring and industry wide). For final determinations **we made adjustments** up and down for companies with forecast growth rates that were higher or lower than the historical average growth rate in our model input data. For Yorkshire Water this meant we adjusted our modelled allowance downwards by £34.7 million because it is a low growth rate company.

1.22 Yorkshire Water plans "to make **Hull and Haltemprice more resilient to flooding** … These solutions are required for us to ensure we deliver the same level of service as we do to other parts of Yorkshire." It requested the funding under the wastewater resilience enhancement line. Our cost allowance included the full scope of these proposals. We provided an additional £16m funding for the Hull and Haltemprice scheme to reduce the risk of sewer flooding in this particularly atypical catchment. This is based on the increased risk in the area as there is no natural drainage and all sewage and surface water has to be pumped from the catchment. With this uplift, we considered that this scheme was **fully funded through our allowances**.

Environmental improvement programme costs

1.23 There is a £213 million gap between the company's August 2019 representation view and our view of efficient overall enhancement costs. The

majority of this gap is due to wastewater water industry national environment programme (WINEP) costs and in particularly phosphorus (P) removal costs. Our view of efficient WINEP costs in the final determination was £725.8 million, compared with the company's requested costs of £891.6 million, leaving a gap of £166 million. £652.5 million of Yorkshire Water's requested WINEP costs were for P removal.

1.24 The **cost difference is due to efficiency**, where we considered that Yorkshire Water could do more to be as efficient as other water companies. We did not challenge the scope of the WINEP, which is a statutory requirement for the companies to deliver. We used a **benchmark model of forecast costs** for P removal schemes, which are a large part of the industry WINEP. We considered specific factors that Yorkshire Water claimed made its circumstances potentially atypical and **increased our allowance** by £16 million as a result.

Aligning risk and return and financeability

Risk and return

1.25 The final determination set an **allowed return of 2.96% (CPIH)** which we consider provided a reasonable return for an efficient company based on the market evidence at the time. We are satisfied that our final determination for Yorkshire Water provided an appropriate balance of risk and return.

1.26 Yorkshire Water's April 2019 business plan was based on our 'early view' of the allowed return set out in the PR19 methodology (3.40% in CPIH terms). We set a lower allowed return at draft determinations (3.19%, CPIH) reflecting movements in market rates and some refinements to our assessment of the market evidence on the allowed return. Our draft determinations signaled that trends in market data since the February 2019 data cutoff used for the draft determinations could support an even lower allowed return in our final determinations.[2]

1.27 In its August 2019 representations on the draft determination[3], Yorkshire Water raised concerns with our approach to estimating equity beta, Total Market

[2] Ofwat, 'PR19 Draft Determinations: Cost of capital technical appendix' pp. 6-7.
[3] Ofwat, 'PR19 final determinations - Yorkshire Water final determination'.

Return, risk-free rate and the allowed cost of debt – arguing that our decisions led to an understated allowed return.

1.28 The company said that correcting errors and inconsistencies in our allowed return calculation would result in a figure of 3.65% in CPIH terms, but that it would be prepared to accept a lower return of 3.40%, on condition of a more favourable cost and outcomes package than at the draft determination.[4]

1.29 We considered the evidence raised by the company on the overall balance of risk and return in our final determination, having regard to revisions made in the final determination (including to allowed costs, outcome delivery incentives and revenues) and some methodological changes to our assessment of market evidence of the allowed return which **changed the overall balance of risk and return in the company's favour**.

1.30 Evidence from the share prices of the listed water companies and credit rating agencies after the final determinations suggests the allowed return is not too low. We explain the issues further in 'Cross-cutting issues' that accompanies this submission to the Competition and Markets Authority (CMA).

Financeability

1.31 In Section 11 of the PR19 methodology[5] we set out an approach to assessing **financeability** that is consistent with **established regulatory practice** adopted in previous price reviews, and which we consulted on as part of the PR19 methodology.

1.32 In its representation on our draft determination, Yorkshire Water's Board concluded the company was not financeable based on the draft determination package on the notional capital structure (on which our draft determination was set) on the basis of the company's actual capital structure. It raised issues with our approach to setting the allowed return on capital, in particular regarding the period used to determine equity beta. However, we considered the financial ratios calculated in line with the company's final determination to **be consistent with a credit rating of Baa1/BBB+** for the notional capital structure following

[4] Ofwat, 'PR19 final determinations - Yorkshire Water final determination', pp. 17-18.
[5] Ofwat, 'Delivering Water 2020: Our final methodology for the 2019 price review', pp. 187-203.

the advancement of £85 million through PAYG rates. On this basis we assessed **Yorkshire Water's final determination to be financeable**[6]**.**

1.33 We summarise our overall approach to financeability in the final determination[7] and in the risk and return section of 'Cross-cutting issues' that accompanies this submission to the CMA.

Actual company structure

1.34 Yorkshire Water had **gearing well above the notional level** at 75.8% as at 31 March 2019[8]. The company's September 2018 business plan aimed to reduce its gearing to 70% by 2021. However in its representation on the draft determination, Yorkshire Water set out it was committed to reducing gearing to 70%, but achieving it by 2025[9]. Yorkshire Water aimed to reduce gearing by retaining dividends, and injecting £625 million of capital, in three tranches starting in 2020-21, through the repayment of loans that it has previously made to another group company. It proposed to fund the cash injections through a parent company above the level of the Appointed business issuing debt. [10]

1.35 Yorkshire Water has made loans to group companies totalling £966 million. The company pays dividends to provide funds to make interest payments on the loans and to enable group companies to pay head office costs and other interest on external loans.

Reconciling for past performance

1.36 Yorkshire Water **claimed it made an error** when completing its PR14 business plan tables related to revenues it expected to receive from housebuilders and developers. As well as impacting PR14 revenue allowances this also would have impacted on how Yorkshire Water performed against a PR14 incentive designed to incentivise accurate revenue forecasting and recovery. Yorkshire Water requested that we use its calculated impact of the error from PR14 in the reconciliation, which we did not do.[11] Not adjusting for this issue reduced Yorkshire Water's revenue by £23 million in the final determinations.

[6] Board Assurance Statement – Yorkshire Water Draft Determination Representation, p. 2.
[7] PR19 final determinations - Yorkshire Water final determination
[8] Yorkshire Water - Our Annual Performance Report 2018/2019, p. 174.
[9] Financeability – Yorkshire Water Draft Determination Representation, p. 29.
[10] Financeability – PR19 final determinations - Yorkshire Water final determination, pp. 34-35.
[11] We explain why we did not make an adjustment in 2.90 and the following paragraphs below.

2. Yorkshire Water: our final determination

Introduction

2.1 PR19, including the final determination for Yorkshire Water, needs to be understood in context. The water sector faces challenges from climate change, a growing population and increasing customer expectations. At the same time the sector needs to improve the affordability of an essential service. PR19 enables and incentivises companies to address these challenges both in the 2020-25 period and longer term.

2.2 Our PR19 methodology therefore set out a framework for companies to address the challenges facing the sector with a particular focus on improved service, affordability, increased resilience and greater innovation. We published our draft determination for Yorkshire Water on 18 July 2019, based on our detailed review of the revised plans submitted to us on 1 April 2019. The company and a number of stakeholders provided representations on our draft determination on 30 August 2019.

2.3 Our final determination carefully considered all of the representations we received from companies and stakeholders on our draft determination, and took account of the most up-to-date information available where appropriate. We consider our final determination is in line with our statutory duties.

2.4 Representations on our draft determination commented on customer and stakeholder support for the investment proposed in Yorkshire Water's business plan, and supported a balance between investors and customers. We set out in our PR19 methodology that customer support is important as one of a number of considerations we take into account when making our decisions. We allowed all costs proposed by the company that were well-evidenced and efficient. However, it remains important to protect customers from the risk of poor service, inefficient expenditure and excess returns.

2.5 We engaged with Yorkshire Water during summer and autumn 2019, at working and Board level, to better understand the company's perspectives on WINEP expenditure proposals, PAYG rates and the company's view of our draft determination. We discussed the WINEP with the Environment Agency on a number of occasions and explored options with it and the company about phasing the delivery of these environmental requirements over a longer time period.

2.6 Yorkshire Water's overall concern with our draft determination was that our cost and outcome challenge was demanding an unattainable step change, particularly when it has been assessed as efficient in the past. Although Yorkshire Water may have been assessed as cost efficient in previous price reviews, we consider that it may have targeted low activity levels in order to be low cost instead of carrying out its activities efficiently. For example, in its response to our challenge to the company's sewer collapses performance commitment level, the company acknowledged that it has engaged in low levels of historical asset renewal in order to keep bills low. Through the final determinations, we have incentivised the sector to meet the challenges it faces by doing the right activities efficiently, rather than simply by reducing activity, and thereby storing up problems for future customers.

2.7 Overall, we are confident that our final determination took proper account of all sufficiently well-evidenced proposals put forward by Yorkshire Water.

What our final determination includes

2.8 We set out key metrics relating to our final determination package for Yorkshire Water in Table 2.1. We describe key areas of the company's final determination in the remainder of this chapter. We provide a detailed calculation of our allowed revenue in Appendix 1. Our final determination provides 3.1% more wholesale expenditure and 6.5% more wholesale allowed revenue than our draft determination.

