May 2020

Reference of the PR19 final determinations: Response to Anglian Water's statement of case

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Contents

1. Executive summary

Our response to Anglian Water's statement of case

1.1 Our final determination gave Anglian Water £5.6 billion over the next five years to improve services for customers and the environment, 15% more than it has spent historically.[1] This ensures that **Anglian Water has adequate funding to properly carry out its regulated business**, including meeting its statutory and regulatory obligations, and to deliver the outcomes specified within the final determination and thereby provide for the long-term resilience of its systems in the interests of current and future customers.

1.2 Anglian Water provided us with a copy of its statement of case to the Competition and Markets Authority (CMA) in respect of its reference of the 2020-25 price controls for redetermination on 2 April 2020. The company provided a revised version of its statement of case on 7 April 2020 which, unless stated otherwise, is the document that we have reviewed.

1.3 In its statement of case, Anglian Water argues that the final determination did not adequately fund its base or enhancement requirements, that it was skewed towards penalties rather than rewards, and that it did not provide a sufficient return to investors. **In effect, Anglian Water's case is that customers should pay more and receive less.** We do not believe that the evidence supports either its argument or that outcome.

1.4 The cost allowance we determined reflects our view that customers should not pay for inefficient costs or pay extra for expenditure already included in ongoing allowances. Our outcomes package reflected our policy that companies should deliver, and be rewarded for, operational excellence and should not be able to easily outperform performance levels. In addition, we consider that customers should not pay more than what it would cost for an efficient company to raise finance and should not carry the cost of the company's own financing choices. **These approaches were clearly signalled and ought to be uncontroversial.**

1.5 **The evidence suggests that Anglian Water is well-placed to meet and exceed the challenge we have set.** The company has underspent its cost allowance in each of the last four price control periods[2], and met 93% of its

[1] We allowed Anglian Water a total expenditure allowance of £5.553 billion for 2020-25, which compares to its actual historical spend of £4.733 billion over 2014-19.
[2] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', Table 6.1.

PR14 common performance levels in 2018-19[3]. There is significant opportunity for Anglian Water to outperform again in 2020-25, and to earn net rewards under our outcomes framework.

1.6 **We fully support additional funding for investment to improve service, resilience and the environment.** We have been clear that PR19 represents an opportunity for the water sector to develop a service that is resilient over the long term. Our final determination reflected interventions in Anglian Water's own proposals only to the extent required to ensure that investment is used effectively and efficiently to deliver the right outcomes for customers and the environment.

1.7 We expect that any company should be able to provide convincing evidence to support the claims it is making and to demonstrate that they reflect efficient expenditure. Each company should be in a position to do this, and **the onus must lie on it to demonstrate its requirement.** Claims should be scrutinised particularly carefully where, as with Anglian Water, they represent a considerable increase over historical expenditure. At the heart of this case lies the fact that when we subjected the company's evidence to this scrutiny, we found it lacking and not sufficient to justify the amounts claimed. We do not consider that these deficiencies have been corrected in its statement of case, where it presents little new evidence and few new arguments.

1.8 As we submit our response we continue to recognise the ongoing situation regarding Covid-19. We note that Anglian Water has acknowledged its potential impacts on the redetermination process.[4] Though the effects of the pandemic on the water sector and the wider economy remain uncertain, we are working hard to understand the impacts and to support companies in their efforts to protect customers.

1.9 Recognising the fast-moving nature of the crisis, we would welcome the opportunity to make further representations on the issue as the impacts become clearer. We also continue to welcome any discussions around procedural impacts should the CMA deem them necessary. We summarise below what was included in our final determination for Anglian Water, and outline the key issues that the company raises in its statement of case.

[3] Ofwat, 'Service delivery report 2018-19', October 2019, p. 12.
[4] Anglian Water discussed the Covid-19 situation in its initial presentation to the CMA on 17th April 2020. The company has not substantively addressed the situation in its statement of case.

Our determination for Anglian Water

1.10 Our final determination provided Anglian Water a totex allowance of £5,553 million for 2020-25. We consider that Anglian Water's totex allowance forms part of an in-the-round package that is stretching but achievable and is set at a level that ensures that customers only pay for efficient costs. **It also includes better outcomes for customers**, in terms of reduced water supply interruptions and lower levels of leakage, than Anglian Water's business plan.

1.11 At final determinations there remained a 12% difference between our and the company's view of efficient costs. It is important to make clear that we did not challenge the need to invest in any area of the company's enhancement programme. **Anglian Water is efficiently funded to meet the requirements set within its water resource management plan (WRMP) and the water industry national environment programme (WINEP)**, as well as to meet the forecast population growth in its region, the impacts of climate change and deliver a resilient service. Our allowance reflects our view of efficient costs to deliver these obligations, which is lower than the costs requested by the company.

1.12 Our final determination allowed £6,134 million of revenue, across all price controls, that Anglian Water can recover from its customers. We set an allowed return of 2.96% (on a CPIH basis) which we consider provided a reasonable return for an efficient company based on the market evidence.

1.13 In all, our final determination cut the average bill for Anglian Water's customers by 10.5% in real terms in the 2020-25 period. Taking into account inflation, **we would have expected to see average bills remain stable across the five years** and remain broadly consistent with those in 2019-20. The reduction is largely a result of the lower allowed return on capital, based on market data, as well as an increase in total customer numbers and lower natural PAYG rates.[5]

Our determination in context

1.14 At PR19, most companies stepped up to meet the challenge we set from the start: to deliver a step change in efficiency. Six water and wastewater companies proposed base costs more efficient than our baseline, **none of**

[5] We set out the components of the average bill for Anglian Water customers in 2020-25 in chapter 2 of this document, 'General issues', Figure 2.3.

whom are now asking the CMA for a redetermination.[6] Thirteen accepted the challenge at final determination. In all, our base cost allowances were just 0.4% below company business plans at an industry level.[7]

1.15 In contrast, **Anglian Water requested a larger increase in its totex allowance, relative to PR14 levels, than any other company** throughout the process. Even after reducing its request in August 2019, the company asked for a 2020-25 base cost allowance that is 15.7% higher than its historical base expenditure in 2014-19.

1.16 Such a marked increase in Anglian Water's requested base costs is particularly surprising since these are the year-to-year routine costs which **the company incurs in the normal running of its business**. Anglian Water states that, in part, the increase is to account for additional costs that it considers arise from maintaining leading levels of service, as well as higher capital maintenance needs.[8]

1.17 However, some companies demonstrated at PR14 that **delivering high quality and high efficiency at the same time is achievable**. For example, Portsmouth Water and Wessex Water have achieved upper quartile performance on a number of service measures while also achieving high cost efficiency.[9] In the same period, Anglian Water has also achieved upper quartile performance across multiple areas of service delivery, while underspending its allowance by 9.2% in 2015-2019.[10] We therefore see **no reason why Anglian Water cannot achieve the same as other companies**. We are concerned that the company is asking for extra funding to achieve the common upper quartile performance commitments, despite the levels being the same for all companies.

1.18 In 2015-19, Anglian Water shareholders earned a total return of 11%, based on the actual structure, significantly higher than the base return on regulated equity (RoRE) we set at the price review.[11] The company has **returned dividends significantly in excess of the allowed return** in both 2010-15 and

[6] Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 13.
[7] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', Table 5.3.
[8] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 11, paragraphs 58-9.
[9] Ofwat, 'Reference of the PR19 determinations: Cross-cutting issues', March 2020, p. 20.
[10] Ofwat, 'Service delivery report 2018-19', October 2019, p. 5.
[11] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', Figure 6.6.

2015-19, when expressed as a percentage of notional equity.[12] Our assessment of the company's dividend policy at PR19 also found that it was falling short in a number of areas and we expect greater transparency on how performance delivery has impacted on the dividends paid.[13]

1.19 Anglian Water is a highly geared company. It reported gearing of 78.6% at 31 March 2019, well above our notional level of 60%.[14] In its statement of case, the company claims that its financial structure 'benefits customers'.[15] Where companies maintain high levels of gearing, this may reduce headroom to cost shocks or unforeseen events that may impact on long term financial resilience and, potentially, the quality of service delivered to customers. Companies with high levels of gearing may also be less able to adapt to market changes such as falling allowed returns.

1.20 We provide further detail on the company's actual financial structure and present information on the company's historical dividend payments and credit ratings in the 'Risk and return – common issues' document.[16]

Meeting our duties in the round

1.21 In reaching our final determination, we are satisfied that we acted in accordance with our statutory duties in the round. We have ensured that the company has adequate funding to properly carry out its regulated business, including meeting its statutory and regulatory obligations, and to deliver the outcomes within its final determination.

1.22 We set out the duties, and provide more detail on how we complied with them, in chapter 2 below and in our 'Introduction and overall stretch' document.[17] In particular, we explain why **the points made by Anglian Water are in truth not hard-edged questions of law but, rather, disagreements as to the merits of decisions that Ofwat made in its final determinations**. We address the ways in which Anglian Water wrongly tries to present some of its arguments as

[12] See Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', Figure 6.6.
[13] Ofwat, 'PR19 final determinations: Aligning risk and return technical appendix', December 2019, pp. 113-120.
[14] See Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to cross-cutting issues in companies' statements of case', Table 4.2.
[15] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 309.
[16] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to cross-cutting issues in companies' statements of case', chapter 2.
[17] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 3.

breaches of duty in summary form in chapter 2 below, and further develop those points in the following chapters of this document.

Key issues for Anglian Water

1.23 We set out below what we interpret to be the most important issues raised by Anglian Water in its statement of case and summarise our response to each. We cover these issues in further detail later in this document and/or in our accompanying documentation and indicate this below where appropriate.

Base costs

1.24 Anglian Water disputes the validity of our modelled base costs and argues that its requested levels of base costs (botex) are higher than historical levels partly due to increases in service levels and higher capital maintenance needs as set out in its cost adjustment claims.[18]

1.25 **Our final determination allowance provided for efficient base costs** based on a robust set of core econometric models developed in consultation with the industry. Throughout the price control process, we refined our approach as more data became available and taking company representations into account. For Anglian Water, **we made two upward adjustments to its base allowance** to better account for its high growth rate and to account for evidence from alternative model specifications, including models that consider the potential impact of leakage.

Capital maintenance

1.26 Anglian Water claims that we failed to sense-check modelling results with its actual expenditure needs, specifically those relating to higher capital maintenance needs. The company contends that we did not consider its bottom-up assessment of costs.[19]

1.27 Our approach to setting an allowance for maintenance costs, using econometric modelling with historical data, **has been consulted on with the companies and is the same as at PR14**. While companies raised concerns about including enhancement costs in our base econometric models –

[18] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 125.
[19] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 133-5, paragraphs 538-70.

concerns which we have taken on board – **they have not raised concerns about including maintenance costs in the models**.

1.28 We considered the Anglian Water's cost adjustment claim on increased capital maintenance needs even though it was submitted very late in the process. **The evidence that the company provided was poor.** We consider that our allowance is sufficient for the company to maintain and secure the resilience of its assets and we did not make an adjustment.

1.29 Anglian Water argues that our base allowance may not necessarily reflect efficiency, but rather, low maintenance activity. We have assessed peaks and troughs in our model input data to check whether the companies we identified as efficient in our benchmarking analysis were found to be so because they were in a capital maintenance trough, but found no evidence of that. Our cost allowances are set at an efficient level of costs to incentivise companies to optimise, rather than reduce, maintenance costs.[20]

1.30 Even if Anglian Water is forecasting a peak in maintenance activity in 2020-2025, we do not consider that an adjustment to our allowance is appropriate. While there may be periods when a company has higher investment requirements, it will have periods with lower investment requirements. In the 2015-2020 period, Anglian Water is forecasted to underspend its allowance.

1.31 It is difficult to reconcile Anglian Water's claim with the fact that **the company is forecasting a lower level of capital maintenance expenditure in 2020-25 compared to historical levels**.[21] We recognise that recent changes in accounting rules allow companies to report certain maintenance costs as operating costs rather than capital costs. However, the company has not provided convincing evidence that the increase in base expenditure requested by the company can be attributed to increasing capital maintenance needs.[22] We set out further details in chapter 3, 'Securing cost efficiency', below.

1.32 Anglian Water also argues that we have not provided adequate funding in our base allowance for the increase in its asset base following the adoption of private sewers and pumping stations. **This is incorrect. We included the historical costs related to the adoption of these assets in our base econometric models and these costs are therefore included in our base**

[20] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 125, paragraph 619.
[21] Anglian Water are forecasting levels of capital maintenance in 2020-25 that are 7% lower than in 2015-20 and 11% lower than the long term average actual expenditure 2000-19.
[22] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 107.

allowance. Further, we consider that the implicit allowance for these assets is generous, as Anglian Water has provided information in its statement of case[23] that these historical costs will be significantly lower in the 2020-25 period.[24]

Maintaining leakage levels

1.33 Anglian Water states that our approach to base costs did not account for the impact of service quality, in particular relating to leakage. The company argues that the marginal cost of maintaining and reducing leakage increases as the level of leakage decreases. It argues that, as the company with one of the lowest (standardised) leakage levels in the sector, its cost of maintaining leakage would be higher than that of other companies, and we ought to make an additional cost allowance as a result.