Table 2.1: Summary of key metrics

Wholesale	Revised business plan (April 2019)	Draft determination	Company view (August 2019)	Final determination
Wholesale totex, 2020-2025 (£million, 2017-18 CPIH deflated prices)[12]	4,850.6	3,998.1	4,472.9	**4,120.1**
PAYG rate %	52.0%	53.4%	-	**61.6%**
Wholesale allowed return (% - CPIH basis)	3.30	3.08	-	**2.92**
RCV run-off (%)	3.76	3.75	-	**3.75**

Wholesale	Revised business plan (April 2019)	Draft determination	Company view (August 2019)	Final determination
Allowed wholesale revenue, 2020-2025 (£million)	5,107.7	4,526.6	-	**4,822.5**
Residential retail	**Revised business plan (April 2019)**	**Draft determination**	**Company view (August 2019)**	**Final determination**
Residential retail cost allowance, 2020-2025 (£million, nominal)	273.2	324.8	273.2	**321.9**
Residential retail net margin (%)	1.0	1.0	-	**1.0**
Retail allowed revenue, 2020-2025 (£million, nominal)	361.3	369.8	-	**354.1**
Appointee	**Revised business plan (April 2019)**	**Draft determination**	**Company view (August 2019)**	**Final determination**
Average bill per household customer, 2020-2025 (£, 2017-18 CPIH deflated prices)	379	342	-	**349**

Securing cost efficiency

2.9 Throughout PR19 we made clear that we expect companies to demonstrate a step change in cost efficiency. We set a cost-outcomes package, based on industry benchmarking, which provided a strong incentive for companies to be efficient and at the same time deliver a marked improvement in their level of performance, particularly on outcomes that matter to customers and the environment. We considered that our cost-outcomes package is stretching but achievable. We provide further information on our assessment of the cost and outcomes package in 'Cross-cutting issues' and the 'Key elements of the methodology appendix'.

2.10 In September 2018 Yorkshire Water submitted a business plan for 2020-25 requiring £5,232 million in expenditure, a 29.5% increase on historical spend

over the period 2014-19. At the initial assessment of plans we were concerned with the efficiency of Yorkshire Water wholesale costs. Yorkshire Water's business plan costs were 18% higher than our view of efficient costs[13]. However, Yorkshire Water's residential retail costs were by a considerable margin the most efficient in the industry, with its business plan costs only 73% of our retail allowance. Yorkshire Water's base wholesale wastewater costs were the least efficient in the industry, at 23% above our view of efficient base costs.

2.11 Our final determination for Yorkshire Water allowed wholesale and retail totex of £4,442 million. Company expenditure can be considered in two areas. Base expenditure is routine year-on-year costs which companies incur in the normal running of their business, providing a base level of service to customers. Enhancement expenditure relates to investment for the purpose of enhancing the capacity or quality of service beyond a base level. This may be driven by a number of factors including new legal obligations. Table 2.2 sets out the components of our wholesale and retail totex allowances. This total is:

- £119.1 million higher than in our draft determination and
- £304.0 million lower than stated in the company's August 2019 representation on our draft determination.

2.12 As part of this allowance, we allowed Yorkshire Water an enhancement allowance of £905 million to invest in improvements to service, resilience and the environment. Key parts of our enhancement allowance are:

- £772 million to improve the environment by efficiently delivering its obligations as set out in the whole WINEP including providing phosphorus removal at sites treating wastewater from more than 4 million people. This includes £36 million to handle the additional wastewater bioresources resulting from its WINEP;
- £51 million to address the impact of deteriorating raw water quality; and
- £22 million to install new water meters.

Table 2.2: Totex by type of cost, 2020-25 (£ million, 2017-18 CPIH deflated prices)

	Company view, August 2019	Final determination allowance	Cost gap (£m)	Cost gap (%)
Wholesale base expenditure	3,354.1	3,214.7	139.4	4%

[13] Ofwat, 'PR19 initial assessment of plans: Summary of test area assessment', Annex 3: Cost Tables.

Wholesale enhancement	1,118.7	905.4	213.3	19%
Total wholesale expenditure	**4,472.9**	**4,120.1**	**352.7**	**8%**
Residential retail	273.2	321.9	-48.7	-18%

Note: Residential retail expenditure is presented in nominal terms (£ million).

2.13 We derived our view of efficient costs for residential retail costs using econometric models as set out in our technical appendix.[14] Our final determination allowance was £48.7 million or 18% higher than Yorkshire Water's proposed residential retail costs.

2.14 Table 2.3 sets out where the differences lay between ours and the company's view of costs across base and enhancement areas of water and wastewater wholesale services.

Table 2.3: Wholesale totex by type of cost, 2020-25 (£ million, 2017-18 CPIH deflated prices)

Wholesale Expenditure area	Company view, August 2019	Final determination allowance	Cost gap (£m)	Cost gap (%)
Base - Water	1,571.0	1,553.3	17.6	1.1%
Base - Wastewater	1,783.2	1,661.4	121.8	6.8%
Enhancement – Water	161.7	142.8	18.9	11.7%
Enhancement - Wastewater	957.0	762.7	194.3	20.3%
Total wholesale	4,472.9	4,120.2	352.7	7.9%

2.15 We derived our view of base and growth costs for wholesale water and wastewater from econometric models and additional allowances to cover items less well suited to this approach such as business rates. We developed our econometric models after extensive consultations with the industry and we provided full details of our approach in our final determination technical appendix.[15]

2.16 Our cost assessment framework allowed companies to submit cost adjustment claims in their business plans. This mechanism allowed a company to present

[14] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', p. 119.
[15] See Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', p. 13.

evidence of unique operating circumstances which drive differences in costs for a company relative to its peers and thus account for cost gaps. Yorkshire Water submitted the Hull and Haltemprice flooding resilience cost adjustment claim that was relevant to wholesale wastewater base costs. We explain our decision and reasoning in relation to this claim below.

2.17 Where possible we used benchmarking approaches to assess enhancement costs. This was how we assessed costs for much of the WINEP, where there was a high number of proposals for investment in similar activities. For example, there are more than 700 wastewater treatment sites in England and Wales required to meet a new phosphorus removal consent, around 80 of which are in Yorkshire Water's region. We used forecast data to benchmark company proposals against their peers' proposals for similar activities. In this way we could set an efficient cost allowance based on realistic and deliverable efficient proposals from other companies.

Key cost issues for Yorkshire Water

Econometric models and growth expenditure

2.18 Yorkshire Water's August 2019 representations on the draft determination about the econometric model specifications focused on our inclusion of growth in the scope of the costs we modelled.

2.19 Growth expenditure relates to additional costs which companies incur that are driven by population growth, such as work for connecting newly constructed houses or reinforcement work to build additional capacity in the network. We model growth-related expenditure within our econometric models for base costs due to the similar characteristics these costs share. Like base expenditure, which is routine expenditure companies incur in the normal running of their business, companies have always incurred costs for connecting new properties to the network and this expenditure can be explained by similar drivers to base costs (e.g. company scale). In addition, we do not expect a significant change in the drivers of this expenditure. Modelling these costs together also addresses reporting issues in how companies allocated historical expenditure between base and growth.

2.20 Most companies agreed with our integrated approach of assessing growth costs in their response to the draft determinations, or did not comment on it. However, Yorkshire Water made a representation about the lack of a specific

cost driver to capture growth-related expenditure in our econometric models that would reflect differing levels of growth between companies. The company also challenged our use of Office for National Statistics (ONS) household projections to forecast growth rates. It suggested instead that we should adopt companies' forecasts of growth rates, which use Local Authority forecasts of new properties and are based on guidance from Defra and the Environment Agency for the water resources management plans.

2.21 For final determination, we maintained the inclusion of growth costs in our base models, as we considered this approach to be appropriate and supported by the majority of companies. We did not include additional drivers in our models such as new connections due to the poor quality of this data and inconsistencies in reporting between companies, which would reduce the effectiveness of our models. We will continue to work with the industry to improve data in this area for the next price review. However, we acknowledged that the models may suffer from a missing growth variable and may only fund the average historical growth rate. We therefore carried out an additional post-modelling adjustment for growth costs to account for differing levels of growth across companies. The adjustment was based on the comparison of a company's forecasted growth rate to the historical rate. Because Yorkshire Water is expected to face lower than historical average population growth, we made a £35 million downward adjustment to the company's base allowance.

2.22 We also maintained the use of ONS household projections to forecast new connected properties. ONS is a recognized independent source and widely adopted to forecast population growth. Local Authority projection rates tend to be at the upper end of the possible range of growth projections and may be appropriate for long-term planning, such as water resources management planning, where they are used to identify long-term capacity requirements. However, for a short-term five year period we considered ONS forecasts to be more appropriate to protect customers from the risk of over-forecasting household growth, since ONS growth rates were typically higher than historical rates but lower than companies' forecasts. Companies are protected from the risk of higher outturn population growth through the developer services reconciliation mechanism. This is a new mechanism introduced at PR19 which will adjust companies' allowed revenue to account for the difference between our forecast and the actual number of new properties, therefore largely mitigating the risk companies face.

2.23 In the light of this, we are satisfied that our final determination approach to assessing growth costs is robust and has considered appropriately the company's representations.

Hull and Haltemprice flooding resilience

Box 2: Reducing sewer flooding risk for properties in Hull and Haltemprice

Yorkshire Water submitted proposals for a £28.6 million programme to mitigate the higher risk of sewer flooding in Hull and Haltemprice.

At draft determination we did not make an adjustment to our base allowance for this programme. The company provided little or no evidence for us to assess the need for investment beyond our base allowance, which already includes an allowance for companies to reduce sewer flooding risk for properties.

In response to our draft determination, the company argued that the topography of the area inhibits natural drainage. The majority of surface water enters a combined sewer system which cannot discharge to watercourses and must be pumped out of the drainage area. Consequently customers in Hull and Haltemprice are approximately five times more likely to experience sewer flooding relative to other major cities served by the company. We accepted the evidence of highly unusual conditions in Hull and Haltemprice which result in customers being at greater risk of sewer flooding. We made an adjustment to our modelling results of £16.4 million. To arrive at our adjustment we estimated our implicit allowance for reducing sewer flooding risk for properties in Hull and Haltemprice (£3.97m), we then multiplied it by five, in proportion to the increased risk, and deducted the implicit allowance.

The company also anticipated that the risk of sewer flooding in Hull and Haltemprice will be further compounded by the effects of climate change and advised that the investment will provide protection from events that will become a regular occurrence. The sector has been mitigating the effects of climate change in previous periods. Our base econometric models used historical expenditure data on sewer flooding risk reduction (together with other base costs). The allowances we make from our base econometric models therefore included an allowance to reduce sewer flooding risk for properties, in line with historical rates of change in flood risk due to climate change. Additionally, comparing an estimate of our implicit allowance for sewer flooding risk reduction in our base allowance to the investments that companies request in their business plans, we found that the implicit allowance is generally higher. We considered therefore that our base allowance is sufficient to cover costs in this area under current circumstance.

We did not find sufficient and convincing evidence that the company will face exceptional pressures relative to the wider industry or historical rates of change to warrant an allowance additional to that provided for through our models. Consequently, for final determinations we did not make an additional allowance for mitigating the effects of climate change.

We expected Yorkshire Water to use our £16.4 million adjustment to develop a long-term plan for Hull and Haltemprice and implement solutions to significantly reduce flooding risk to properties in the area. We also expected the company to use its wider base allowance to reduce internal sewer flooding within its operating region by 47% and therefore meet our stretching performance commitment. If the company delivered a more stretching sewer flooding performance, it would be able to earn outperformance payments under the outcome delivery incentive framework.

Business rates

2.24 In the draft determinations we calculated a cost allowance for business rates based on each company's expected 2017-18 business rates using their 2017 rateable values and the 2017 multiplier set by central government. We did not take the revaluations due in 2021 and 2024 into account in setting our allowances, as their outcomes are not known in advance, and business rates can go up or down as a result of revaluations.

2.25 Yorkshire Water disagreed with our approach of not making an allowance for changes in business rates due to revaluations. We recognised the uncertainty and limited company control over the level of business rates after a revaluation. For final determinations, we maintained our approach to setting business rates allowances without an allowance for revaluations, but - to address the risk and limited controllability - we allowed for an uncertainty mechanism.

2.26 We included a PR24 reconciliation mechanism for outturn business rates in our final determination for Yorkshire Water along with all other companies because:

- There is uncertainty about business rates costs because the Valuation Office Agency (VOA) will be carrying out revaluation exercises during 2020-25, and increases (or decreases) in cost levels could be material; and
- Companies can exercise some control over cost levels by engaging with the VOA and, possibly, by considering the business rate implications of asset development choices.

2.27 In our proposed reconciliation mechanism, the cost variance to the company's PR19 cost allowance was subject to a 75% (customer share): 25% (company share) symmetrical sharing rate in the totex reconciliation at PR24. This meant that the company was still incentivised to manage costs efficiently, whilst

receiving appropriate protection against material cost increases. Conversely, customers would receive a benefit if outturn costs are lower than the allowance levels we have set.

WINEP

2.28 For the final determination we allowed Yorkshire Water £772 million enhancement funding for its environmental obligations as set out in the WINEP, in both water and wastewater services. This was an increase of around £93 million from the draft determination allowance.

2.29 Yorkshire Water has a large wastewater WINEP for 2020-2025. It submitted costs of £892 million to deliver the programme, with £652.5 million of it for phosphorus removal schemes. In its August 2019 representations, the company proposed a reallocation of £137 million from capital maintenance base costs to its phosphorus removal programme. We reviewed the rationale for the reallocation and considered it to be consistent with our regulatory accounting guidelines. We re-evaluated our assessment of phosphorus removal costs across the whole industry. This included fully considering Yorkshire Water's representations on the differences between companies in the requirements driving investment, which it said was driving its higher costs. We made an uplift to our modelled phosphorus removal allowance as a result of our analysis of this issue.

2.30 Our comparative assessment of wastewater WINEP costs shows Yorkshire Water proposals to be inefficient. Our overall wastewater allowance is £725.8 million which is a 19% efficiency challenge to the company's view of costs. For wastewater WINEP costs, we considered an appropriate efficiency challenge by considering costs at a programme level. In one environmental improvement area, providing storage in the sewerage network, Yorkshire Water was more efficient than our benchmark model suggested. We allowed the £1 million efficiency gap between the company's view and our view of costs in this area to partially offset the company's inefficiencies elsewhere in its WINEP costs.

Leakage costs

2.31 We welcomed Yorkshire Water's removal of enhancement costs for leakage and the common performance commitments in response to our draft determination. The company stated in its representation on the draft

determination,[16] "We are willing to assume additional risk by tolerating the absence of these costs in our final determination by removing £300m from our enhancement expenditure and still deliver the following service improvements:

- Improve leakage by 15%
- Reduce pollution events by 41%
- Reduce interruptions to our customers water supplied by 25%
- Reduce internal sewer flooding events by 49%
- Reduce external sewer flooding events by 25%"

2.32 The company reduced its proposed leakage reduction for 2020-25 from 25% to 15%, and no longer requested enhancement expenditure for leakage reduction. We accepted the change in the performance commitment level to 15% and our allowance was unchanged from draft determination. At both draft and final determinations we did not allow any enhancement funding because the company's performance commitment did not go beyond industry upper quartile performance. In our final determination the company was able to earn outperformance payments if it reduced leakage beyond 15%.

Delivering outcomes for customers

2.33 Details of all performance commitments are set out in 'Yorkshire Water - Outcomes performance commitment appendix'.[17]

2.34 Yorkshire Water is a **poor performer in many of the common performance measures** when compared with its peers. Nonetheless, in some areas its forecasts suggest it will receive outperformance payments. In particular, while the company is currently delivering industry average levels of performance on water supply interruptions, it forecast in its September 2018 business plan a reduction in supply interruptions to two minutes by 2024-25. This is substantially lower than our final determination performance commitment level of five minutes. If the company delivers the performance levels in its September plan it would receive outperformance payments of £18 million over the 2020-2025 period under our final determination.

[16] Yorkshire Water, 'Executive Summary – Yorkshire Water Draft Determination Representation', p. 9.
[17] Ofwat, 'PR19 final determinations: Yorkshire Water – Outcomes performance commitment appendix'.

2.35 In its 10 February 2020 press release briefly explaining why it asks us to refer its final determination to the CMA for redetermination,[18] Yorkshire Water says it considers our final determination included "poorly designed penalty measures over the next five years". We are not clear which elements of our performance incentives it considers to be poorly designed. We consider it important to have appropriate and calibrated incentives for companies to meet stretching performance targets, with appropriate and justified underperformance and outperformance incentive rates. We consider that our final determination achieved the right balance between stretching incentives and avoiding inappropriate demands.

2.36 Below we outline in further detail the key issues it raised during our process, and our response to them.

Key outcomes issues for Yorkshire Water

Customer engagement

2.37 In its September 2018 business plan, the company demonstrated some aspects of high-quality customer engagement. However we made adjustments where we identified concerns with the quality of the companies' triangulation of its underlining customer engagement to derive outcome delivery incentive rates. We also cross-checked companies' proposed rates against a number of other factors such as large variance from PR14 rates, comparative performance, and past performance. We used both companies' evidence and historical and sector comparative information to ensure companies' outcome delivery incentives adequately protected customers and incentivised performance. For example, the triangulated marginal benefit component of its supply interruptions and external sewer flooding outcome delivery rates appeared to be unduly influenced by extreme valuations. At draft determination we made an adjustment to re-triangulate the company's proposed rates in such cases.

2.38 The company did not submit any new customer research in response to our draft determinations and accepted the majority of our adjustments to outcome delivery incentive rates and performance commitment levels. However, it argued that as a result of our approach, its outcome delivery incentive package

[18] Yorkshire Water, 'Yorkshire Water asks Ofwat to refer its final determination to the Competition and Markets Authority', 10 February 2020.

has been substantially altered and no longer reflects the views of its customers. As explained in 1.14 above, customer preferences were one factor we considered in assessing performance levels alongside historical and comparative information. Similarly, we said in our methodology that we would compare companies' outcome delivery incentive rates and challenge their proposals where appropriate.

Internal sewer flooding

2.39 At PR14 companies had individual performance commitments for sewer flooding. Yorkshire Water's was set on the basis of number of incidents of internal sewer flooding. However, our comparative analysis was on the basis of number of properties flooded in a year, so a repeat flooding of the same property within a year would not count twice. For Yorkshire Water, we assumed that for every property flooded in a year, there were three sewer flooding incidents. This led to a performance commitment level on a per incident basis that was less challenging than that proposed by the company. The company is outperforming this performance commitment and is receiving outperformance payments from customers of £16 million for the first four years' performance and forecasts a five year total of £25 million outperformance payments as a result.

2.40 In PR19, internal sewer flooding is one of the 3 common performance commitments which we set at a common level. In its September 2018 business plan, the company proposed performance commitment levels which were slightly less stretching than our estimate of forward looking industry upper quartile. We gave the company an action in our initial assessment of plans to align its performance commitment levels to the upper quartile.

2.41 Given the way the PR14 performance commitments were set, the PR19 common performance commitment level represented a large improvement on its PR14 target. However, we believe it is appropriate for Yorkshire Water to achieve this level from base costs. It received funding for internal sewer flooding on the same basis as other companies during PR14 and at least three years' notice that we were moving to a comparative measure of incidents. We therefore considered there was no reason for customers in Yorkshire to suffer three times as many sewer flooding incidents as customers in the rest of England and Wales. We also do not believe it appropriate that customers should pay now for their company to improve to match its peers when it has received the same level of funding as them in the past.