1.34 **We do not consider that the company provides compelling evidence** that maintaining a low level of leakage requires additional cost. Evidence from econometric modelling, on the impact of leakage performance on costs, is generally weak and inconclusive. In its statement of case, Yorkshire Water provided evidence that poor leakage performance requires additional costs. In the 'Introduction and overall stretch' document, we present evidence which suggests **companies can deliver high cost efficiency and good performance concurrently**.

1.35 We made a significant cost allowance for Anglian Water to install smart meters. We expect that data from these smart meters will assist in both maintaining existing leakage levels and achieving further reduction. The company did not take into account the influence of the enhancement expenditure on its ability to maintain leakage levels.

1.36 In finalising our final determinations, to ensure the robustness of our modelling results, we explored alternative econometric model specifications. Some of the alternative specifications capture the effect of leakage on cost.[25] On the basis of the **collective** evidence from these alternative specifications we made an additional allowance of £50.2 million to Anglian Water's base allowance. We

[23] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 71-72, paragraphs 312-315.
[24] This is mainly due to the fact that companies will no longer need to spend a large one-off amount to bring the adopted assets up to standard.
[25] See Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', p. 34.

consider that this adjustment should address a possible link between leakage levels and expenditure.[26]

1.37 Anglian Water also requested an additional (enhancement) allowance to reduce leakage further. Since the company's performance commitment level is beyond the industry 'upper quartile' level of performance, we accepted that an additional allowance is appropriate and allowed **£71.4 million of £76.7 million requested** to deliver this level of performance. We set out further detail on our approach to leakage in chapter 3 below, 'Securing cost efficiency', and separately in 'Cost efficiency – common issues'.[27]

Growth

1.38 Anglian Water argues that our base cost allowance does not provide sufficient funding for growth. It states that our forecast of customer growth in its area is too low, our assessment of costs is inappropriate and our mechanisms for managing uncertainty in growth predictions is inadequate.[28]

1.39 **Our forecasts of property growth, which are based on ONS forecasts, are in line with historical trends while the company's are significantly higher.** We are aware that impact of the Covid-19 pandemic could mean that our forecast may be optimistic. In contrast, the company's own predictions have been persistently overstated, and over the course of the price control determination process have been substantially revised downwards. It has revised its estimates twice in six months.

1.40 **Anglian Water has not correspondingly reduced the requested levels of investment that would arise from these reductions in property growth**. Therefore we do not consider its growth expenditure forecasts to be well-evidenced or credible.

1.41 In our final determinations, we explained our decision to assess growth costs together with base costs, rather than on a stand-alone basis.[29] To complement our 'top-down' modelling approach, we conducted deep dive assessments to

[26] We note that the models that included leakage were not sufficiently robust on their own merit to warrant a cost adjustment. It is on the basis of the collective information from the set of alternative models that we decided to make an adjustment. Further, a PwC review of base models identified a number of limitations related the consistency of leakage data across the industry. See PwC – Funding approaches for leakage reduction, December 2019.
[27] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency – response to cross-cutting issues in companies' statements of case', chapter 5.
[28] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 150.
[29] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 14-17.

consider if, in light of the evidence presented to us, it was appropriate to make an adjustment to our modelling results. In the case of Anglian Water we considered that the evidence presented on unique regional circumstances was not compelling enough to warrant an adjustment.

1.42 However, we accepted the company's representation that the integrated models may suffer from missing growth variables and that may lead to the base econometric models only funding the average historical growth rate across the industry. We therefore made an adjustment to our base allowance and **Anglian Water received an extra allowance of £40.6 million**.

1.43 **Our overall framework offers considerable protection against the risk of higher growth**, and we do not consider there is a need for an additional uncertainty mechanism. We set out further detail in chapter 3 below, 'Securing cost efficiency', and separately in 'Cost efficiency – common issues'.[30]

Smart metering

1.44 The company asks the CMA to reinstate its cost adjustment claim relating to smart metering. It claims that the disallowance will prevent it from being able to complete its proposed metering programme.

1.45 We fully support the installation of smart meters. We disallowed Anglian Water's smart metering cost adjustment claim because **we consider the company has the opportunity to manage the delivery of this programme efficiently within its base allowance**, balancing the benefits against the costs. **We consider the company's strategy to be discretionary and within management control** and that customer should not pay extra because of it. The company has not provided compelling evidence of consideration of the cost and other benefits it will gain from replacing basic meters earlier with smart meters within its cost adjustment claim. We set out further details in chapter 3, 'Securing cost efficiency' below.

Enhancement costs

1.46 **We have not challenged the need for any area of enhancement investment**. Our enhancement allowance for Anglian Water covers most of its

[30] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency – response to cross-cutting issues in companies' statements of case', chapter 4.

requested costs. Of the most significant elements of the enhancement cost gap, we allowed:

- **92% of requested investment for WINEP**, based on our view of efficient costs; and
- **89% of the expenditure requested for its water distribution interconnectors programme**, as the company did not present a robust decision making process and did not evidence that its costs are efficient.

1.47 Anglian Water considers that our overall allowance for enhancement investment is inappropriate due to our reductions for modelled efficiency, the company-specific efficiency challenge, challenge to investment need and scope, and the frontier shift adjustment on WINEP costs.

1.48 Our final determination allowance for Anglian Water's enhancement programme was based on our view of efficient cost. We consider that this allowance is **fully sufficient for the company to meet its statutory duties** and improve the resilience of its assets. We did not provide the company with the full allowances it sought where it failed to provide sufficient and convincing evidence to justify its proposed solutions or where we considered that its costs were not efficient.

1.49 We are aware of the potential limitations of econometric models in this area and we took full account of this. We used benchmarking models for enhancement costs **only where we considered that they were robust**. We also undertook deep dive assessments in parallel.[31] For the assessment of investments relating to WINEP we took a programme level approach. Where we were not satisfied with a model's reliability, we made company-specific adjustments and frequently allowed the costs in full when we did not have a reliable cost benchmark or evidence on which to base an adjustment.

1.50 We used the forecast upper quartile as a benchmark only in enhancement areas where we considered the accuracy of our modelling sufficient, such as WINEP. Contrary to the company's suggestion, there is **no evidence known to**

[31] In a deep dive we assess the evidence provided by the company on the need for investment; options appraisal; robustness and efficiency of costs and customer protection where appropriate. We expect that the evidence provided is commensurate with the materiality of the investment. A compelling case should be well supported by a cost-benefit analysis of options and transparent breakdown of costs with evidence that these are efficient.

us, nor is any presented by Anglian Water to show that the upper quartile level is driven by 'unrealistically optimistic forecasts by some companies'.[32]

1.51 We applied the frontier shift to elements of enhancement costs which are more common across companies, such as WINEP. This is because the potential gains from productivity improvements are likely to be more significant for large, relatively homogenous programmes of work that are more common across companies.

1.52 We set out further detail in chapter 3 below, 'Securing cost efficiency', and separately in 'Cost efficiency – common issues'.[33]

Supply-demand balance

1.53 Anglian Water asserts that we have not provided a sufficient allowance for an area that collectively forms the water resource management plan (WRMP). The company states that our challenge contradicts the needs of its region in terms of the growth and climate challenges it faces and increases the risk associated with maintaining the security of water resources.

1.54 **We did not challenge the need for investment relating to the WRMP**, or indeed any other area of cost allowances. We acted only to ensure that customers do not pay for inefficient costs, where the company provided insufficient evidence to demonstrate that its proposals represent best value. We challenged the proposed capacity of some elements of the interconnectors programme as, even after lengthy engagement, we were not persuaded by the company's justification.

1.55 Our allowance also **enables investment in resilience beyond the minimum requirements** identified within the company's WRMP. Considering all enhancement expenditure relating to delivery of long-term supply-demand resilience, we made an allowance of £588 million, which is **over £110 million higher than for any other company**.[34] This represents an 8.8% challenge on

[32] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 176, paragraph 799.
[33] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency – response to cross-cutting issues in companies' statements of case'.
[34] This includes the enhancement expenditure allocated in our final determination feeder models for supply-demand balance, metering and strategic regional solution development. This allowance includes the development of the Elsham scheme for delivery through a direct procurement for customers route and through this we expect the other providers to invest up to an additional £108 million in the 2020-25 period.

the requested amount. We set out further details in chapter 3, 'Securing cost efficiency' below.

Uncertainty in recovering expenditure for a direct procurement for customers scheme and the introduction of a ban on metaldehyde

1.56 Anglian Water considers there is a 'strong possibility' that it will not be able to recover expenditure related to the Elsham direct procurement for customers scheme and works required should the ban on the pesticide metaldehyde not be reintroduced by the government. It claims that we offered a mechanism that has 'no practical effect'.[35]

1.57 With regard to the Elsham scheme, the company is aware that when we published our final determination we committed to consider the case, following consultation, for amending Condition B to introduce **a specific interim determination process with bespoke criteria for direct procurement for customers**. We have also since re-iterated our intention to engage with stakeholders during 2020 on an interim determination for direct procurement for customers mechanism.[36] The company is therefore over-stating the risk in this area and this issue can be addressed outside the CMA process for Anglian Water and the other companies in a similar position.

1.58 With regard to the potential costs arising from the absence of, or delays in introducing, a ban on the use of metaldehyde as a pesticide, we accepted that costs forecast by Anglian Water could be material. We included a Notified Item for this issue in the Anglian Water's final determination as we considered this approach best protects the interests of customers and provides the company with protection to the extent that material costs arise.

1.59 We set out further details in chapter 3 below, 'Securing cost efficiency'.

Customer engagement

1.60 Our methodology **strongly encouraged companies to seek customer views**. We expected companies to demonstrate ambition and innovation in their approach to engaging customers as they developed their business plans.

[35] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 22-3, paragraphs 119-24.
[36] Ofwat, 'Consultation on proposed amendments to licence conditions for Direct Procurement for Customers', February 2020.

Customer preferences shaped our final determinations to a very significant extent.

1.61 Anglian Water argues that our final determination set aside the findings of customer research presented by the company in favour of our own view of what customers 'ought to value'.[37] The company states that its customers 'overwhelmingly opted in favour' of higher levels of investment to improve resilience and environmental outcomes rather than for lower bills at the cost of necessary investment for the future.[38]

1.62 The company **wrongly presents the issue as a binary choice** between long-term investment and short-term bill reductions. This is a false dichotomy. As we state above, **we did not challenge any proposed spending on the basis of need**. We allowed for efficiently incurred costs in our final determination, including investment for the long term. Anglian Water has **not demonstrated that its customers would prefer a profile of higher bills if this is not efficiently incurred**, and it is reasonable to assume that no customer would wish to fund inefficient expenditure. Nor has Anglian Water provided a sufficient and convincing explanation of the additional costs it considers are needed to deliver its business plan.

1.63 It is also important to recognise that companies' customer research varies in quality and **can only ever imperfectly capture customers' actual preferences**. Moreover, customers will find it difficult to assess what is achievable, particularly with regard to efficiency and productivity. It is the role of a regulator (Ofwat, and now the CMA) to ensure that customer interests are protected in this respect. It would therefore have been a derogation of our responsibility as a prudent regulator not to scrutinise and, where appropriate, challenge the results of companies' customer research, based on the wider set of information available to us.

1.64 Anglian Water makes a number of arguments around its outcomes package, including that our interventions to its plan and our overall approach undermined its findings from customer research. As we set out in our PR19 methodology, evidence of customer support is only one input into our approach, and we considered all evidence submitted by the company for the purposes of our final determination.[39] In many cases we did not consider that evidence to be sufficient and convincing. However, we also note **several key areas of the**

[37] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 56.
[38] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 3, paragraph 13.
[39] Ofwat, 'Delivering Water 2020: Our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, p. 50.

company's plan which we felt able to accept, as we were satisfied with the quality of the supporting customer research.

1.65 We set out our response to Anglian Water's arguments around customer engagement in chapter 2, 'General issues' below and separately in 'Outcomes – common issues'.[40] We address the short-term against long-term arguments in the context of our duties in chapter 2 below, 'General issues', and separately in further detail in 'Introduction and overall stretch'.[41]

Overall stretch across costs and outcomes

1.66 Anglian Water raises a number of issues around the overall stretch across costs and outcomes. Its arguments largely centre on what it presents as a 'disconnect' between cost efficiency and service performance. The company claims that we have not provided sufficient evidence to demonstrate that companies can perform well on both costs and outcomes,[42] and that our approach was determined by a belief that there is 'no trade-off' between cost reduction and quality[43].

1.67 Contrary to the company's statement, we agree that there can be a trade-off between service quality and cost, and improvements in service quality can come at a higher cost. Rather, we have observed that **some companies have managed to simultaneously achieve high service quality and cost efficiency**. The impact on cost efficiency should not be used as an excuse for other companies not to achieve the same level of service quality as their peers. Given Anglian Water's good historical service quality performance, we are unclear why it requires more funding than other companies to meet the same levels.

1.68 In response to Anglian Water's criticisms of the evidence we have presented, we have revised our analysis of the relationship between cost efficiency and service quality at a company level. In 'Introduction and overall stretch', we present the evidence using alternative methodologies suggested by the disputing companies.[44] In all instances, **there is no evidence of an inverse**

[40] Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', chapter 5.
[41] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 3.
[42] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 220-1, paragraphs 905-6.
[43] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 218.
[44] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 7.

relationship between service quality and cost efficiency at a company level. Instead, there is a positive relationship between the two, which suggests **companies can deliver good cost efficiency and good outcomes for customers concurrently**.

1.69 We set out our response to Anglian Water's arguments around the overall stretch across costs and outcomes in chapter 5, 'Overall stretch across costs and outcomes' below and separately in our 'Introduction and overall stretch' document.

Allowed return

1.70 Our final determinations set an allowed return of 2.96% (in CPIH terms). The company contends that the allowed return on capital is too low, alleging that we have erred in estimating various parameters, particularly the risk-free rate, equity beta, and the cost of new debt.[45] Correcting these perceived errors, the company argues that an appropriate range for the allowed return is 2.5% to 2.9% in RPI terms.[46] This is higher than the return included in its April 2019 business plan of 2.40%.

1.71 **Our allowed return provides a reasonable return for an efficiently-financed company**, based on up-to-date evidence on prevailing financing conditions over 2020-25. This is supported by data on listed company share prices following final determinations, which implies investors expect outperformance on the cost of capital as well as other elements. Recent evidence on the risk-free rate, cost of new debt, and equity beta supports our view that the allowed return is not understated.

1.72 **Our approach is balanced and consistent with previous price reviews.** For estimating the cost of equity we used the familiar and established capital asset pricing model (CAPM). Our index-based approach to setting the allowed cost of debt is also similar to that used for PR14. For less observable parameters (total market return, equity beta) we have reflected uncertainty and company views by considering a wide range of evidence and selecting from the middle of the plausible range. For more observable parameters (risk-free rate, cost of debt)

[45] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 27, paragraphs 132-4.
[46] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 27, paragraph 135.

we have been guided by more recent market data, on the grounds that evidence for mean reversion or convergence to equilibria is weak.

1.73 We provide more detail on this in Chapter 6 below, and in our 'Risk and return – common issues' document.[47]

Balance of risk and return

1.74 Anglian Water states that, in the round, the final determination creates an untenable asymmetry between risk and return that will not allow the company to properly finance its functions.[48] The company argues that we failed to achieve the correct balance between allowed revenues, expenditure and risk.[49] It states that the cost-sharing rates that we set unfairly penalise the company for submitting an 'evidence-based' plan.[50]

1.75 We disagree with the company's assertions. The final determination provided a reasonable allowed return for an efficient company, based on the application of an established methodology and using the most up-to-date market evidence available at the time we made our determination. It provides Anglian Water with significant scope to earn upside from outperformance with modest negative skew overall to its overall risk range, driven primarily by outcome delivery incentives (ODIs). **We are satisfied that our final determination for Anglian Water provides an appropriate balance of risk and return**.

1.76 Asymmetric cost sharing rates were introduced to simplify the menu incentive applied at PR14.[51] They were designed to **maintain strong incentives on companies to deliver stretching cost estimates in business plans** in the context of asymmetric information and to provide ongoing incentives for cost efficiency. Asymmetric cost sharing is a long standing tool used by Ofwat and in other regulated sectors.

1.77 **Anglian Water's arguments on cost sharing rates must be considered taking account of the wider aims of the incentive regime and with**

[47] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', chapter 3.
[48] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 37, paragraph 187.
[49] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 296.
[50] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 21-2, paragraphs 114-16.
[51] We set out our approach to cost-sharing rates in more detail in 'Reference of the PR19 final determinations: Risk and return – response to cross-cutting issues in companies' statements of case', chapter 2.

consideration of the impacts over the long term. Our approach recognises that companies benefit from an asymmetry of information in preparing business plans. It is therefore important to incentivise companies to put forward stretching business plans and to deliver efficient services to customers. Anglian Water has requested (and continues to request in this process) the largest increase in totex relative to company historical levels of expenditure, in the sector. Throughout the PR19 process we have set out our concerns that its requested costs are were inefficient by some margin, and the company has at no stage in the process provided us with sufficient evidence to allay these concerns.[52]

1.78 Recent reviews of the sector have highlighted the need for regulators to explicitly account for information asymmetry.[53] Anglian Water had significant opportunity through the PR19 process to convince us of the need for the costs requested in its business plan, which it failed to do. In our view it has not corrected these evidential deficiencies in its statement of case to the CMA. Adjusting cost sharing rates at this stage of the process may well undermine incentives for companies to challenge themselves on efficiency at future price reviews.

1.79 Anglian Water has outperformed its totex allowance in each of the last four price control periods (including by 9.2% from 2015-2019) and has met over 90% of its performance commitments in 2015-19. If efficient, it can continue to deliver its commitments and obligations to customers within the cost allowances we have set, with incentives to outperform and receive returns.

1.80 Anglian Water claims the gearing outperformance sharing mechanism is unjustified and incompatible with the regulatory regime.[54] **The gearing outperformance mechanism aims to address a long held concern that companies and their investors enjoy all the benefits of adopting financial structures where gearing levels are well in excess of the notional level, with little evidence of benefits to customers.** We consider that in the absence of benefit sharing, the regulatory arrangements could distort company

[52] For example, at the initial assessment of business plans, we set out that Anglian Water's fell significantly short of required quality on cost efficiency. Anglian Water was the only company to receive an overall test area grade of 'D' in this area. See Ofwat, 'Anglian Water: Test area assessment', January 2019, p. 3.
[53] For example, the National Infrastructure Commission (NIC) stated in 2019 that regulators 'should take direct account of information asymmetries' when setting cost allowances and the allowed return on capital. See National Infrastructure Commission, 'Strategic investment and public confidence', October 2019.
[54] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 29, paragraph 146.

incentives on choosing financing structures without full consideration of the potential impacts on customers and wider stakeholders. We set out our response to Anglian Water's arguments around the balance of risk and return in chapter 6 below, 'Aligning risk and return', and cover common key issues around the balance of risk and return raised across the disputing companies separately in the 'Risk and return – common issues' document.[55]

Financeability

1.81 Anglian Water claims that its final determination is not financeable on the basis of the notional structure and that it falls well short of meeting the thresholds to maintain a Baa1 credit rating.[56] It also argues that the use of PAYG adjustments to ensure financeability is not appropriate and that there is insufficient headroom in relation to the key credit metrics which would not allow for unforeseen shocks or underperformance.[57]

1.82 **Our final determination provides Anglian Water with a reasonable return if it meets the cost allowances and performance commitments** set out in our determination. Our allowances and performance commitments are set on the basis of a notional, efficient company and are intended to be stretching but achievable. Evidence since our determination supports our view that a company with the notional capital structure could maintain a credit rating that is two notches above the minimum of the investment grade.

1.83 Anglian Water **objects to the use of revenue advancement to bring forward revenue in order to meet a notional financeability constraint**. The financeability constraint arises as result of the cash flow profile in Anglian Water's determination and the £80 million **cash flow profiling adjustments we made more fairly balance customer interests** than increases to customer costs through uplifting the allowed returns to equity.

1.84 We do not accept the claim that our determination provides insufficient headroom. Our financeability assessment was based on an efficient company that delivers its commitments to customers within its cost allowances, consistent with the PR19 methodology and our approach at previous price reviews. **Anglian Water remains strongly incentivised to outperform our**

[55] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', chapter 1.
[56] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 293.
[57] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 300-1, paragraphs 1249-53.

determination. In the event of a one-off unforeseen shock, a rating downgrade is unlikely to result if management can show it has plans to mitigate the issue. Moreover, the financial ratios on the basis of the notional structure in our final determination are higher than the financial ratios set out in Anglian Water's business plan and upon which it provided Board assurance of financeability.[58]

1.85 We set out our response to Anglian Water's arguments around financeability in chapter 6 below, 'Aligning risk and return', and cover key issues around financeability raised by multiple disputing companies separately in the 'Risk and return – common issues' document.[59]

Misallocation of opex and capex

1.86 Anglian Water claims the final determination overstated the revenues available to the company to service its debts by circa. £157 million over 2020-25 and hence overstated the financial ratios calculated to assess financeability.[60] The company argues that the PAYG rates, which typically fund opex, do not take account of the misallocation of opex as capex, resulting in an underestimation of its operating expenses.

1.87 To maintain Anglian Water's approach to recovering opex in period through PAYG and allocating capex to the RCV, we recalculated the PAYG rates in the final determination to take account of our cost challenge. We separately calculated companies' proportions of operating and capital expenditure on base and enhancement costs to determine the overall level of opex in the final totex allowances.

1.88 In its statement of case, Anglian Water argues that while we separated the assessment of enhancement costs from base costs, noting that enhancement had a greater proportion of capex, we did not adequately account for the fact that the same logic applies to botex plus costs, which the company claims are predominantly capex.[61] The company states that the disallowance of circa £318 million of its proposed circa £720 million of growth expenditure constitutes a significant proportion of the challenge on network botex plus expenditure,

[58] Ofwat, 'PR19 final determinations: Anglian Water final determination', December 2019, p. 82, Table 5.2.
[59] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to cross-cutting issues in companies' statements of case', April 2020, chapter 3.
[60] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 301, paragraphs 1254-7.
[61] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 212, paragraph 867.

resulting in an understatement of operating expenditure when recalculating PAYG rates.

1.89 **The allowed PAYG revenues are sufficient to fund Anglian Water's opex.** We do not agree that we should consider base and growth separately for the purpose of calculating the split of opex and capex. We model base and growth costs together as both types of expenditure have similar cost drivers and to minimise cost allocation inconsistencies between them. We do not separately challenge base and growth costs, rather we have a single challenge for both costs. We have changed aspects of our approach to modelling base and growth costs, such as making an additional allowance for high growth companies. As we do not set separate allowances we do not consider it to be appropriate or feasible to attempt to split the allowance for base and growth costs to separately calculate the split of opex and capex. Anglian Water itself acknowledges that 'the 'allowance' for growth is not directly visible'.

1.90 We set out our response to Anglian Water's arguments in further detail in chapter 6 below, 'Aligning risk and return'.

Conclusion

1.91 In setting our final determination for Anglian Water, 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.

1.92 We took care to set a stretching but achievable level of overall challenge across cost efficiency and service quality. This challenge reflected the step change that we expect the sector to make to deliver significant improvements in service delivery, customer service, efficiency and a more resilient and reliable supply of water over the 2020-25 period and beyond. **We do not consider that Anglian Water's statement of case makes any valid case for reversing that challenge.**

1.93 We note that, in their statements of case, companies do not have an incentive to draw attention to instances when we may have made an overly generous decision. This creates a risk that aspects of our determination which were comparatively generous, and relevant to an assessment of the overall balance of our determination in the round, will be taken for granted and lose the

prominence they deserve amidst the detail of the numerous issues raised. Given this, **we encourage the CMA to consider Anglian Water's determination in the round, having full regard to all of those adjustments that we made in favour of the company.**

Structure of our response to Anglian Water's statement of case

1.94 This executive summary is structured so as to address Anglian Water's points in the order in which the company has raised them. The remainder of the document has been structured broadly to group issues in the way that Ofwat has presented them in the final determination. Chapter 2 addresses more general issues, before chapters 3-6 address securing cost efficiency (3), delivering outcomes for customers (4), overall stretch across costs and outcomes (5) and aligning risk and return (6).

1.95 We provide a summary table at the beginning of each of chapters 3-6 listing Anglian Water's arguments, and indicate where these are dealt with in this document, and where relevant in other documents which form part of our response. We hope that this will provide the CMA with the most helpful way in which to navigate through and group together the issues Anglian Water has raised. We also seek to provide the CMA with a consistent structure across our responses to the four disputing companies.

2. General issues

Meeting our duties in the round

2.1 Our statutory duties require us, in summary, to set price controls in the manner we consider is best calculated to:[62]

- further the **consumer objective** to protect the interests of consumers, wherever appropriate by promoting effective competition;
- secure that **companies properly carry out their functions**;
- secure that the companies are able (in particular, by securing reasonable returns on their capital) to **finance the proper carrying out of those functions**; and
- further the **resilience objective** to secure the long-term resilience of companies' systems and to secure that they take steps to enable them, in the long term, to meet the need for water supplies and wastewater services.

2.2 These are our primary duties. They are equal in weight and we must satisfy them all in the decisions we make. Subject to those duties, we also have duties to, among other things, promote economy and efficiency and contribute to sustainable development.[63]

2.3 We must also determine price controls for Anglian Water in accordance with the statement of strategic priorities and objectives for Ofwat (SPS) from the UK Government.[64]

2.4 In reaching our final determination, we are satisfied that we acted in accordance with our statutory duties and that our final determination ensures that the company has adequate funding to properly carry out its regulated business, including meeting its statutory and regulatory obligations, and to deliver the outcomes within its final determination.

2.5 In the 'Introduction and overall stretch' document, we set out in more detail what the duties comprise and how and how we have approached fulfilment of our duties in PR19. [65] We also address there the main common issues which

[62] Water Industry Act 1991, Section 2(2A).
[63] Water Industry Act 1991, Section 2(3).
[64] We set out more detail on how the PR19 final determinations delivered the UK Government's strategic priorities in Ofwat, 'UK Government priorities and our 2019 price review final determinations', December 2019.
[65] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 3.

the disputing companies wrongly seek to portray as raising a breach of duty. These are:

- the duties and strategic priorities;
- time frame (short term versus long term);
- prioritisation of objectives (consumer versus resilience);
- cost allowance versus outcomes;
- the finance duty and financeability; and
- the role of customer preferences.