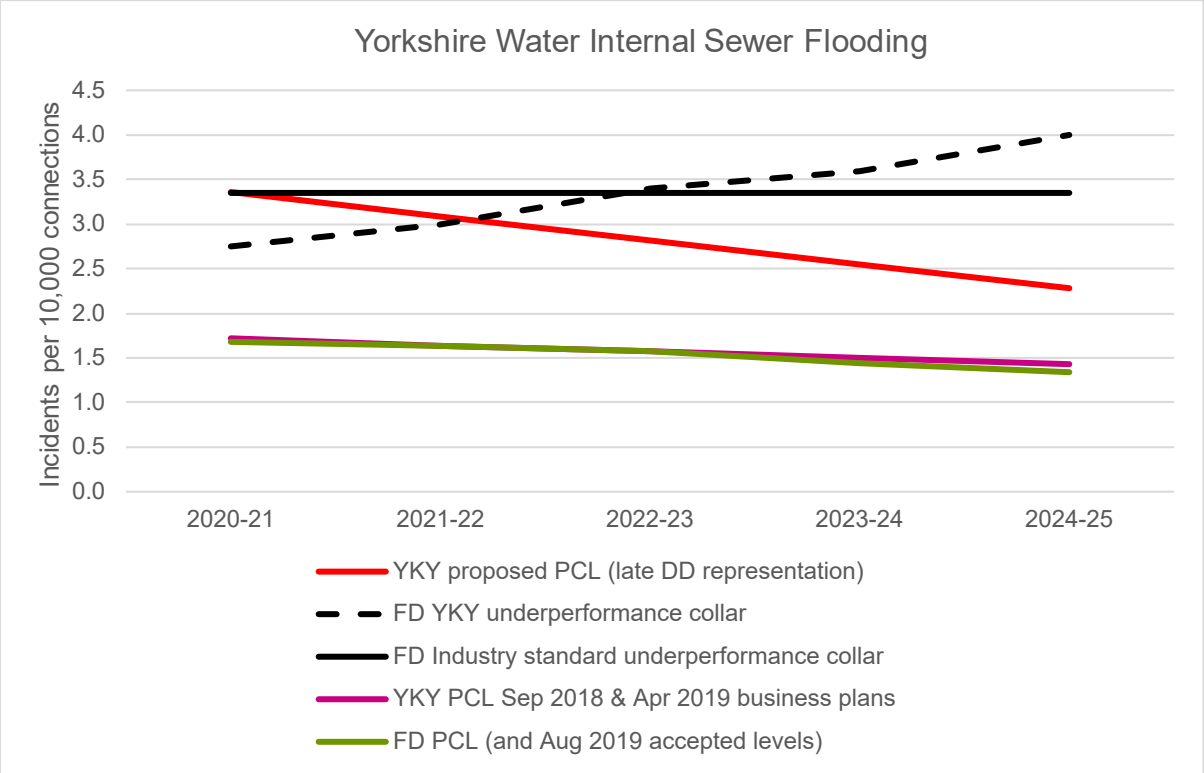
2.42 In its April 2019 revised business plan the company continued to propose performance commitment levels that were slightly less stretching, arguing that our approach to setting cost baselines provides insufficient expenditure for improvement to upper quartile levels. As explained in 'Cross-cutting issues', we expected an efficient company to achieve sector forecast upper quartile performance within base service. We therefore set the company's performance commitment levels to industry upper quartile in its draft determination.

2.43 In its response to our draft determinations, the company initially accepted our level of the upper quartile. However, in a later submission the company proposed a glidepath to upper quartile that is less stretching in all years of the 2020-25 period. The company argued this was required due to the atypically high proportion of properties with cellars in its operating area (resulting in a greater number of properties at risk of sewer flooding). It argued that the most efficient way of minimising this risk is the installation of control devices at each property but that gaining access to properties to do so can be problematic. The company stated that its recent programme of proactively contacting customers has yielded low take-up rates (10%) and that it is as a result of this new learning that it proposed the new performance commitment levels.

2.44 In our final determinations we did not consider that having a greater proportion of properties with cellars is sufficient reason to allow worse performance for the company given other companies also have specific factors which could impact their performance, such as higher property density which can mean that a single event can affect multiple properties. We also considered that the evidence in relation to cellars was unconvincing because the company did not justify how the survey results presented to support the high number of cellars could be considered to be representative of its supply region as a whole. Evidence from other companies also showed that large improvements in performance can be made in relatively short periods of time (for example South West Water improved its internal sewer flooding performance by over 51% during the period 2014-15 to 2018-19). We therefore set the company's performance commitment level to industry upper quartile in the final determination.

2.45 However, we did amend the standard industry collar for the company (see Figure 2.1). This left its overall exposure unchanged (relative to the standard collar) but reduced its exposure to high underperformance payments in the earlier years of the period, while it caught up to industry upper quartile performance.

Figure 2.1 Configuration of collar for internal sewer flooding

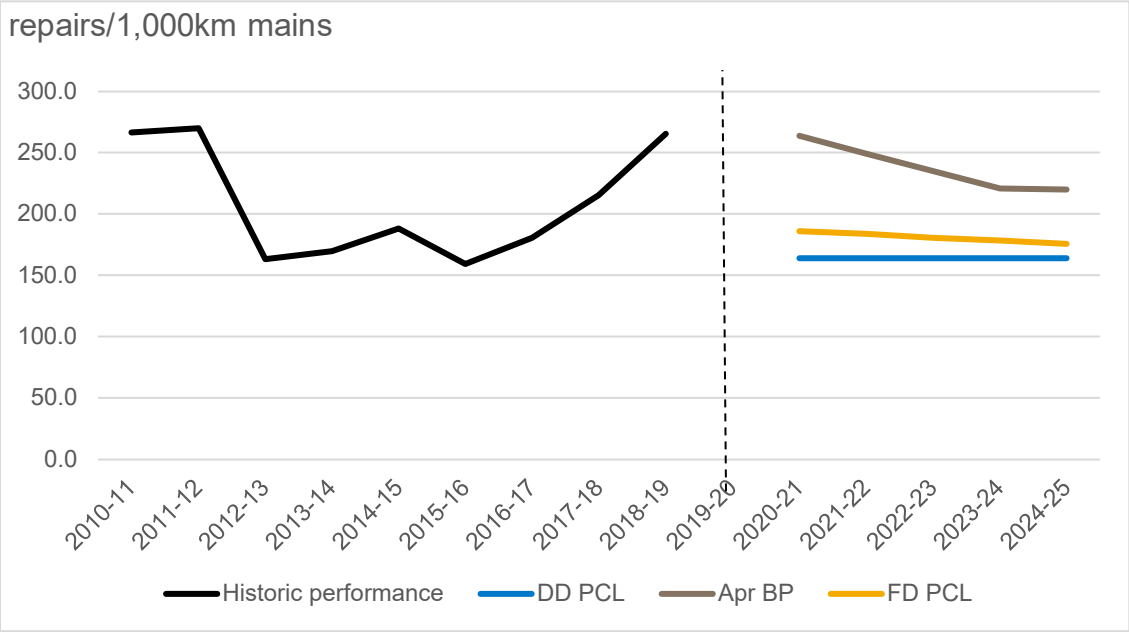


Mains repairs

2.46 We use a measure of the number of mains repairs companies make as a proxy for measuring underlying water network asset health. It covers both reactive and proactive mains repairs. If a company's level of mains repairs increases, it suggests a deteriorating asset health.

2.47 In its September 2018 business plan the company proposed a mains repairs target which represented a significant deterioration in performance (ie a higher number of repairs) from historical levels seen between 2012-13 and 2017-18 (see Figure 2.2). The company stated that this was as a result of increased leakage detection and reduction activity in 2018-19 and 2019-20, and that mains repairs performance would recover to 2017-18 levels by the end of the 2020-25 period. In our initial assessment of plans we gave the company an action to either reconsider its mains repairs performance commitment level, or provide evidence that increased active leakage control impacts the total number of mains repairs. We said that this evidence should demonstrate the historical correlation between active leakage control, pro-active and reactive mains repairs.

Figure 2.2 Mains repairs performance commitment levels



2.48 In its revised April 2019 business plan submission the company proposed the same mains repairs performance commitment levels. While the company submitted evidence to show a positive relationship between active leakage control activity and the volume of proactive mains repairs, its own data also demonstrated a symmetrical relationship between proactive mains repairs and reactive mains repairs (ie that an increase in proactive mains repairs generates a decrease in reactive mains repairs). The company did therefore not demonstrate that its leakage reduction activities will necessarily lead to an increase in the total number of mains repairs. So we set its performance commitment levels at the average of its best three years of historical performance, in line with our overall approach, set out in 'Cross-cutting issues'

2.49 In its response to our draft determinations, the company initially accepted our performance commitment level. However, in a later submission the company proposed a revised, less stretching, performance commitment level. The company stated that this change in position was as a result of the recently published United Kingdom Water Industry Research Ltd (UKWIR) report[19] which concluded that mains repairs are likely to increase if proactive mains

[19] V001: The Impact of Reductions in Leakage Levels on Reported and Detected Leak Repair Frequencies, UKWIR, Report Ref. No. 19/WM/08/68.

repairs are increased to reduce leakage. The company also made the following points:

- the level of mains repairs during the three years of data on which our adjustment was based were not high enough to arrest the natural rate of leakage increase and therefore should not be used to set future performance commitment levels;
- some of the years of data on which we set the performance commitment level were subject to benign weather and therefore not representative of underlying historical performance;
- the company considered it would need to replace the equivalent of a third of its network in order to improve its performance by the amount required by the performance commitment level; and
- companies with higher levels of meter penetration can more effectively reduce leakage by finding and fixing leaks on their customer's pipes instead of their own network, without the corresponding rise in mains repairs.

2.50 For our final determinations we reconsidered our approach to setting mains repairs performance commitment levels in light of the evidence submitted by all companies (see 'Cross-cutting issues' for more details) to (i) incorporate a broader range of historical performance in setting the underlying level of good performance; and (ii) to afford companies the flexibility to deliver a step-change in leakage reductions through active leakage control towards the start of the period. This resulted in a less stretching performance commitment level for all companies, relative to our draft determinations (see Figure 2.2).

2.51 We also considered whether it was appropriate to depart from this sector wider approach to setting mains repairs levels for Yorkshire Water, given its arguments around meter penetration and leakage reduction. The company provided evidence which showed that companies with higher meter penetration tended to have lower leakage levels, but this was based on only one year of data. We did not think this was sufficient to demonstrate that companies with higher levels of metering will be able to more efficiently reduce leakage via customer-side leakage find and fix activity (as opposed to repairing its own mains), particularly as other factors are also important in determining the impact of metering on leaks. These factors include the type of metering technology, analytical approaches to the data meters provide and operational practices that can identify leaks on customer supply pipes.