2.6 We do not consider that it is helpful or accurate to characterise each such disagreement as a 'hard-edged' question whether we have failed to meet our statutory duties. The reality is that these are **simply disagreements as to the merits of decisions that Ofwat made in its final determinations**. The decisions in question were taken in the light of all of the circumstances (including our experience of the water sector and the evidence submitted to us), and as part of the balance that we struck between various interests and policy considerations; in short they were the result of an exercise of discretion.

2.7 The CMA, too, will be exercising its discretion in a way it considers is best calculated to meet the duties and accords with the UK Government's strategic priorities and objectives. The CMA will have before it information that was not available to us at the time of our final determinations and will have to take that information into account. It may be that the CMA, after considering all of the information and circumstances, reaches a different view on certain points to that which we reached or decides to strike a different overall balance. That would simply be a reflection of the nature of the many (and complex) decisions that are taken in reaching a final view on each company's price controls. It does not detract in any way from the fact that we have given careful and conscientious consideration to our statutory duties and are confident that we have fulfilled all of them.

2.8 **Time frame (short-term versus long term).** Anglian Water argues that our final determination is heavily weighted towards a narrow and short-term interpretation of the consumer duty in the form of low bills for this price control period, at the expense of wider consumer and environmental interests both now and in the future, as well as long-term operational resilience to growth and to climate change.[66] This suggestion is ill-founded, as we took a balanced view of our duties in the round.

[66] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 8, paragraphs 39-40.

2.9 Affordability was indeed, and rightly, one of our key themes for PR19. However, how we have approached affordability for all companies in PR19 is not by targeting particular bill levels or making specific reductions in allowances for affordability. Changes to customers' bills generated by our final determinations are the consequence of application of our PR19 methodology. Where we challenged companies in PR19 to improve their costs performance, the driver for savings was not affordability but efficiency, as we note below.

2.10 Furthermore, as explained in the section below entitled 'Setting bills for customers', reductions in bills for Anglian Water customers in 2024-25 are mostly due to a lower allowed return on capital, lower PAYG rates, a higher number of customers to share costs between, and profiling of totex expenditure.

2.11 Indeed, affordability was only one of four themes we set ourselves for PR19, the others being great customer service, long-term resilience in the round, and innovation. Therefore, far from representing an undue focus on reducing bills, this reveals clearly that we were concerned to ensure our determinations were shaped by a balance of factors reflecting the interests of customers not only now, but also in the future.

2.12 **Independence of our determination.** Anglian Water implies that the reduction in bills and cost of capital in the final determination was a response to unprecedented pressure and scrutiny following the 2015 National Audit Office Report and the subsequent Public Accounts Committee Report.[67] As an independent regulator, we welcome external scrutiny, since we acknowledge that other stakeholders, beyond the water companies, have valid perspectives on the water sector and its regulation. The National Audit Office and the Public Accounts Committee play an important role in promoting efficient spending. Therefore their views were taken into account, along with those from water companies and other stakeholders. All our decisions, including the price review methodology and the final determinations, present clear and objective reasons for the solutions we adopted, which were formed in consultation with the companies and other relevant stakeholders. The allowed return of capital was determined on the basis of market data, and not influenced by external pressure.

2.13 **Sound regulatory principles.** Anglian Water further claims that this alleged external pressure resulted in a number of marked departures from the

[67] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 98, paragraphs 401-2; National Audit Office, The economic regulation of the water sector, October 2015; Commons of Public Accounts Committee, Economic regulation of the water sector, December 2015.

methodology applied in previous price controls (such as the 'gearing outperformance' sharing mechanism) which are inconsistent with principles of best regulatory practice, under which regulatory activities should be transparent, consistent, proportionate and targeted only at cases where action is needed.[68] As explained in the 'Introduction and overall stretch' document, we consider that, far from being a breach of regulatory best practice, the fact that we have developed our approach and thinking to reflect the lessons learned from PR14, our consultations throughout PR19, and the evolving issues for the sector is a strength of our decision-making, and a reflection of our experience and specialist understanding of the sector.[69]

2.14 **The role of customer preferences.** Anglian Water states that 'Ofwat has compromised its consumer duty by disregarding the preferences which the Company's customers have clearly expressed'[70] and 'Ofwat has effectively replaced customers' views with Ofwat's own narrow understanding of what customers ought to want'[71]. We explain, in the section below entitled 'Engaging customers' how we considered the results from customer engagement. This issue is also addressed in the 'Introduction and overall stretch' document.[72]

2.15 **The finance duty.** Anglian Water considers that Ofwat's approach to the cost allowance, allowed return on capital and the financeability assessment is a clear breach of the financeability duty.[73] For the reasons set out in more detail in chapter 6 below, we consider that we have made appropriate judgements to allow Anglian Water its efficient costs, and have set the allowed return on capital appropriately in line with market data, complying with our finance duty as part of our compliance with all of our statutory duties taken in the round. Anglian Water's criticisms amount in substance to disagreement with the exercise of our discretion in relation to these components of our final determination.

2.16 **Financial resilience.** Anglian Water argues that Ofwat has misinterpreted its 'Resilience Duty' – i.e. the statutory duty to further the resilience objective[74] –

[68] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 98, paragraph 403, p. 109, paragraph 462.
[69] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes and cross-cutting issues in companies' statements of case', chapter 3.
[70] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 8, paragraph 42.
[71] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 98, paragraph 401.
[72] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes and cross-cutting issues in companies' statements of case', chapter 3.
[73] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 106, paragraph 447.
[74] Water Industry Act 1991, Section 2(2A)(e) and section 2(2DA).

by incorrectly reading into it a requirement for financial resilience when the objective is in fact concerned only with operational resilience. It suggests that this has led Ofwat into error in its final determinations 'in particular through its gearing outperformance sharing mechanism' and other measures to address a threat to financial resilience.[75]

2.17 As we explain in more detail in the 'Introduction and overall stretch' document, the claim that measures designed to promote (and to require the companies to ensure) financial resilience derive from a misinterpretation of the resilience duty – and therefore represent legally invalid components of the final determinations – are plainly misplaced.[76] We made no claim that the decisions which the company complains of were grounded solely in the resilience duty. We did not need to do so. And in the case of the gearing outperformance sharing mechanism it would not have done since the mechanism is designed to, and does, meet the statutory duties as a whole and not just one component of them.

2.18 In any case, financial resilience (whether or not expressed in those terms) is a concept of long standing which has always found support in the legislation, in particular in our statutory duties, and the conditions of companies' licences (which have been given effect under the legislation). It may also be viewed as a feature of the resilience duty, properly understood. There are two limbs to the resilience objective as set out in statute. We agree that the first of these (a) is drafted in such a way as to be directed towards what Anglian Water calls 'operational resilience'. This sets out the overall goal. However, the second limb (b), which is concerned with how that goal is achieved, uses broader language including a reference to 'long-term planning and investment by relevant undertakers', in which the concept of financial resilience could readily sit. Although the objective is placed on us (and the CMA, in this process), it is concerned with actions that the water companies themselves need to take for the purposes of ensuring the resilience of their own long-term plans. In this respect the second limb has some similarity and overlap with the pre-existing functions duty.

2.19 **Efficiency and evidence.** Anglian Water argues that we misinterpreted differences in Anglian Water's costs relative to its benchmark as inefficiency, and have therefore incorrectly applied the efficiency duty.[77] It also adds that we

[75] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 103, paragraphs 430-1.
[76] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes and cross-cutting issues in companies' statements of case', May 2020, chapter 3.
[77] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 108, paragraph 452.

failed to provide appropriate allowances to ensure that the region remains resilient in the long-term, and for growth expenditure, allegedly failing to correctly apply the resilience duty and the sustainability duty.[78] The company's real complaint is simply that its cost allowance was less generous than it would like. Anglian Water seeks to frame this argument in legal terms by stating it in the language of the statutory duties. But in reality there is no legal point to be made. Where we did not accept claims for allowances, we did so because the evidence to support them was inadequate. In chapter 3 below, 'Securing cost efficiency', we discuss in more detail the issues raised by the company regarding its cost allowance.

Engaging customers

2.20 In our PR19 methodology, we set out our expectations that companies should demonstrate ambition and innovation in their approach to engaging customers as they develop their business plans. This included direct engagement with customers to develop a package of performance commitments and ODIs.[79]

2.21 We expected customer challenge groups (CCGs) to provide independent challenge to companies and independent assurance to us on the quality of a company's customer engagement and the degree to which this is reflected in its business plan. As we explained in our 'Introduction to the CMA', we did not expect CCGs to endorse a company's overall business plan, nor did we expect them to act as a substitute for the views of customers.[80] We are currently considering the future role of CCGs (or equivalent) for PR24, including how to better promote the independence of CCGs from companies.

2.22 At our initial assessment of plans we found that Anglian Water's September 2018 business plan demonstrated an overall high quality, ambitious and innovative approach to customer engagement and participation and demonstrated how customer views helped shape the plan and ongoing business operations.

2.23 However, it is important to recognise that companies' customer research varies in quality and can only ever imperfectly capture customers' actual preferences. It would therefore be a derogation of our responsibility as a prudent regulator not to scrutinise and, where appropriate, challenge the results of companies'

[78] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 103, paragraph 426, p. 108, paragraph 457.
[79] Ofwat, 'Delivering Water 2020: Our final methodology for the 2019 price review', December 2017, pp. 22-31.
[80] Ofwat, 'Reference of the PR19 final determinations: Overview', March 2020, p. 33.

customer research, based on the wider set of information available (such as historical and sector comparative information). We also consider the extent to which it has been used by companies to form their business plan.

2.24 In its statement of case, the company argues that its acceptability research demonstrates that 'when offered the choice, customers overwhelmingly opted in favour of the company being funded to invest now for better and more resilient services and improved environmental outcomes rather than seeing such investment postponed and bills fall'.[81]

2.25 We note that recent research by CCW revealed that 86% of Anglian Water's customers found our draft determination plan and bill reductions acceptable.[82] Furthermore, we consider that the company has mischaracterised the findings from its own acceptability research, as it does not provide a sufficient explanation of the additional costs that it considers are needed to deliver its business plan, for the same levels of service. In our assessment of Anglian Water's business plan we identified that the additional costs proposed by the company result in significant inefficiency in its business plan. Our final determination allows for efficiently incurred costs without reduced service, and Anglian Water has not demonstrated that its customers would prefer a profile of higher bills if this is not efficiently incurred. In its statement of case, Anglian Water argues that our approach of using the forward-looking upper quartile to set performance commitment levels has dispensed with the requirement that companies should develop their own stretching performance commitments in consultation with customers, and in line with the customer priorities revealed through those consultations. The company argues this is a departure from a more rounded approach demonstrated in our previous methodological statements and that we should have demonstrated that what it considers to be an achievable performance commitment level also chimed with the views of customers.[83]

2.26 As we set out in our final methodology, customer views are just one of the inputs we asked companies to consider in setting stretching performance commitment levels (including cost benefit analysis, comparative information, historical information, minimum improvement possible, maximum level attainable and expert knowledge).[84] Accordingly, in assessing companies'

[81] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 3, paragraph 13.
[82] CCW, 'PR19 – Draft Determination Research', February 2020, p. 60.
[83] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 224-225, paragraphs 974-978.
[84] Ofwat, 'Delivering Water 2020: Our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, p. 50.

proposed performance commitment levels we have applied a wider set of tests than just evidence of customer support.

2.27 This approach recognises that there are areas where customers are not best placed to determine whether a company's business plan is appropriate. This is particularly the case for determining whether companies' proposed performance commitments are stretching but achievable. In particular, customers do not have access to the in-depth analysis of comparative and historical performance information and engineering expertise that Ofwat has applied to assess performance commitment levels.

2.28 Anglian Water asserts that Ofwat should have demonstrated that final determination performance commitment levels are consistent with customers' views. However for the reasons outlined above, such an exercise would not be meaningful or pragmatic given the information set available to customers.

2.29 We note that, contrary to Anglian Water's claims that our approach is a departure from our PR19 methodology, we were clear in our methodology that we would set common performance commitment levels for the relevant three performance commitments based on forward looking upper quartile (water supply interruptions, pollution incidents and internal sewer flooding).[85]

2.30 We respond to Anglian Water's points on the use of forward-looking upper quartiles more broadly in 'Outcomes – common issues'.[86]

2.31 Anglian Water also argues that Ofwat's 'component-by-component interventions' undermine the outcomes package which it developed with its customers.[87]

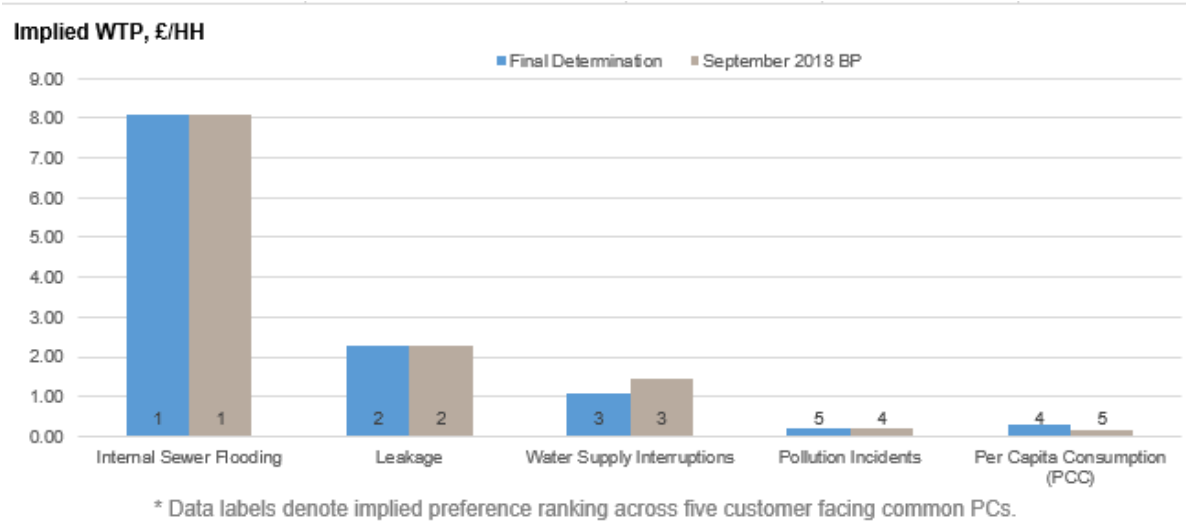
2.32 The interventions we made were targeted and proportionate based on the wider set of information available to Ofwat (such as comparative information) that was not available to customers, and while our interventions were constructed on a bottom-up basis, we explicitly considered the overall stretch and the

[85] Ofwat, 'Delivering Water 2020: Our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, p. 61.
[86] Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', chapter 7.
[87] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 228, paragraphs 992-993.

appropriateness of companies' resulting outcomes packages in arriving at our final determinations.[88]

2.33 Correspondingly, we observe that our interventions have largely preserved the pattern of preferences implied by the ODI rates in Anglian Water's September 2018 business plan. For example, Figure 2.1 below compares the ranking of customers' willingness to pay across the five key customer-facing common performance commitments as inferred from ODI outperformance rates.[89] This shows that, contrary to Anglian Water's assertions that our interventions have undermined the ODI package it developed with customers, the pattern of preferences is, in fact, largely respected by our interventions.

Figure 2.1: Comparison of implied willingness to play between Anglian Water's September 2018 business plan and final determinations



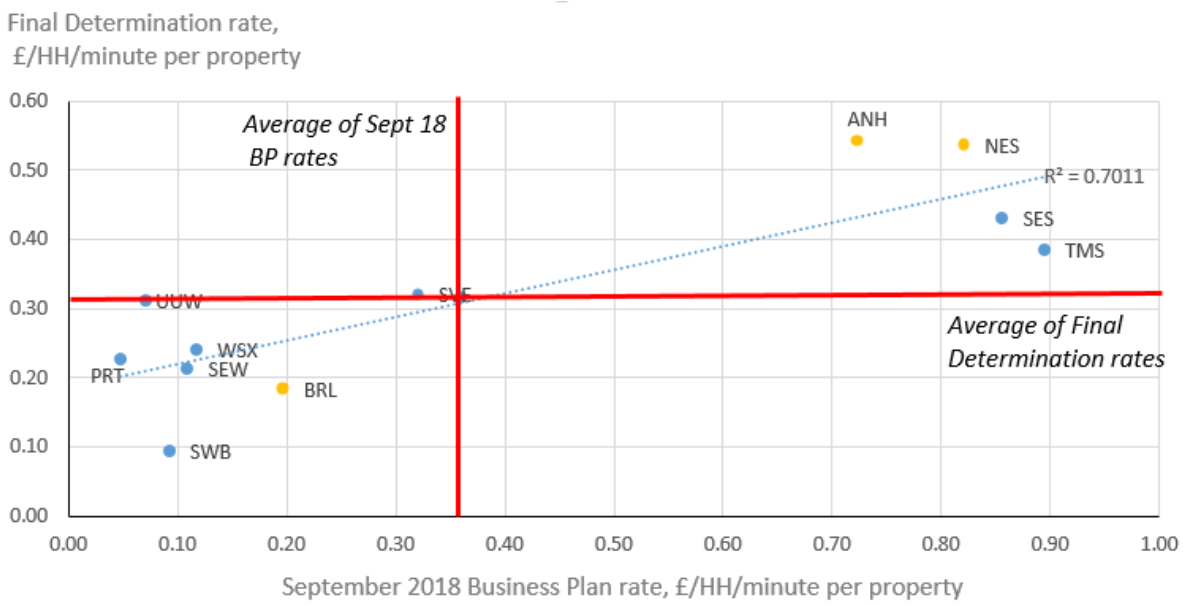
2.34 Similarly, implied Anglian Water customer preferences for a given performance commitment across companies have also been respected by our interventions. For example, Figure 2.2 below shows that Anglian Water's ODI rate for water supply interruptions remains above the sector average both before and after our intervention (as indicated by its position in the top right quadrant of the chart).

2.35 More broadly, we observe that companies' September 2018 business plan rates remain a good predictor of the final determination rates for water supply

[88] For example, see 'PR19 final determinations: Overall stretch on costs, outcomes and cost of capital policy appendix', December 2019, pp. 23-33 and 'PR19 final determinations: Delivering outcomes for customers policy appendix', December 2019, pp. 104-106.
[89] Using the standard formula for ODI outperformance rates of ODI rate = Marginal benefit x 0.5.

interruptions (with an R^2 of 0.7) indicating that our interventions have respected the implied distribution of customer preferences across companies.

Figure 2.2: Comparison of distribution of implied willingness to pay for reducing water supply interruptions across companies before and after our final determination interventions



Note: As per our construction of 'reasonable ranges', we exclude companies which have not appropriately used customers' valuations as the basis for setting their ODI outperformance rates, on the grounds that the resulting rates are neither comparable across companies nor representative of underlying customer preferences.

2.36 The overall trend is not as strong for per capita consumption (i.e. the other customer-facing common performance commitment on which we intervened). But ODI rates exhibited a large amount of variation for this performance commitment, with the highest proposed rate being a multiple of 139 times the lowest rate in companies' September 2018 business plans (on a normalised basis). The extent of this variation was neither explained nor credible. Nevertheless, for Anglian Water, our intervention respects the relative implied ranking of its customers' preferences across companies for per capita consumption, in the sense that both the September 2018 business plan and final determination ODI rate lie between the lower quartile and median rate across the sector.

2.37 Considering this evidence in the round, it is therefore not the case that our targeted interventions have undermined or overridden the implied distribution of preferences (both across companies and across performance commitments) from Anglian Water's September 2018 business plan.

Setting bills for customers

2.38 We did not have an end position on bills in mind when we applied our PR19 methodology, and our approach to setting bills was from the bottom up, for each of the individual building blocks of prices.

2.39 Following our initial assessment of plans in January 2019, we explained:

> 'In December 2017, we gave our early view of the cost of capital. At the time this was the lowest in the water sector since privatisation. Most companies use this indicative cost of capital in their plans. This, on its own, will reduce bills by £15 to £25 per customer. We will set the cost of capital for each company in our decisions later in the year.'[90]

2.40 We identified that a reduction in the cost of capital provided headroom for bill reductions and more investment in resilience and service improvement.

2.41 At final determination we explained that, across the sector, 'our £6 billion efficiency challenge and lower financing costs, with the lowest allowed return on capital since privatisation 30 years ago' would allow customer bills to reduce by an average of £50 before inflation.[91]

2.42 As illustrated above, changes to customers' bills generated by our final determinations are the consequence of application of our PR19 methodology. Companies misrepresent the basis of our decision-making when they suggest that we targeted reductions in bills in our final determinations. Our 'Introduction and overall stretch' document explains:

> 'Bills, or more properly total revenues (as we are setting revenues and not price controls), are a function of the decisions that we take on the individual building blocks of expenditure, allowed return and the amount of money recovered in period and over time. Bills are therefore a product of the other decisions and not an end in themselves.'[92]

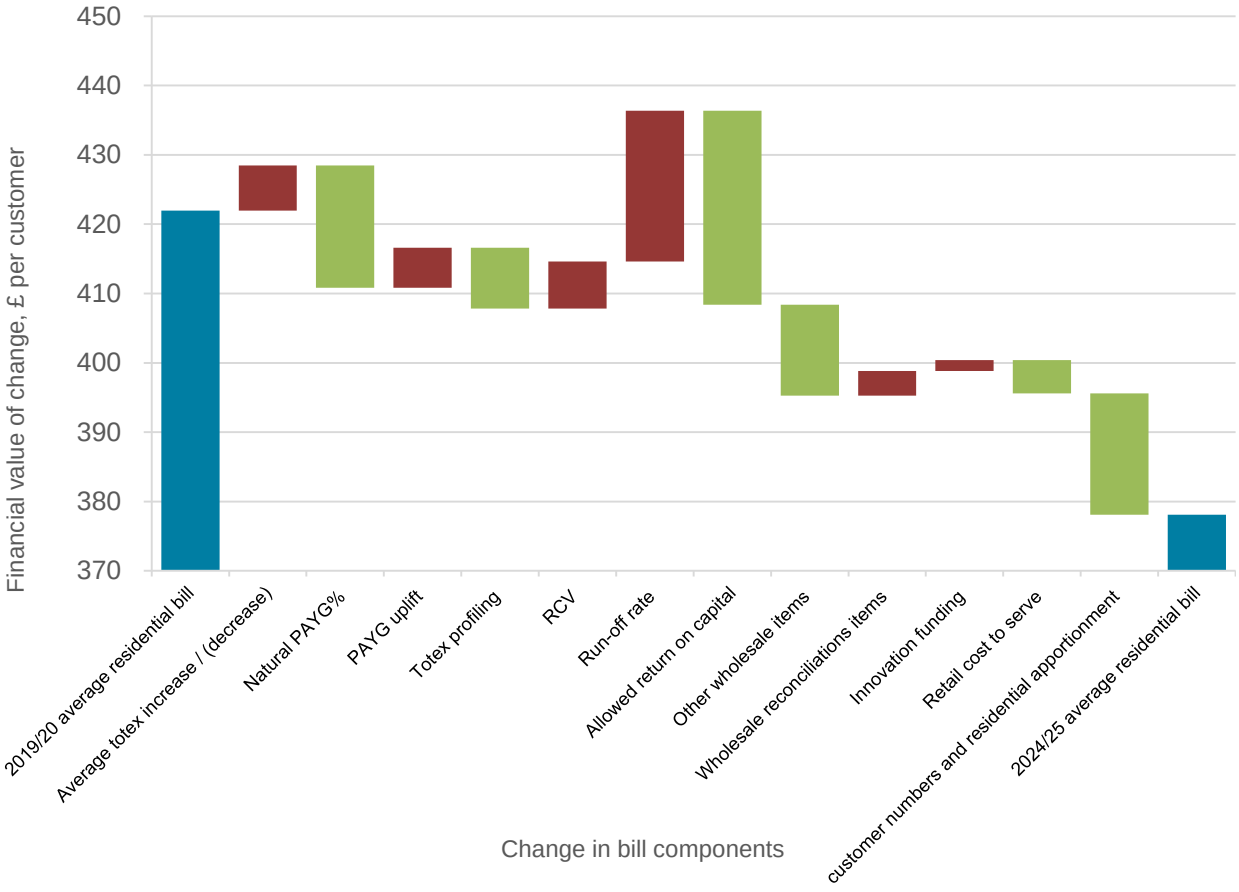
2.43 Our final determination for Anglian Water cut average bills by 10.5% in real terms in the 2020-25 period, compared to the company's proposed 1.4%. Taking into account inflation, we would have expected to see average bills remain stable across the five years and remain broadly consistent with those in 2019-20. We set out in Figure 2.3 below how the different aspects of Anglian

[90] Ofwat, 'PR19 initial assessment of plans: Overview of company categorisation', January 2019, p. 17.
[91] Ofwat, 'PR19 final determinations: Overview of final determinations', December 2019, p. 3.
[92] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 4.

Water's bills will change due to our final determination by comparing 2019-20 (year five of AMP6) and 2024-25 (year five of AMP7).

2.44 It is important to note that this decrease is primarily caused by the lower allowed return on capital, as well as lower natural Pay As You Go (PAYG) rates and an increase in customer numbers. It does not result from our totex allowance for Anglian Water, which has in fact increased overall.

Figure 2.3: Bill movement between PR14 and PR19[93]



[93] Ofwat calculates the return on RCV using a real allowed return on capital. Ofwat used an allowed return on capital expressed in real RPI terms for PR14 returns, while it is using an allowed return on capital expressed in real CPIH terms for PR19 calculations. The use of the real CPIH terms allowed return on capital reduces the fall in bills at PR19 from lowering the nominal allowed return on capital. This is because the real CPIH terms allowed return on capital is around 1% higher than the allowed return on capital expressed in real RPI terms.

3. Securing cost efficiency

Summary

3.1 In its August 2019 representation, Anglian Water's requested expenditure of £6,286 million remained the **largest increase relative to historical levels of expenditure of any company** within the industry. The overall cost gap between our allowance of £5,553 million for wholesale and retail price controls of £732 million is the largest across the industry, both in terms of magnitude and, at 12%, as a proportion of requested investment. We reviewed Anglian Water's proposals thoroughly and considered that they were generally inefficient and that it had failed to provide sufficient and convincing evidence to show otherwise.