2.52 We also considered whether Yorkshire Water's historical mains repairs profile indicated that we should adopt a different approach to setting its mains repairs target. Our analysis of historical mains repair performance (see Figure 2.3) of

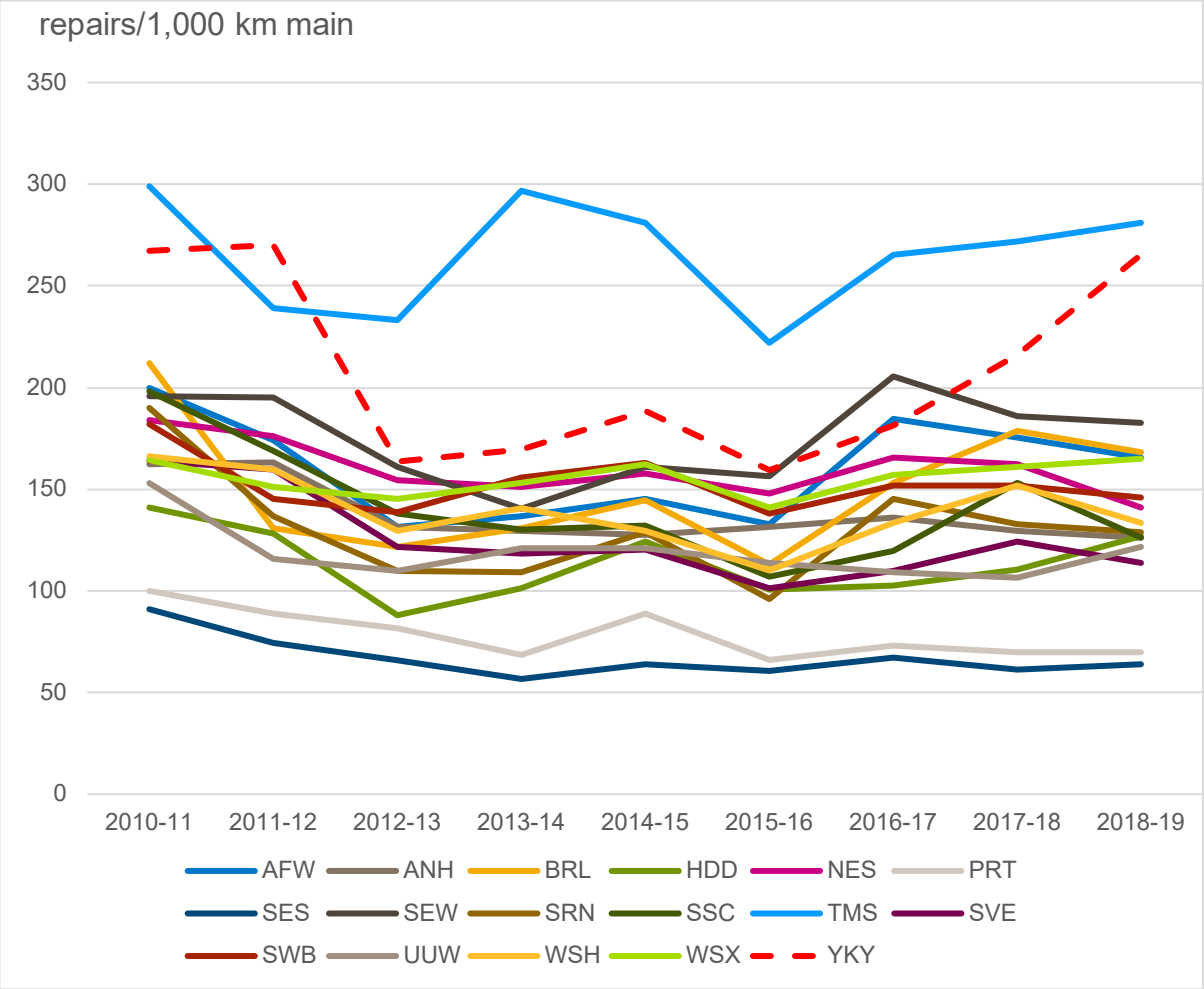
several companies shows similar trends in performance to that of Yorkshire Water, namely poor performance during the periods 2010-11 and 2011-12 followed by a dramatic improvement in 2012-13, which is sustained for a number of years but deteriorates again towards the end of the period.

2.53 However, the deterioration for Yorkshire in 2018-19 is far more pronounced than for other companies. The company suggests this is because it did not conduct sufficient mains repairs in the years 2012-13 to 2016-17 to maintain its leakage performance. This is supported by data from our 2018-19 Service Delivery Report.[20] This shows that during 2012-13 to 2016-17, while mains repairs were stable, Yorkshire Water's leakage performance deteriorated by more than 12% (2012-13 to 2016-17), which is more than any other company in percentage terms. This would mean it had to conduct more mains repairs in 2018-19 to bring its leakage levels down.[21]

2.54 We do not consider that it is appropriate to loosen the mains repair target for Yorkshire Water in PR19 simply because the company did not conduct enough mains repairs in earlier years. Rather, there should be appropriate incentives for the company to improve its mains repairs performance from its current position. Furthermore, we consider it is important that the company is held to account for its historical decisions such as reduced maintenance investment which may have resulted in increasing numbers of mains repairs being necessary, and that customers should not have to pay twice for the company to improve performance to that of the rest of the sector.

[20] Ofwat, 2019 Service Delivery report, pp.15-16.
[21] Y001: Letter from Nevil Muncaster (Director of Asset Management) to David Black, 01/11/2019, p.11.

Figure 2. 3 Historical mains repairs performance



WINEP – length of river improved

2.55 In its September 2018 business plan the company proposed a performance commitment measuring the cumulative length of river improved by 2024-25 through its WINEP schemes. The company proposed accompanying outperformance (and underperformance payments) for river length improved in excess of (or below) its performance commitment level in 2024-25.

2.56 In our draft determination we adjusted the performance commitment definition and level to remove river length associated with the company's 'amber' schemes as of 1 April 2019, given the uncertainty around the requirement to deliver these schemes in the company's WINEP. Amber schemes are not yet confirmed as being required and will not be confirmed by the Secretary of State until 2021. Our adjustment was to avoid unnecessary complexity in the performance commitments and outcome delivery incentives framework, which could require revisions through the 2020-25 period to align with changes in the company's WINEP once it is confirmed in 2021. This would be necessary to

prevent customers funding outputs, via outperformance payments, for which the need (and associated benefit) was uncertain.

2.57 We also adjusted the performance commitment level to set an annual profile of performance in each year of the 2020-25 period (based on the number of 'green' schemes due to be completed each year) to incentivise the company to deliver benefits to customers on a timely basis. This removed the scope for outperformance, so we set the outcome delivery incentive to underperformance payments only. We also adjusted the underperformance rate to recover the foregone benefit to customers due to late delivery (based on the bill impact associated with the total expenditure allowance for WINEP 'green' schemes which we use as a proxy for the marginal benefit delivered to customers).[22] We considered this adjustment necessary because the company's proposed rate was based on customer valuations, including the benefits of 'amber' schemes, which we removed from the definition of the performance commitment.

2.58 In its August 2019 representations on our draft determinations, the company stated that our adjusted performance commitment definition would result in 88% of schemes (i.e. those classified as 'amber' as at 1 April 2019) being removed from the performance commitment level. The company argued that 'amber' schemes should be included in the definition and provided a letter from the Environment Agency to evidence that a significant number of schemes have turned from 'amber' to 'green' between 1 April and 13 May 2019. Furthermore the company offered to mitigate the risk of further 'amber' schemes not turning green through the delivery of additional non-WINEP schemes to make up the difference in the performance commitment level.

2.59 For our final determination we accepted the evidence Yorkshire Water provided from the Environment Agency of the significant change in scheme status since 1 April 2019. We also accepted the company's proposal to mitigate risk of a shortfall in benefit through the delivery of non-WINEP schemes. We therefore amended the performance commitment definition to include river length associated with 'amber' schemes. We also put in place a requirement for a third party governance process for assurance of the selection of non-WINEP schemes to ensure these delivered an outcome that customers value.

2.60 The company also argued in its representations that the application of an outperformance incentive would be in the customer interest by encouraging the delivery of greater benefits. It also disagreed with our decision to depart from an outcome delivery incentive rate based on its own customers' valuations for

[22] For more information on our approach to setting outcome delivery incentive rates for timely scheme delivery see Delivering Outcomes for Customers Policy Appendix, pp. 137-138.

river quality improvements. Given the changes made to the performance commitment definition at draft determination, we reinstated the outperformance incentive and reverted to the company's proposed outcome delivery incentive rates in our final determination.

Other outcomes issues

2.61 In its September 2018 business plan Yorkshire Water proposed pollution incidents and external sewer flooding performance commitment levels that were less stretching than our estimates of forecast industry upper quartile. In our initial assessment of plans we gave the company an action to align its pollution incidents performance commitment level to our estimate of upper quartile. We also asked it to either amend or further justify its external sewer flooding performance commitment level. Similarly we asked the company to either reconsider or demonstrate that its proposed sewer collapses performance commitment level is stretching given it was proposing the highest (ie least stretching) level of performance in 2024-25 of all companies. Its proposed performance commitment level is also worse than its historical average performance over 2015-20.

2.62 In its revised April 2019 business plan the company did not amend its performance commitment levels for pollution incidents and external sewer flooding. Instead the company argued that our approach to setting totex allowances does not provide sufficient funding for it to reach upper quartile for pollution incidents and that forecast upper quartile level of performance was not cost beneficial for external sewer flooding. As set out in 'Cross-cutting issues', we expect companies to deliver upper quartile performance within base funding. We therefore set performance commitment levels at forecast industry upper quartile for these performance commitments in our final determination.

2.63 For sewer collapses, the company acknowledged that it had engaged in low levels of historical asset renewal in order to keep bills low and that this practice was no longer sustainable. The company revised its performance commitment level to deliver a 5% improvement in performance over 2020-2025. The company has the worst comparative performance on this measure and we consider that delaying asset renewal to keep bills low is an inappropriate approach to asset management which passes the risk of asset failure on to future generations. In the draft determination we therefore set a more stretching performance commitment level to deliver a 28% improvement in performance over the period. This level is based on the maximum performance improvement proposed by companies for sewer collapses.

2.64 In response to our draft determinations, the company accepted these performance commitment levels although it stated that the sewer collapses performance commitment level was very challenging and the required rate of improvement had never been achieved before in practice. We considered this point as well as other companies' representations on the achievability of sewer collapses performance commitment levels, and as a result changed our approach. In the final determinations we used the upper quartile percentage improvement proposed by companies as the basis for setting performance expectations. This resulted in a required performance improvement of 19% over the 2020-25 period which we considered achievable for Yorkshire Water, given significant improvements can be made through the adoption of best practice operational methods to better pro-actively identify and repair collapses before they are reported and that large scale capital investments are not necessarily required.