Table 3.1: Cost gap at final determination by area (£ million 2017-18 CPIH deflated prices)[94]

Wholesale Expenditure area	Company view (August 2019)	Final determination allowance	Cost gap (£)	Cost gap (%)
Wholesale base expenditure	4,234.5	3,725.6	509.0	12%
Wholesale enhancement expenditure	1,644.5	1,424.6	219.9	13%
Residential retail expenditure	406.5	403.0	3.5	1%
Total expenditure	**6,285.6**	**5,553.2**	**732.3**	**12%**

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

3.2 Table 3.2 provides a more detailed breakdown of the cost gap on wholesale base expenditure. This shows that our determination of an efficient level of modelled base costs is only 2% lower that of the company, but that the cost gap widened significantly because we did not accept its cost adjustment claims. We have a high evidential bar for cost adjustment claims as companies only raise issues that are positive additions to their allowance.

[94] 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 £5,712.7 million (£5,309.7 million for wholesale services, £403 million for retail services).

Table 3.2: Wholesale base expenditure, 2020-25 (£ million, 2017-18 CPIH deflated prices)

Base expenditure area	Company view (August 2019) (£m)	Final determination allowance (£m)	Cost gap (£m)	Cost gap (%)
Wholesale modelled base costs (including adjustments but excluding cost claims)	3,420.8	3,368.5	52.3	2%
Cost claim 1 - Maintain frontier leakage performance	136.9	0.0	136.9	100%
Cost claim 2 - Sludge transport	17.6	0.0	17.6	100%
Cost claim 3 - Capital maintenance	238.0	0.0	238.0	100%
Cost claim 4 - Smart metering	42.4	0.0	42.4	100%
Total wholesale modelled base costs	**3,855.7**	**3,368.5**	**487.2**	**13%**
Total wholesale unmodelled base costs	**378.9**	**357.1**	**21.7**	**6%**
Total wholesale base expenditure	**4,234.5**	**3,725.6**	**509.0**	**12%**

Note: No adjustment was made for cost claim 2 – sludge transport as it fell below our materiality threshold.

3.3 The total wholesale base expenditure Anglian Water requests is significantly higher than actual costs incurred historically and our allowance, on a like for like basis. Anglian Water disputes the validity of our modelled base costs and argues that its requested levels of base costs are higher than historical levels partly due to increases in service levels, i.e. leakage levels, and higher capital maintenance needs as set out in the cost adjustment claims it has submitted.[95] Anglian Water accepts that it is requesting more base expenditure (botex) in 2020-25 than historical levels, but our analysis reveals the difference is substantially higher than the 1.9% claimed by the company, which we understand excluded the costs for growth. Our analysis in table 3.3 below concludes that, on a like for like comparison of costs, the increase is 4.1%.[96] However, by excluding the forecast year 2019-20, which is exceptionally high and we consider unrepresentative, the difference increases to 8.8%. Our analysis shows that the company is proposing a significant increase from the levels of historical costs that it has not fully justified. Indeed the company

[95] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 125.
[96] A comparison of 2015-20 to 2020-25 would require combining actual years of 2015-19 and a forecast year 2019-20. We consider that comparing actual with historical expenditure more appropriate where period of comparison is representative of the business investment cycle.

states that it using its allowance for 2015-20 to prepare for 2020-25. For example, Anglian Water spending up to £165 million of outperformance reinvested to make an 'early start' on resilience plans and drive forward enhanced digital capability and customer experience.[97]

Table 3.3: Comparison of Anglian Water's requested forecast costs against historical expenditure (£ million 2017-18 CPIH deflated prices)

Wholesale Expenditure area	Difference between Company forecast 2020-25 (representation in Aug 2019) and actuals & forecast costs 2015-20	Difference between Company forecast 2020-25 (representation in Aug 2019) and actual costs (2014-19)
Wholesale base expenditure (botex+) and enhancement opex	9.8%	15.7%
Wholesale base expenditure and enhancement opex but excluding growth implicit allowance.	4.1%	8.8%

Note: Due to the way cost data has been collected historical it has been necessary to include enhancement opex in our comparison of costs. Further, our modelled base costs allowed for the costs of growth and thus any estimation of an implicit allowance should be taken as a broad approximation.

3.4 Our allowance for property growth, within our base cost allowance, is based on robust models supported by a bottom-up assessment of the evidence submitted by the company in its representations in this area. To set an allowance for Anglian Water, we use the Office for National Statistics (ONS) forecast of household growth, which is lower than that of the company. Anglian Water has reduced its predicted growth rate by 19% since its initial business plan submission but has not reduced its requested expenditure in line with its revised forecast.

3.5 We did not challenge the need for any area of Anglian Water's proposed enhancement investment. We intervened where the company did not provide sufficient and convincing evidence that its proposed investment is efficient, and made an allowance based on our view of efficient costs. Table 3.4 sets out our final determination allowance and the cost gap to Anglian Water's requested costs.

[97] See Anglian Water, 'Annual Performance Report 2019', July 2019, p. 108, paragraph 8, and Anglian Water, 'Our plan 2020-2025', September 2018, p. 4.

Table 3.4: enhancement expenditure, 2020-25 (£ million, 2017-18 CPIH deflated prices)

Wholesale enhancement expenditure area	Company view (August 2019) (£m)	Final determination allowance (£m)	Cost gap (£)	Cost gap (%)
Environmental obligations (WINEP)	809.3	744.0	65.2	8%
Resilience enhancement	44.7	32.2	12.5	28%
Supply-demand balance enhancement	541.3	436.8	104.4	19%
Leakage reduction	*76.7*	*71.4*	*5.3*	*7%*
Interconnectors programme	*343.8*	*304.9*	*38.9*	*11%*
Metering	136.8	126.3	10.5	8%
Other enhancement (e.g. investment to address raw water deterioration, sludge quality and growth, meet lead standards and improve taste/odor/colour)	112.4	85.2	27.2	24%
Total enhancement expenditure	1,644.5	1,424.6	219.9	13%

3.6 Table 3.5 highlights the key points made by Anglian Water in its submission in relation to our assessment costs and a summary of our response to each of those points. A fuller response is given in the following sections.

Table 3.5: Key issues on costs raised by Anglian Water in its submission

Key issue in Anglian Water's submission	Summary of our response
Setting the base allowance. The company argues that our allowance for base cost does not adequately take into consideration all relevant factors such as the topography of its supply region. It further contends that there are statistical shortcomings in our models and that we have used inappropriate benchmarks in setting catch-up factors. Statement of case, pp. 133-5, paragraphs 538-70.	Our suite of econometric base cost models has been developed following an inclusive model development process. Our cost drivers and models were selected using engineering, operational and economic understanding, and statistical validity. We do not consider the alternative cost drivers proposed by the company appropriate. Our base modelled costs appropriately consider the impact of new service obligations and higher capital maintenance needs. We do not consider we moved the benchmark to an unachievable level. The move was supported by clear evidence that the upper quartile company was no longer providing a stretching enough challenge. 8 out of 17 companies

Key issue in Anglian Water's submission	Summary of our response
	forecast more efficient costs than our efficient benchmark. We provide a more detailed response below, under 'Base econometric models'.
Increasing capital maintenance needs. Anglian Water states that our approach did not consider drivers of increase expenditure such as such as capital maintenance needs. It contends we did not consider its bottom-up assessment of costs. Statement of case, pp. 135-7, paragraphs 571-9.	We fully considered the company's cost adjustment claim relating to increased capital maintenance needs even though it was submitted very late in the process. The company did not make a compelling case and we did not make an adjustment. We provide a more detailed response below, under 'Capital maintenance – assessing the company's bottom-up evidence'.
Maintaining leakage performance. Anglian Water states that our approach did not consider drivers of increased expenditure such as such as service quality, specifically relating to leakage. Statement of case, pp. 254-67, paragraph 1024-70.	To ensure robustness of our modelling in our final determinations we explored alternative economic modelling specifications. This included models that captured leakage as a cost driver. On the basis of the collective evidence from these alternative specifications we made an additional allowance of £50.2 million to Anglian Water's base allowance. We consider there is a need to challenge the industry including companies that are comparatively high performers to do more to deliver leakage levels required to ensure future resilience. We do not consider the company provided compelling evidence that it requires additional cost to our base allowance. We were unable to conclude that the company had provided sufficient evidence to support the argument that its claimed costs are efficient. We further recognise the company's leakage performance in our enhancement allowance of £71.4 million to deliver reductions beyond its 2019-20 level. We provide a more detailed response below, under 'Maintaining leakage levels – assessing the company's cost adjustment claim' and later on in 'Leakage enhancement expenditure'.
Making an allowance for growth. The company argues that our allowance does not provide sufficient funding for growth. It considers that our forecast for growth is too low, our assessment of costs is inappropriate and our mechanism for managing uncertainty in growth predictions is inadequate. Statement of case, pp. 150-73, paragraphs 633-743.	We assessed growth costs based on a comprehensive 'hybrid' approach, which combines the base cost models with a growth unit cost adjustment and deep dive analysis. This approach ensured that each company received an appropriate level of funding to facilitate growth in its operating region. Our forecast of growth is based on ONS growth projections, which is consistent with historical trends. In fact, our growth forecast may be optimistic as it does not account for the potential impact of Brexit and Covid-19 on housing supply and demand. The company has revised its growth forecasts down twice since its original business plan

Key issue in Anglian Water's submission	Summary of our response
	submission, which highlights the uncertainty in its forecasts. In addition, despite revising its own growth forecast down by 19% since its original business plan the company has not correspondingly reduced its requested investment. Our developer services reconciliation mechanism substantially protects customers and the company from differences between actual and forecast growth rates. We provide a more detailed response below, under 'Growth expenditure'.
Our disallowance of its cost adjustment claim for smart metering. The company argues that the cost adjustment claim relating to smart metering should be reinstated because it is beneficial in terms of lower replacement unit costs, better leakage data, improve customer engagement on water efficiency and maximising the efficiency of data collection. Statement of case, pp. 191-2, paragraphs 784-5.	We accept that there are many advantages to smart metering. We rejected the cost adjustment claim as we did not accept that the company had demonstrated why customers should pay additional cost in the 2020-25 period due to the company's strategy. We did not consider the company had presented a compelling argument for customers to bear the costs of early asset replacement. This is in the context of the company gaining the majority of benefits from this strategy of early installation of smart meters. We consider the company's strategy discretionary and within management control, and we further expect large companies to be able to manage their programmes of long-term investments within their base allowance. We provide a more detailed response below, under 'Smart metering'.
Setting our enhancement allowance. The company claims that considers our overall allowance for enhancement investment is inappropriate due to our reductions for i) modelled efficiency, ii) company specific efficiency challenge, iii) challenge to investment need and scope, and iv) WINEP frontier shift adjustment. Statement of case, pp. 174-201, paragraphs 744-815.	We consider that our approach determining the modelled allowance for enhancement expenditure is robust and highlights inefficiencies in Anglian Water's plan. We improved the reliability of our assessments further through deep dive assessments, triangulating multiple models, and within the wastewater WINEP programme taking a programme level approach. We did not challenge the need of for any investment. We did not, however, allow enhancement funding for activities considered as implicit within our base allowance. We provide a more detailed response below, under 'Setting efficient costs for enhancement expenditure'.
Our cost challenge to its supply-demand balance programme. The company asserts that we have provided an insufficient allowance in the area that collectively forms the WRMP strategy and this is increases the risk associated with maintaining the security of water resources.	We have provided an efficient allowance for the company to discharge its duties in this area and address drought resilience risks. We have not challenged the need relating to the WRMP but, consistent with our duties, have intervened to ensure customers do not pay for inefficient costs. We have done this across all investment areas of base expenditure, and enhancement

Key issue in Anglian Water's submission	Summary of our response
Statement of case, pp.182-9, paragraphs 769-79.	areas such as smart metering, the interconnectors programme and leakage. We provide a more detailed response below, under 'Supply-demand balance expenditure'.
Uncertainty in the funding of a direct procurement for customers scheme and the introduction of a ban on metaldehyde. Anglian Water contends that there is a significant possibility it will not be able to recover expenditure related to the Elsham 'direct procurement for customers' scheme and works required should the ban on the pesticide metaldehyde not be introduced by the government. This is because the value of the schemes would not be sufficient to trigger the proposed mechanism (an interim determination of price controls under Condition B of Anglian Water's licence). Statement of case, pp. 199-200, paragraphs 805-10.	We consider that Notified Items are appropriate approaches in relation to these issues. As the company is aware, in our final determination we also committed to considering the case for amending Condition B following consultation to introduce a specific interim determination process with bespoke criteria for direct procurement for customers. We provide a more detailed response below, under 'Managing uncertainty in the programmes related to direct procurement for customers and metaldehyde'.
Inclusion of service quality in cost modelling. Anglian Water states that our base models omit key explanatory factors by excluding cost drivers relating to quality, meaning high quality is viewed as 'inefficiency'. Statement of case, pp. 219-20, paragraphs 897-903.	Our base cost econometric models do not include a specific driver for service quality. This is because service quality is typically within management control and including it as a driver would risk endogeneity and perverse incentives. We provide a more detailed response below, under 'Base econometric models' and in 'Cost efficiency – common issues', chapter 3.

Considerations for the CMA

3.7 We set our totex allowance 'in the round'. By this we mean that **we set an overall level of totex that is a part of a broader final determination package** including, for example, our outcomes incentives. We consider this package is stretching but achievable.

3.8 We do this recognising that the price review is a process affected by asymmetry of infomation between the companies and Ofwat. **Companies can provide evidence to draw attention to areas where they deserve an allowance, but they do not have an incentive to draw attention to aspects of their service which are lower cost than our allowance.** Indeed, this leads to the situation where the majority of our adjustments to company cost allowances are downwards, which can appear unbalanced. However, where our cost benchmarking does determine that the efficient cost is higher than the company requested, we frequently allowed such costs. For example, on modelled base costs and the individual assessments in the WINEP programme.

3.9 We set out the expectation to water companies that they would need to make a step-change in efficiency in 2020-25. We do not consider that customers should pay for inefficiency where their company needs to catch up to an efficient level of performance, or that companies should easily outperform their allowances so that investors could earn higher returns at the expense of customers.

3.10 We request the CMA to be mindful that the company's statement of case will be highly biased towards areas where company is arguing for a higher allowance. **Anglian Water raises significant issues with our approach to econometric modelling where the results appear unfavourable in its eyes, i.e. modelled wholesale base, but declines to take any issue with the approach when it is happy with the outcome, such as our retail cost allowance**. There is therefore a significant risk that aspects of our final determination which were generous towards the company, and are part of the overall package which make the determination appropriate in the round, will lose the prominence they need amidst the detail of the many issues raised by the company. We invite the CMA to be aware of the risk of focusing only on the issues that the company has chosen to highlight, and failing to revisit those that it has not.

3.11 For example, the company has challenged our allowance for its interconnectors programme but not our allowance for strategic water resources schemes, both elements of our allowance for ensuring resilience for the longer term. In another example, the company mistakenly puts forward an argument that we have not allowed for the increased costs arising from the adoption of private sewers and pumping stations in our base allowance.[98] We have included the historical levels of expenditure in our modelled base costs. However, in making its arguments the company reveals its forecast capital costs are £55 million lower than those incurred historically in this area, which suggests that our implicit allowance in this area might have been significantly higher than the company forecast cost.

Our response to key issues raised by Anglian Water

Key issue - Setting the base allowance

3.12 Throughout the price review process, we developed our wholesale econometric models following a robust, transparent and inclusive process. We drew on lessons learned from PR14, and ran working groups with the industry on cost

98 Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 71-2, paragraphs 312-15.

modelling during 2016 and 2017. In March 2018 we published a consultation on cost modelling, which included a wide range of models proposed by us and water companies, as a joined-up industry effort to develop better econometric models for the price review.[99] We took account of the responses and feedback we received when developing our models at the initial assessment of plans, and later reviewed and refined our models following companies' responses to the initial assessment of plans and draft determinations. We were fully transparent during this process and published our data, Stata do-files and feeder models, so that companies and other stakeholders could replicate our findings and provide meaningful feedback.

3.13 Anglian Water raises issues in its statement of case which challenge our approach to cost modelling. The company also challenges how our base cost assessment captures the cost of new service obligations, higher capital maintenance needs flowing from, in part, increases to its asset base arising from the adoption of private sewers and pumping stations. It claims that these issues impact the catch-up challenge which we have set at final determinations. We discuss each of the issues below.

3.14 Where the issue is cross-cutting among companies, we provide a brief summary here and refer to a more detailed response in our 'Reference of the PR19 final determinations: Cost efficiency – response to common issues in companies' statements of case', or 'Cost efficiency – common issues' in short.

Base econometric models

3.15 Anglian Water considers that our approach to setting efficient costs using our base econometric models is inadequate. In particular, the issues it raises relate to:

- **Choice of cost drivers, including service quality variables** – Anglian Water claims that our models fail to account for the characteristics of its supply region and the quality of service it delivers. The company argues our models do not include appropriate cost drivers for water treatment complexity, water distribution energy requirements and service quality. It disagrees with the number and type of scale drivers used in our econometric models;[100]

[99] Ofwat, 'Cost Assessment for PR19: a consultation on econometric modelling', March 2018.
[100] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 134, 219, paragraphs 563, 897.

- **Triangulation between models** – Anglian Water claims that there is inadequate triangulation between models because the models we use are similar to each other. It also claims inadequate triangulation between aggregation levels because there is a lack of models at the wholesale wastewater aggregation level;[101]
- **Application of modelling principles** – Anglian Water states that our modelling principles lack transparency and have been applied inconsistently. In particular the company questions our acceptance of models which have a high variance inflation factor (VIF) which suggest multicollinearity;[102] and
- **Treatment of the transfer of private wastewater pumping stations and sewers** – Anglian Water claims that the cost allowance is insufficient to operate and maintain a larger asset base as a result of the transfer of private wastewater pumping stations in 2016 and sewers in 2011 as part of The Water Industry (Schemes for Adopting of Private Sewers) Regulations 2011.[103]

3.16 We discuss each issue in turn below.

Cost drivers

3.17 Our model selection criteria were based on statistical performance, economic intuition and engineering justification, as we set out in our March 2018 econometric consultation.[104] Our approach involved testing a number of alternative drivers and models at different levels of aggregation. Where results were not sufficiently robust, those drivers did not make our final selection.

3.18 We provided **full details on our choice of drivers in our supplementary econometric appendix at the initial assessment of plans**.[105] The number and type of cost drivers we chose received extensive scrutiny from companies, who provided feedback in response to the initial assessment of business plans and the draft determinations.

[101] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 137-8, paragraphs 580-90.
[102] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 136, paragraph 570.
[103] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 71-2, paragraphs 311-15.
[104] Ofwat, 'Cost assessment for PR19: a consultation on econometric cost modelling', March 2018.
[105] Ofwat, 'Supplementary technical appendix: Econometric approach', January 2019.

3.19 Our models received broad support from the industry, which acknowledged the extensive and transparent consultation process followed, concluding that this allowed the selection of a robust set of models (Table 3.6).

Table 3.6: Supportive company views on base cost modelling

Company	Source	Quote on cost modelling approach
Northumbrian Water	Northumbrian Water, 'Statement of case', p. 85, paragraph 407. (April 2020)	"Ofwat's econometric models are robust and appear to be a good predictor of Northumbrian Water's allowance in AMP7".
Dŵr Cymru	Dŵr Cymru, 'Draft Determination Representations WSH.DD.CE.1 Wholesale base expenditure', p. 3. (August 2019)	"Whilst cost modelling is necessarily imperfect as a means of establishing an efficient cost baseline for a complex industry with a small number of companies (resulting in a small sample size), we believe that Ofwat have produced cost models that function as intended and produce meaningful results. The approach to the botex modelling at the IAP was based on consultation with the industry through the cost assessment working group; a process that we consider to be best practice."
Affinity Water	Affinity Water, 'AFW Company response:9 reference AFW-CE', p. 4. (August 2019)	"The methodology used by Ofwat has been subject to extensive consultation over a long period of time and has enabled the selection of a robust model."
Severn Trent Water	Severn Trent Water, 'Cost assessment for PR19 – a consultation on econometric cost modelling' p. 2. (May 2018)	'Ofwat's modelling approach, as presented in its consultation, represents a major improvement on that used for PR14. Ofwat has addressed the majority of the concerns raised by the CMA, following the Bristol appeal and also applied a much more transparent process.'
Wessex Water	Wessex Water, 'Wessex Water response to PR19 Cost Assessment consultation', p. 3. (May 2018)	'We wholeheartedly agree with the principles in your proposed approach, and are pleased to see the outcomes of our discussions with you over the last year at the cost assessment working group (CAWG) reflected in your proposals.'

3.20 We have concerns with the **data quality** and **perverse incentives** of the alternative drivers suggested by Anglian Water.

3.21 Anglian Water does not agree with our choice of **treatment complexity driver** (water treated at complexity levels 3-6). The company considers that the percentage of water treated at complexity levels 3-6 is not suitable because there is little surface water treated below level 3. It suggests using the share of water subject to low treatment complexity (2 and below) and the share of water subject to high complexity (level 5 and above).

3.22 We do not consider the alternative cost drivers Anglian Water has suggested for water treatment complexity are appropriate. We note that using that the

percentage of water treated at complexity levels 2 and below is complementary to the percentage of water treated at levels 3 and above. Therefore, both variables would be statistically equivalent. Regarding the company's other proposal to consider the percentage of water treated at levels 5 and above, we found this driver had no effect in our water resources plus models, which include treatment costs where we would expect this driver to potentially have an effect.

3.23 In addition, as an alternative measure to account for variation in treatment complexity across companies, we use **the weighted average treatment complexity to capture better the full range of treatment complexity levels**. The use of our two treatment complexity variables appropriately accounts for this cost driver.

3.24 Anglian Water does not agree with our cost driver to capture **energy requirements** (number of booster pumping stations). The company suggests using average pumping head instead of number of booster pumping stations to capture energy requirements.

3.25 We do not find average pumping head to be a superior driver. **We tested the average pumping head** at different stages of the price review. While the variable worked in some model specifications, it was not robust across other specifications. This may be explained by the fact that **companies reported low confidence grades for this driver's data quality** when compared with the number of booster pumping stations in their data submissions.[106] So while we recognise that average pumping head may offer some advantages over other factors to control for variation in energy requirements across companies, there were valid reasons for excluding it from our robust set of models.

3.26 Anglian Water does not agree with our choice of **scale drivers**, which it considers exclude drivers such as volume of water delivered.

3.27 Again, we do not agree that Anglian Water's proposed variable is superior. Our scale drivers were selected based on responses to our econometric consultation (March 2018), statistical performance and engineering rationale. Anglian Water proposed several models with water delivered variables as part of our consultation. Following responses to our consultation, we decided not to use the volume of water as a cost driver in our models. The volume of water (whether abstracted, treated or distributed) is to some extent under management control. Management can reduce leakage, promote water

[106] We provide full details of this analysis in Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 3.

efficiency, etc. Indeed, **a model that uses the volume of water as a scale variable could undermine the behaviours and the performance levels** that we are expecting the sector to achieve.

3.28 Anglian Water argues that Ofwat's core set of models do not take into account **differing levels of service** from companies, such as leakage variables.

3.29 We did not include service quality variables in our models for a number of reasons, which we discuss in further detail in our 'Cost efficiency – common issues' document.[107] These reasons include:

- we have tested and **failed to find statistical robustness of service quality variables**;
- the relationship between costs and service quality is often **ambiguous**; and
- we are mindful of statistical concerns and **potential perverse incentives** related to service quality variables in the context of econometric modelling.

3.30 We further note that, in our March 2018 econometric consultation, none of the 220+ models submitted by companies included a service quality variable. We think that this is quite revealing, in particular given that at that early stage of the process, in contrast to the current stage, companies were much more likely to propose their objective view of models, rather than be motivated to search a model that would close their final determination cost gap.

3.31 In addition, we conducted further analysis on leakage reduction costs for Anglian Water, in recognition of its unique position. This included assessing leakage as part of suite of alternative cost models. As a results, we provided Anglian Water with **£50.2 million of additional funding from our assessment of alternative modelling specifications.** We also allowed Anglian Water **almost its entire request for costs related to reducing leakage (£71.4 million)** as it demonstrated industry leading performance in its 2020-25 forecast.

Triangulation

3.32 Anglian Water argues there is inadequate triangulation between our models and between levels of aggregation, particularly due to the lack of an **integrated wholesale wastewater model**.

[107] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 3.

3.33 We strongly disagree. We consider that levels of aggregation include a wide range of bottom-up and top-down models, and capture different parts of the value chain with the support of engineering rationale. We provided a full justification of our final set at the initial assessment of plans.[108] Where a particular level of aggregation was excluded, it was due to statistical or engineering reasons.

3.34 Similarly, we did not adopt an integrated wastewater model for statistical and engineering reasons. The underlying engineering characteristics between the parts of the value chain in wastewater (such as sewage treatment and bioresources) are very different, which means that an integrated wastewater model is unlikely to perform well. This can explain why, when we explored this level of aggregation, **the model results were not sufficiently robust**.

3.35 For example, we found that factors that capture economies of scale in treatment often lacked statistical significance and/or fluctuated in sign and size between different possible specifications. This could be due to scale having different effects in different parts of the value chain. The effect of density was also ambiguous across different parts of the value chain (for example, between sewage collection and sewage treatment) and may also contribute to the statistical performance of these models.

3.36 We also consider that **the alternative wholesale wastewater specifications proposed by Anglian Water do not perform well** against our model principles and selection criteria.