2.65 'Yorkshire Water – Delivering outcomes for customers final decisions'[23] sets out our final decisions in terms of changes to our draft determination for the company's performance commitments and outcome delivery incentives. 'Delivering outcomes for customers policy appendix' sets out further details on our policy decisions on cross-cutting issues such as common performance commitments and outcome delivery incentive rates.

Aligning risk and return and financeability

Key issues for Yorkshire Water

2.66 Yorkshire Water's September 2018 and April 2019 business plans were based on our 'early view' of the allowed return set out in the PR19 methodology (3.40% in CPIH terms). Yorkshire Water submitted Board assurance with its business plan that its plan was financeable on both a notional and an actual basis.[24]

2.67 The allowed return was lower in our draft determinations (3.19% in CPIH terms), reflecting movements in market rates and some refinements to our assessment of the market evidence on the allowed return.[25] We assessed

[23] Yorkshire Water – Delivering outcomes for customers final decisions
[24] Yorkshire Water PR19 Business Plan Submission Document (April 2019), pp. 100, 21.

[25] PR19 draft determination - Cost of capital technical appendix

Yorkshire Water's draft determination to be financeable on the basis of the notional capital structure.[26]

2.68 Our draft determinations signaled to companies that movements in the market data suggested it was possible that the allowed return could be lower by 0.37 percentage points in our final determinations. The detail underpinning this analysis was set out in section 1.2 of the 'Cost of capital technical appendix' in our draft determinations.[27]

2.69 In its August 2019 representations on our draft determinations, Yorkshire Water said that its Board was not able to provide assurance that the draft determinations were financeable on either a notional or an actual basis, citing three reasons:

- 'the cost efficiency challenge which is disproportionate and unsupported by sound evidence;
- the reduction in the WACC in the draft determination and the indications that Ofwat may impose further reductions for final determination; and
- the substantial downside skew in the package of ODIs following Ofwat's further interventions at draft determination.'[28]

2.70 Yorkshire Water said 'Our assessment of Ofwat's current view of WACC of 2.19% (RPI stripped) and the supporting evidence indicate a more appropriate level of c.2.64% if it is assessed more consistently and with full regard to the increased risks resulting from the draft determination. We are willing to consider maintaining an RPI stripped WACC of 2.4%, Ofwat's early view from December 2017 and the basis for our Business Plan submission in September 2018, as part of an agreed risk and return package.'[29] In CPIH terms, the return proposed by Yorkshire Water is equivalent to 3.65%.[30]

2.71 Yorkshire Water said that its business plan targeted a Baa2 corporate family credit rating from Moodys, raising debt principally rated by Moodys at Baa1. In its representation it set out that "As […] Ratings Agency ratios will fall below

[26] PR19 draft determination - Yorkshire Water draft determination p. 8.
[27] PR19 draft determinations: Cost of Capital technical appendix, pp. 6-8.
[28] Board Assurance Statement – Yorkshire Water Draft Determination Representation p. 2.
[29] Financeability – Yorkshire Water Draft Determination Representation, p.18.
[30] This estimate assumes a 100 basis point long-term wedge between RPI and CPIH. PR19 final determination - Allowed return on capital technical appendix, pp. 8-9.

target in all years, we do not believe the notional company is financeable at the desired target level (Baa1 / BBB+)."[31]

2.72 Based on updated market evidence and some revisions we made to the calculation of the allowed return that took account of company representations, the allowed return for the sector in our final determination was 2.96% in CPIH terms.[32]

2.73 The most material issues relevant to Yorkshire Water's August 2019 representation on the draft determination related to the overall balance of risk and return in our draft determinations, our assessment of the allowed return and our overall approach to financeability. We summarise issues raised by Yorkshire Water and our response below.

2.74 As companies are responsible for their own financial resilience and our determinations focus on the financeability of the notional capital structure, we focus our commentary on the notional capital structure in the sections that follow. We comment on the actual financial structure for the company in 'Cross-cutting issues' that accompanies this submission to the CMA.

Allowed return

2.75 In its August 2019 representation on our draft determination, Yorkshire Water disagreed with certain elements of our assessment of market evidence to inform the allowed return. The key issues raised by the company were:

- **Beta** – Yorkshire Water set out that our estimate was too low due to focusing on short-term data, and that more weight should be placed on longer-term (at least 5 year) data for consistency with PR14 and other regulators' decisions. Our final determination explained that by placing more weight on 5 year betas in final determinations we had adopted a more cautious approach than at draft determinations (which used a point estimate anchored on 2 year betas). This resulted in an estimate of unlevered beta (0.29) higher than our advisors' (Europe Economics) recommendation of 0.26.
- **Total Market Return** – Yorkshire Water set out that we had reached incorrect conclusions about pre-1950 returns due to our 'superficial examination' of historical inflation indices. The company also argued that our 'forward-looking' analysis was based on 'inappropriately low geometric

[31] Financeability – Yorkshire Water Draft Determination Representation, p.12.
[32] 'PR19 final determination - Allowed return on capital technical appendix'.

averages.' We consider that changes in the measurement of RPI over time reduce comparability of historical RPI-deflated returns to recent data, and that the more comparable CPI is therefore a better index to use. Our use of pre-1950 inflation figures is justified and well supported – our series is preferred in Office for National Statistics guidance over the only available alternative. We consider that PwC's analysis of data over the 2006-2017 period demonstrates that making a 'volatility adjustment' to the output of our dividend discount models is not necessary, as the volatility in share price growth is much lower over this period than over the course of the 20th century.

- **Risk-free rate** – Yorkshire Water set out that we did not make allowances for 'distortions' in index-linked gilts, and that our negative point estimate was incompatible with economic theory. We considered it is unjustified to discount some drivers of yield (ie regulatory requirements, scarcity value) but not others without providing a reasoned framework. We note that forward rates implied a market expectation of negative 15 year real gilt yields well beyond our 2020-25 reference period, and identified compelling reasons supporting persistently negative real rates in theory.
- **New debt** – Yorkshire Water set out that a weaker implied credit rating for our notional company than for our benchmark index meant that our benchmark index should be redefined to reference only the BBB iBoxx index, without any 'outperformance wedge'. We were unconvinced that there would be no outperformance, noting that bond yields for one Baa3-rated company were at least 25 basis points below the iBoxx A/BBB, suggesting it could comfortably outperform our new debt benchmark with new issuance. We nonetheless reduced our 'outperformance wedge' from 25 to 15 basis points, acknowledging uncertainty around historic levels of outperformance persisting. Evidence since our determination suggests that companies with gearing levels close to the notional level are able to maintain credit ratings consistent with, or better than, the credit rating targeted in our financeability assessment.
- **Cost of embedded debt** – Yorkshire Water considered it was inappropriate to set a single industry-wide cost of debt allowance ignoring higher company-specific costs or to exclude swap costs from our allowance. We set a sector-wide cost of debt allowance due to setting the allowed return for a notionally efficient company. This is widely accepted practice in UK economic regulation and benefits customers by providing better incentive properties than allowing pass-through of actual costs. We consider excluding swaps in our assessment was justified, as the swaps companies have in place generally reflect risk management due to company-specific factors (including high gearing). As our allowed return is predicated on a notional company structure, including swap costs would seem to go against

the principle that companies – not customers – should bear risks associated with their choice of financing structures. Yorkshire Water is a company with gearing that is well in excess of the notional level, which it reported as 75.8% as at 31 March 2019. The company's derivative portfolio has a negative mark-to-market value of £2.6 billion (37% of RCV) as of January 2020, reflecting embedded funding costs significantly above current market rates.[33] The company's inflation linked swaps were put in place at the time it adopted a highly geared structure. We are particularly unconvinced that reflecting such company specific debt costs arising from a company's past financing decisions would be in the best interest of customers.[34]

2.76 In addition to our decisions on equity beta and new debt - which were clearly favourable to the company when compared to our draft determination - we also increased the company's effective return through reducing the retail margin adjustment.[35] We estimate that these three decisions amounted to an allowed return on capital 33 basis points higher than it would have been had we used our approach from draft determinations.

2.77 We discuss these issues in further detail in 'Cross-cutting issues'.

2.78 Our final determination explained that we were satisfied that we included a reasonable allowed return that was sufficient to reward investors for the risk they face in a sector that benefits from significant risk protections.

Balance of risk and return

2.79 In its August 2019 representation on our draft determination, Yorkshire Water considered companies face a balance of risk that is materially skewed to the downside and even an efficient firm faces an expected return below the level of allowed return. Yorkshire Water raised a number of concerns about the 'step change' in required performance when analysing historical performance and the proportionality of the PR19 challenge.[36] Yorkshire Water explained its views were supported by a consultancy report it commissioned with Anglian Water, Dŵr Cymru and Northumbrian Water from Economic Insight.[37]

[33] C013: Moodys, 'Credit Opinion: Yorkshire Water Services Limited', 13 March 2020,
[34] Financeability – Yorkshire Water Draft Determination Representation, pp.18-22
[35] PR19 final determination - Allowed return on capital technical appendix, pp.12-16
[36] PR19 final determinations - Yorkshire Water final determination, pp. 7-8.
[37] Financeability of the notionally efficient firm: Top-down analysis. A PR19 representations report for Anglian Water, Northumbrian Water, Welsh Water and Yorkshire Water

2.80 A key difference between Yorkshire Water's representation view and our final determination view is driven by Yorkshire Water's view that the draft determination increased its totex downside by £350 million. Our assessment of a reasonable range for totex risk is based on the allowed costs in our final determination and our assessment of historical performance across the sector, taking account of our decisions in the final determination.[38]

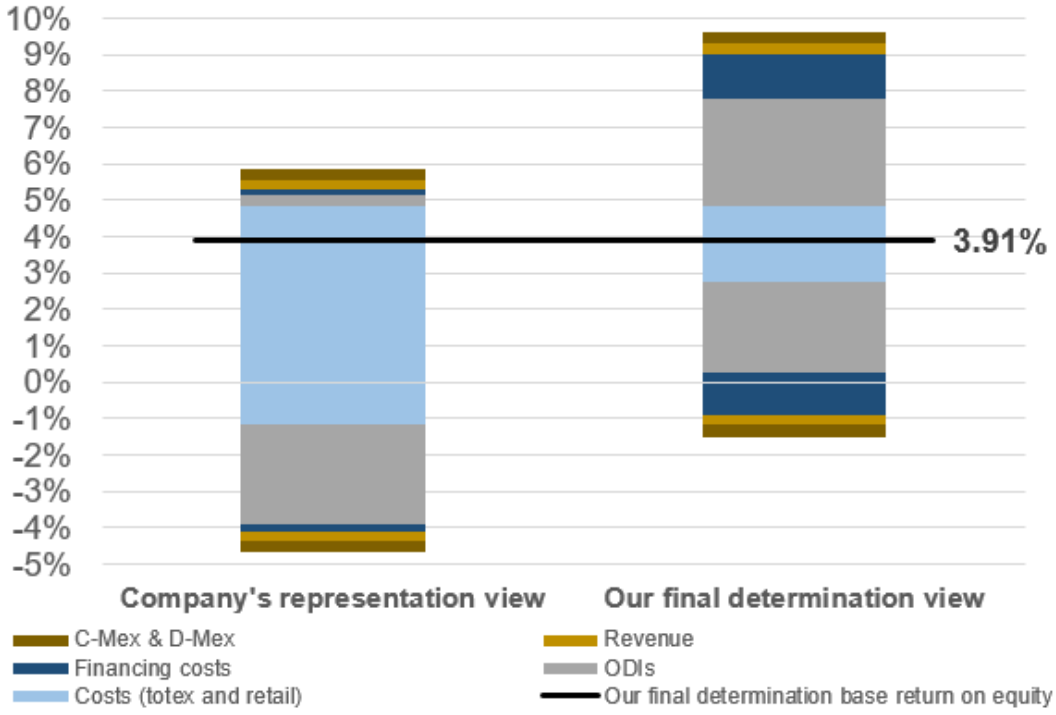
2.81 Our final determinations aimed to be stretching to encourage companies to deliver efficiencies and better levels of service to customers. In making representations on draft determinations, companies were likely to focus on downside risks rather than scope for outperformance. Companies also benefit from the asymmetry of information and have an incentive not to reveal full information about the scope for outperformance and to be unduly risk adverse about expected performance.

2.82 Following our draft determination we increased Yorkshire Water's cost allowance by £119 million, reduced stretch on a number of performance commitments and adjusted incentive rates based on company and sector evidence. Our final determination is intended to be stretching but achievable for companies to deliver improved levels of service in 2020-25.

2.83 We assessed that Yorkshire Water has a significant scope to earn upside from outperformance as well as the risk of lower returns from underperformance with a small negative skew to its overall risk range, driven primarily by totex inefficiency. We consider that Yorkshire Water, if efficient, should be able to achieve the base return on the notional structure. We show in Figure 2.4 our assessment of the company's represented risk range as measured by the return on regulatory equity and the range we set out in our final determination based on the common approach we took to the calculation.

[38] PR19 final determination - Aligning risk and return technical appendix, pp. 20-25.

Figure 2.4 Company representation and final determination RoRE ranges for Yorkshire Water



Financeability

2.84 Yorkshire Water did not consider the draft determination to be financeable. The company identified concerns with our approach to financeability, including that it considered financial ratios were inconsistent with a target credit rating of Baa1 and explained that certain credit rating agencies reverse revenue adjustments when calculating their interest cover ratios.

2.85 We summarise below the issues raised by Yorkshire Water and our response:[39]

- **Leverage and coverage metrics used to assess financeability –** Yorkshire Water set out that our financeability assessment uses our own bespoke financial ratios, rather than those calculated by Moody's. Yorkshire considered a comparison with Moody's ratings and criteria is crucial when assessing whether companies can maintain the necessary ratings to raise finance on reasonable terms and in the long-term interests of customers. Our financial ratios do not mirror exactly any one credit rating agency as definitions differ between the credit rating agencies who also may apply further adjustments to specific companies. Where a financeability constraint

[39] "Financeability – Yorkshire Water draft determination representation" pp. 8-10.

arises, we consider it is appropriate to take account of the cash flow benefit of advanced revenues as discussed below.

- **Target credit rating** - Yorkshire Water sets out that our draft determination was inconsistent by desiring a rating level of at least Baa1, but considered the notional capital structure was not financeable at this credit rating. We assessed that the financial ratios underpinning our determination were consistent with a credit rating of Baa1 taking account of advanced revenues in our financeability assessment. We note that evidence since our determination suggests that companies with gearing levels close to the notional level are able to maintain credit ratings consistent with, or better than, the credit rating targeted in our financeability assessment.
- **Calculation of financial ratios** - Yorkshire Water explained in its representations that our financial model for the draft determination overstated the adjusted interest cover financial ratio due to the treatment of pension deficit recovery payments and business retail profits. We adjusted the treatment of pension deficit in the financial ratios for the final determination which reduced the financial ratios compared with our draft determination. After exiting the business retail market, there was no longer a requirement to set a determination for business retail activities for Yorkshire Water in the final determination.
- **Revenue advancement** – Yorkshire Water said that Moody's and Fitch reverse adjustments to accelerate revenues when they calculate adjusted interest cover. It states that this approach is also used for calculating coverage metrics when assessing its own compliance with financial covenants of its securitised financing structure. Yorkshire Water said the alternative remedies, dividend retention or capital injection, would also be ineffective. It said it calculated that notional gearing would have to reduce to below 53% to achieve the desired target AICR for Moody's. Our aim in determining the allowed return is to set it at a level consistent with market evidence, such that investors are fairly rewarded for the risk associated with their investment; we do not consider that setting the allowed return on equity to attain a specific level of indicative adjusted interest cover protects the interests of customers. Applying an increase to the allowed return at a time when cash returns are low would require a reduction in returns below market rates in future periods to prevent customers paying more over the economic cycle. We consider that net present value neutral cash flow profiling adjustments more fairly balance customer interests. Revenue advancement using PAYG rates or RCV run-off rates has the effect of crystallising some of the inflationary return related to the partial transition from RPI to CPIH as the measure of inflation.

2.86 We identified a constraint in our initial assessment of financeability in our final determination. We assessed the financial ratios in Yorkshire Water's final determination to be consistent with the credit rating the company had targeted for the notional structure in its business plan (Baa1/BBB+), following the advancement of £85 million through PAYG rates. Our financeability assessment set out our expectation that equity in the notional financial structure should contribute to funding significant RCV growth. For Yorkshire Water, real RCV growth exceeded 10%.

2.87 In table 2.4 we set out the key financial ratios provided by the company in its business plan, and in our draft and final determinations. The financial ratios underpinning our determination were broadly consistent with those proposed by the company in its business plan that underpinned its Board assurance statement that its plan was financeable on the basis of the notional capital structure.

2.88 We set out further detail of our overall approach to the financeability assessment in 'Cross-cutting issues'. The detail underpinning our financeability assessment in the final determination was set out in section 5.2 of the Yorkshire Water final determination and in the Allowed return technical appendix that accompanied the final determination.

Table 2.4: Ofwat calculation of key financial ratios – notional structure before reconciliation adjustments (5 year average)

	Revised business plan (April 2019)	Draft determination	Final determination
Gearing	63.71%	61.22%	60.54%
Interest cover	3.79	3.80	4.20
Adjusted cash interest cover ratio (ACICR)	2.02	1.94	1.50
Funds from operations (FFO)/Net debt	9.34%	9.35%	10.06%
Dividend cover	0.66	1.64	2.04
Retained cash flow (RCF)/Net debt	6.52%	7.36%	8.10%
Return on capital employed (RoCE)	3.96%	4.92%	5.19%

Note: In presenting the ratios for our final determinations we exclude the effect of differing accounting treatment of infrastructure renewal expenditure from the numerator of the adjusted interest cover ratio to improve comparability of the financial ratios between companies. If calculated on a consistent basis with the final determination Yorkshire Water's draft determination adjusted interest cover would be 1.40 times.

2.89 We set out the basis of the calculation of the ratios in the PR19 methodology.[40]

- **Net debt** represents borrowings less cash and excludes any pension deficit liabilities.
- **FFO** is cash flow from operational activities and excludes movements in working capital.
- **Cash interest** excludes the indexation of index-linked debt.

Accounting for past delivery

2.90 In its past delivery wholesale revenue forecasting incentive mechanism (WRFIM) submission at PR19, Yorkshire Water made a claim for additional revenue due to an error that it made at PR14. The WRFIM was introduced at PR14, with a key objective to incentivise companies to accurately forecast

[40] Ofwat: "Delivering Water 2020: Our final methodology for the 2019 price review" pp.97-198 Table 11.1, Financial metrics

revenues. We set out our approach to and operation of the WRFIM in published documents.[41]

2.91 Yorkshire Water stated that it made an error when completing its PR14 business plan for connection charges and as a result its forecasts for connection charges were not included in its allowed revenue at PR14, leading to a lower allowed revenue as a consequence. Yorkshire Water argued that we should use actual wholesale revenues recovered net of connection charges in the WRFIM reconciliation due to the error it made in completing the PR14 business plan tables.

2.92 The WFRIM mechanism allows us to consider companies representations and not adjust its revenues fully in accordance with the formula set in the reconciliation rulebook where, for example, demand for new connections was "unexpectedly high". However, as Yorkshire Water's claim related to correcting the company's claimed error in its PR14 business plan and was not related to the operation of its business over 2015-20 we considered this to be outside the scope of the WRFIM reconciliation mechanism.

2.93 The company argues it made a reporting error at PR14. However, we considered our revised business plan definitions at PR14 were clear and that Yorkshire Water had sufficient information to report correctly. Additionally, we consider the reconciliation process should not be an opportunity to revisit the exercise of regulatory judgments made at the 2014 final determinations. In order to provide confidence in the accuracy and legitimacy of regulatory process we apply a high bar for error correction and therefore we only correct unambiguous errors, consistent with our approach to error correction in reconciliations as we applied in our published updated 2010-2015 reconciliation'.[42]

2.94 We did not consider that this error was unambiguous as the data the company provided at PR14 is not sufficiently disaggregated to allow us to verify the amount of connection charges it claimed to omit from the business plan.

2.95 Secondly, the proposed correction is not unambiguous, because the company takes no account of the potential impact any such error may have had on allowed totex at PR14. An error of the nature claimed by Yorkshire Water would have the effect of providing a higher totex allowance at PR14 than otherwise

[41] See pp. 48-70 of: 'The PR14 reconciliation rulebook policy document'; and pp. 29-34 of 'Update to the PR14 reconciliation rulebook policy document'.
[42] 'Updated 2010-2015 reconciliation'.

would have been the case. This higher totex allowance partially offsets the claimed error on the PR14 allowed revenue.

2.96 Finally, we note that Yorkshire Water's proposed approach would remove the impact of the incentive to forecast accurately, as the company proposed to strip out actual connection charges revenue received from the reconciliation. This would unfairly advantage Yorkshire Water over other companies, as it would not be bearing any risk over the forecasting of connection charges.

2.97 The company has set out its comparison of allowed versus actual revenue recovered in its Annual Performance Reports in 2016 to 2019. We acknowledge that we agreed the company could report on a particular basis in its annual performance report, but we note the discussions that took place with Ofwat staff did not and could not have resulted in an agreement to changes to the operation of WRFIM because those were decisions for the PR19 process.

2.98 We did not amend the revenue in the WRFIM reconciliation to correct the error in Yorkshire Water's PR14 business plan forecasts. Our approach for the final determination amended the total WRFIM adjustment at the end of the 2015-20 period from - £26.104 million in the company's 15 July 2019 submission to - £49.521 million (2017-18 FYA CPIH deflated price base).

2.99 As part of the final determination documentation we published a detailed additional information appendix to support our decision to exclude Yorkshire Water's claim for additional revenue to correct errors the company made when completing its PR14 business plan.[43]

[43] 'Yorkshire Water – Accounting for past delivery additional information appendix'

Appendix 1 – Calculation of our final determination

The main body of this document sets out the key interventions that we made to Yorkshire Water's business plan. This appendix provides further detail of the calculation of the final determinations for the wholesale and retail price controls. This builds on Tables 4.1 and 4.2 in the Yorkshire Water final determination. To make the final determinations we made a number of interventions to Yorkshire Water's business plan and/or representation position. These are summarised in the Yorkshire Water final determination. The tables provide details of where further explanation of these interventions can be found in the extensive final determination documentation. To assist the CMA we have developed a detailed spreadsheet which compares the company plan and representations to the draft and final determinations by year and price control, 'Yorkshire Water - Detailed calculation of the final determination revenue allowances'. We also provide a financial model comparison of Yorkshire Water's April 2019 revised business plan position to the final determinations 'Yorkshire Water: Financial model comparison of April revised business plan and final determination'. Further detail on the interventions on outcomes are set out in chapter 3 of the Yorkshire Water final determination and Yorkshire Water - delivering outcomes for customers final decisions.

The following tables shows the latest version of data submitted by the company, which is August 2019 for cost data or April 2019 for other areas of the business plan. We did not request a full set of data with the companies August 2019 representation.

Table A1.1: Calculation of total wholesale expenditure for Pay As You Go (£ million over five years unless otherwise stated, 2017-18 prices)

	Final determination allowance
Wholesale base expenditure	3,214.7
Wholesale enhancement expenditure	905.4
Operating lease adjustment	-14.5
Gross allowed totex for calculation of cost sharing rates	**4,105.6**
Strategic regional water resources solutions and other cash items	0.0
Third party costs	12.4
Non-section 185 diversions	20.9
Ex-ante cost sharing adjustment	0.0
Gross totex	**4,138.8**
Grants and contributions after adjustment for income offset	112.4
Net totex for PAYG calculation	**4,026.4**

Note: We provide a breakdown of wholesale base expenditure and enhancement expenditure in Table 2.3. For further details on operating lease adjustments, strategic regional water resource solutions, third party costs and non-section 185 diversions See pp.31-32 and Table 3.2 in Yorkshire Water final determination.

Table A1.2: Calculation of the wholesale revenue control (£ million over five years unless otherwise stated, 2017-18 prices)

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Net totex for PAYG calculation	4,751.2	3,867.4	4,026.4	Cost adjustments are explained in chapter 3 of the Yorkshire Water final determination, Yorkshire Water cost efficiency appendix and cost feeder models. The relationship between gross totex and net totex for PAYG is set out in Table 3.2 of the Yorkshire Water final determination.
PAYG (%)	52.0%	53.4%	61.6%	PAYG % is based on the opex and capex split of the expenditure allowance adjusted for capitalised infrastructure renewal expenditure and the revenue brought forward for financeability reasons. Further details are provided in section 4.2.1 of the Yorkshire Water final determination, Yorkshire Water allowed revenue appendix and Yorkshire Water aligning risk and return final decisions. We published our PAYG calculations based on our assessment of the opex and capex split.
Totex PAYG	2,471.6	2,064.3	2,482.0	
Pension deficit repair costs	23.2	26.5	26.6	
Total pay as you go	**2,494.8**	**2,090.8**	**2,508.7**	
Average opening RCV in each year	7,382.4	7,099.1	6,981.8	RCV run off rates have not been adjusted. Further details are provided in section 4.2.4 of the Yorkshire Water final determination, Yorkshire Water allowed revenue appendix and Yorkshire Water aligning risk and return final decisions.
RCV run off rate (%)	3.77%	3.76%	3.76%	
RCV run-off	**1,389.9**	**1,335.2**	**1,312.8**	
Average RPI RCV in each year	3,049.0	3,039.7	3,043.4	The allowed return on capital is based on prevailing market evidence. Further details are provided in section 4.2.3 of the Yorkshire Water final determination,
RPI return (%)	2.30%	2.08%	1.92%	

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Total RPI Return on RCV	350.5	316.0	292.2	Yorkshire Water allowed revenue appendix, Yorkshire Water aligning risk and return final decisions and Allowed return on capital technical appendix.
Average CPI RCV in each year	4,194.3	3,925.9	3,807.1	
CPI return (%)	3.30%	3.08%	2.92%	
Total CPI Return on RCV	692.5	604.6	555.8	
Total Return on RCV	**1,043.0**	**920.5**	**848.0**	
Revenue adjustments for PR14 reconciliations	79.3	68.1	50.7	Adjustments made to the reconciliation of PR14 incentives are described in section 4.3 of the Yorkshire Water final determination, Yorkshire Water past delivery appendix, Yorkshire Water accounting for past delivery final decisions, and Yorkshire Water accounting for past delivery additional information. Note adjustments are explained relative to 15 July submission rather than representation.
Fast track reward	-	-	-	Not applicable.
Tax	4.5	-	11.5	The tax allowance reflects the corporation tax that the company expects to pay in 2020-25. Tax adjustments are explained in section 4.4.1 of the Yorkshire Water final determination and Yorkshire Water aligning risk and return final decisions.
Grants and contributions (price control)	112.1	128.9	91.7	An allowance for the revenue that water companies will receive from developers for the work that they undertake to service new developments. Adjustments to grants and contributions forecasts are set out in

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
				section 4.4.2 of the Yorkshire Water final determination. In our final determinations we amended our approach to grants and contributions. This included the removal of non-section 185 diversions to outside the price control. More details of our approach are set out in Our approach to regulating developer services.
Deduct other income (non-price control)	(18.1)	(18.1)	(18.1)	This reflects income water companies receive from outside the price control. Adjustments to non-price control other income are described in section 4.4.3 of the Yorkshire Water final determination and is described in Our approach to regulating developer services
Innovation fund/competition	-	-	17.6	This represents the additional revenue that the company will collect from its customers for the purpose of a collectively funded innovation competition for the period 2020-25 This described in section 4.1.1 of the Yorkshire Water final determination and Driving Transformational Innovation in the Water Sector.
Revenue re-profiling	-	1.3	(0.3)	This reflects the change in revenue in 2017-18 prices as a result of adjustments made to annual revenues to smooth the final bill profile consistent with customer preferences, on a net present value neutral basis. This is described in section 4.1.1 of the Yorkshire Water final determination.
Final allowed revenues	**5,107.7**	**4,526.6**	**4,822.5**	The calculation of final allowed revenues is set out in Table 4.1 of the Yorkshire Water final determination, Yorkshire Water allowed revenue appendix, and, 'Yorkshire Water: detailed calculation of the final determination revenue allowances'

Table A1.3: Calculation of the retail revenue control (£ million over five years unless otherwise stated, nominal prices)

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Total wholesale revenue	5,558.0	4,843.5	5,233.7	Wholesale revenues adjusted from 2017-18 prices to nominal prices.
Proportion of wholesale revenue allocation to residential, %	75.96%	75.94%	75.95%	We did not intervene in the proportion of wholesale revenue allocated to residential retail and any differences reflects movements in revenues across different wholesale controls
Wholesale revenue allocated to residential	4,222.0	3,678.1	3,975.0	Wholesale revenues multiplied by proportion allocated to retail
Residential retail costs	273.2	324.8	321.9	Cost adjustments are explained in chapter 3 of the Yorkshire Water final determination and residential retail cost feeder models.
Total retail costs	4,492.9	4,007.4	4,285.9	Wholesale revenue allocated to retail plus retail costs
Residential retail net margin (%)	1.00%	1.00%	1.00%	Retail allowed margins are set out in , Yorkshire Water allowed revenue appendix
Residential retail net margin	45.4	40.5	43.3	This is calculated as (1-retail margin)* (total retail costs mins retail adjustments.

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Residential retail adjustments	(3.8)	4.6	(11.0)	Retail adjustments from the reconciliation of PR14 incentives, PR14 service incentive mechanism and residential retail revenue reconciliations. These adjustments set out in table 4.11 of the Yorkshire Water final determination, Yorkshire Water past delivery appendix and Yorkshire Water accounting for past delivery final decisions. Adjustments have been converted from 2017-18 prices to nominal prices.
Residential retail revenue (£ million)	**316.3**	**369.8**	**354.1**	The sum of residential retail costs plus retail net margin plus residential retail adjustments.

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales.

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