3.37 Firstly, the alternative specifications proposed by Anglian Water for a wholesale wastewater model use load as a scale driver. We do not consider this appropriate from an engineering perspective because load only captures sewage collection and treatment activities, but not bioresources activities. Secondly, its proposed specifications do not capture economies of scale through a density variable. Our preferred model specifications include two measures of density: the number of connected properties per sewer length in our sewage collection model, and weighted average density in our bioresources model.[109]

3.38 Anglian Water states that Ofwat used models which fail statistical, economic or engineering rationale.[110] In particular, Anglian Water claims that one of our

[108] Ofwat, 'Supplementary technical appendix: Econometric approach', January 2019.
[109] Ofwat, 'Supplementary technical appendix: Econometric approach', January 2019, pp. 22-23.
[110] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 137-8, paragraphs 580-7.

sewage collection models provides a counter-intuitive elasticity for the variable 'length of sewers'.[111] Specifically, in the model:

$$\ln(\text{costs}) = \alpha + \delta \ln(\text{length}) + \beta \ln\left(\frac{\text{capacity}}{\text{length}}\right) + \gamma \ln\left(\frac{\text{properties}}{\text{length}}\right) + e$$

3.39 Applying log properties, the model can be written as follows:

$$\ln(\text{costs}) = \alpha + \delta \ln(\text{length}) + \beta(\ln(\text{capacity}) - \ln(\text{length})) + \gamma(\ln(\text{properties}) - \ln(\text{length})) + e$$

3.40 Based on this specification, Anglian Water suggests that the effect of sewer length on costs is given by: δ - β - γ. Results based on the parameters of the sewage collection model presented in final determinations would, therefore, suggest that sewer length has a negative effect on costs, which contradicts engineering and economic rationale.

3.41 We consider that Anglian Water's argument disregards the proper interpretation of the model. In our model, properties/length is a measure of density and capacity/length is a measure of energy intensity per kilometre. The purpose of the model is that is that δ is the elasticity of length, that is, it captures what happens to costs as a water company becomes bigger, holding the other variables, density and energy intensity per kilometre, constant. This is a reasonable question to ask of our model given that as the length of sewers changes across companies, so does the pumping capacity and the number of properties. To ask the question, what happens to costs when length only increases, means that we are asking the question what happens if we increase length and at the same time decrease the density variable and energy intensity. We do not consider that this is an appropriate question to ask of the model.

3.42 For this reason we consider that it is appropriate to interpret δ as the elasticity of length, β as the elasticity of energy intensity and γ is the elasticity of density. All these parameters have the expected sign.

Application of modelling principles

3.43 Anglian Water argues that we were always consistent in applying its own principles of modelling. It suggests that Ofwat accepted models with high levels

[111] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 137, paragraph 582.

of **multicollinearity**: 'the five water models have VIF statistics ranging from 212 to 230'.[112]

3.44 We do not consider that this example demonstrates an inconsistent application of our modelling principles, but rather it arises from Anglian Water's misunderstanding of the application of statistical diagnostics.

3.45 The VIF is one of several statistical diagnostics we considered in our model selection process. We discussed standard interpretations of the VIF in appendix 1 to our March 2018 consultation on econometric modelling for PR19.[113] We explained that, as a rule of thumb, a VIF greater than 4 indicates medium risk and VIF greater than 10 indicates harmful collinearity.

3.46 However we also explained that an exception to this is **when a model includes a variable and its quadratic term**. In this case, **the VIF will exceed the standard threshold due to the high correlation between these two related terms.** While the high collinearity may impair our ability to accurately estimate the impact of the individual terms on the dependent variable, it should not impair our ability to accurately estimate their collective impact. Since these two terms always move together, the collective impact, measured by the elasticity of the variable, is what is important.

3.47 The high VIF values identified by Anglian Water are driven by the inclusion of density and its squared term in our water models. The table below shows the VIF tests results when not adding the squared term of density which suggests that the drivers used in our models are not collinear:

Table 3.7: Variance inflation factor values for our base cost water models

Model	VIF test value (highest)
Water resources plus 1	1.12
Water resources plus 2	1.17
Treated water distribution	1.81
Wholesale water 1	1.04
Wholesale water 2	1.10

[112] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 136, paragraph 570.
[113] Ofwat, 'Appendix 1 – Modelling results', March 2018, p. 4.

Treatment of the transfer of private wastewater pumping stations and sewers

3.48 Anglian Water claims that the cost allowance is insufficient to operate and maintain a larger asset base as a result of the **transfer of private wastewater pumping stations** in 2016 **and sewers** in 2011 as part of The Water Industry (Schemes for Adopting of Private Sewers) Regulations 2011.[114]

3.49 We disagree. We have included capex enhancement costs associated with the transfer of private wastewater pumping stations and sewers in our base modelled costs. This ensures any remaining costs from maintaining these assets are considered **as part of base costs in the forecast base allowance**. We have outlined our approach on including these enhancement costs since the initial assessment of business plans.[115]

3.50 In fact, by including all historical capex enhancement costs associated with the transfer of private wastewater pumping stations and sewers, **our allowance to the company is likely to have been significantly higher** than the company's requested forecast cost. This is because, in the years following the transfer of the assets in 2011 and then in 2016, companies went through a significant amount of maintenance and upgrading work of the adopted assets, over and above that expected in normal circumstances. This is evident in the large difference between Anglian Water's reported historical capex (£73.4 million) and the forecast capex for the period 2020-25 (£18.9 million). [116]

Concluding remarks

3.51 Overall, we do not find that Anglian Water's concerns on our econometric models are founded. The company's suggested cost drivers are poor substitutes of the drivers we adopted. Our models were developed in line with our modelling principles of statistical, economic and engineering rationale, and the company's claims in this respect arise from its misunderstanding of statistical diagnostics or misinterpretation of modelling coefficients.

3.52 Notwithstanding the limitations of econometric modelling, we consider we have developed a robust set of models, following a transparent process and fully justifying our decisions. For final determination, as a further sense-check we also assessed our base models against a set of alternative models. This led to

[114] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 71-2, paragraphs 311-15.
[115] Ofwat, 'Supplementary technical appendix', January 2019, p. 18.
[116] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 72, paragraphs 314-15.

an upward adjustment to Anglian Water's water base allowance of £50.2 million.[117]

Choice of catch-up benchmark

3.53 In our final determinations, we set the catch-up efficiency challenge at **the fourth placed company** (out of seventeen companies) for wholesale water base costs; and at the **third placed company** (out of ten wastewater companies) for wholesale wastewater base costs.[118] The level of catch-up challenge we set at final determinations is **beyond that of the 'upper quartile' company** we applied at the draft determinations.

3.54 Anglian Water challenges our choice of benchmark.[119] It considers that the quality of models does not justify moving from an upper quartile challenge to a more stretching challenge at final determinations.

3.55 Anglian Water considers that the strengthening of the catch-up challenge could have been justified if our final determination models were an improvement on the draft determination models. But it does not consider our final determination models are superior to our draft determination models.

3.56 To protect the interest of customers, we aim to set cost allowances that are efficient. Benchmarking analysis allows us to identify relatively efficient companies within the sector, and we can use this information to set a catch-up challenge to the less efficient companies in the sector. This replicates a competitive market, where less efficient companies would be unable to charge a premium to customers to cover their inefficiency.

3.57 At any point during the price review process, **it is our role to take a step back and reflect on whether our cost allowances are efficient and in the best interest of customers**. In particular, in the light of new information that is revealed or becomes available during the process.

3.58 After the draft determinations, new information came to light. In particular, we received outturn data for the year 2018-19, which we incorporated to our econometric models. This significantly increased cost allowances as the 2018-19 year is an atypically high cost year, both in comparison to historical data and forecast data (in particular, the sector's annual forecasts in water are 16.2%

[117] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 36-37.
[118] Hafren Dyfrdwy is not identified as a separate company within the historical modelling data set.
[119] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 139-41, paragraphs 599-604.

lower than base costs in 2018-19, and 5.2% lower in wastewater). We also removed non-section 185 diversion costs from our base models. This removed lumpy expenditure and slightly improved the accuracy of our models.

3.59 In addition, **companies reduced their requested costs in their representations to our draft determinations**. We acknowledge that there could have been different reasons for the reductions in companies' requested costs. However, these reductions may be a response to information revealed to the companies during the process, for example information on other companies' costs and our benchmarking assessment, which allowed them to better understand their efficient costs.

3.60 Further, at draft determinations we changed our approach to the calculation of cost sharing rates. We said that we would put 50% weight on companies' August 2019 cost forecasts to determine their cost sharing, so **companies were incentivised to disclose better information about their efficient costs in response to our draft determination**. It would be wrong for us not to act on information disclosed through our incentives, in particular given that it is in essence customers who pay for this improved information.

3.61 Following the new information that came to light after draft determinations, we reviewed whether our base allowances are efficient. We identified that **most companies (12 out of 17) were already outperforming the modelled base cost allowance under the historical upper quartile**. This compared to six companies out of 17 at the draft determinations.

3.62 In addition, the level of the historical upper quartile challenge steadily decreased from the initial assessment of plans to draft determinations, and again following the incorporation of the 2018-19 data after draft determinations, as shown in Table 3.8 below:

Table 3.8: Comparison of the upper quartile challenge at different price controls and different stages at PR19

	Wholesale water	Wholesale wastewater
PR14 final determinations	6.5%	10.4%
PR19 initial assessment of plans	4.8%	3.7%
PR19 draft determinations	4.2%	1.4%
PR19 final determinations	**3.9%**	**1.2%**

3.63 In light of these considerations, we considered that the historical upper quartile challenge no longer provided a suitable challenge to companies' proposed base costs.

3.64 In addition, only Thames Water expressed an issue with the upper quartile catch-up efficiency challenge that was applied in our draft determinations. This suggests that all four disputing companies considered the draft determination catch-up challenge to be appropriate and achievable. Our final determination catch-up challenge, although set at a more stringent level than the upper quartile, is **lower than that applied at the draft determinations** (see Table 3.2).

3.65 We consider that the decision to move to a more stringent catch up than the upper quartile is not only appropriate, but also completely in line with our PR19 methodology. In our PR19 methodology we said that at PR19 we will look to strengthen the efficiency challenge of PR14. We said that we would expand the set of evidence we use to inform our efficient cost baselines and that we would use historical and forward-looking cost performance to identify the most efficient companies in the sector, which will set the benchmark for the rest of the companies. By using all available information to set our cost baselines, we ensure that our baselines are stretching, so that customers do not pay more than necessary for the services they receive. We also said that we would determine the appropriate level of efficiency challenge for the five years of 2020-25 when we set draft and final determinations.

3.66 It is important to recognise that, while we strengthened the catch-up efficiency challenge at final determinations, **the change was only modest and remained significantly lower than that which was applied at PR14**:

- in water, the move to the fourth most efficient company increased the catch-up challenge by only 0.7 percentage points (from 3.9% to 4.6%); and
- in wastewater, the move to the third most efficient company increased the catch-up challenge by 0.8 percentage points (from 1.2% to 2.0%).

3.67 The evidence also suggests that **our challenge is achievable** given that eight out of 17 companies forecast modelled base costs that are more efficient than our efficient benchmark.

3.68 In fact, the evidence suggests that the level of the catch-up challenge we applied at final determinations is likely to be conservative. However, taking into account the overall stretch of our final determinations, **we consider our catch-up challenge is appropriate and in the interest of customers**.

3.69 Anglian Water argues that the quality of our models does not justify a more stretching catch-up challenge. In contrast, we consider there is evidence to suggest that **our models performed better at final determination**. Firstly, the inclusion of 2018-19 data and removal of lumpy non-section 185 diversions expenditure improved the accuracy of the models. Secondly, our analysis indicates that the range of efficiency scores between companies has narrowed between draft and final determinations.[120]

3.70 It would therefore seem appropriate to apply a stretching catch-up challenge based on our final determination econometric model results, which arguably perform better than our draft determination models.

3.71 However, **we consider that the setting of the catch-up challenge is not only a function of model quality**. The fact that 2018-19 was a high cost year, unrepresentative of historical and forecast costs, and as a consequence our base cost allowance was above that of most companies' forecasts is something that we need to take into account. Rather than not using the 2018-19 data, we accepted companies' view that we ought to use the latest data but amended the catch-up challenge to address the issue.

3.72 We also have to consider that our benchmarking is done amongst long standing monopolies. Even the relatively efficient companies within this sector are unlikely to be as efficient as companies facing competitive pressure. Our comparative assessment is unlikely to identify maximum achievable efficiency. This relates to the concept of x-inefficiency i.e., that in non-competitive sectors there is a level of inefficiency due to lack of competitive pressure.

3.73 Anglian Water also argues that regulators rarely select a benchmark more challenging than the upper quartile. While previous regulatory decisions provide a point of reference, they do not contain current or future regulatory decisions. Such constraints would **stifle our ability to make appropriate decisions** in light of the relevant evidence and circumstances, and to push the sector where it is appropriate.

3.74 It is also important to reiterate that **other UK regulators have previously set more stretching benchmarks than the upper quartile** when they considered it was appropriate to do so. Postcomm, Ofcom and Monitor have previously employed an upper decile benchmark in their regulation of Royal Mail delivery offices, British Telecom and acute health care providers, respectively.[121] More

[120] We provide full details of this analysis in 'Reference of the PR19 final determinations: Cost efficiency - response to common themes', chapter 6.
[121] Deloitte, 'Econometric benchmarking in the UK postal sector', May 2016.

recently, and potentially closer in terms of comparability to the water sector, the Northern Ireland Utility Regulator used the fourth placed company out of fifteen companies to set the efficiency benchmark in the price control determination for NIE Networks for the period 2017-2024 (RP6).[122]

3.75 To conclude, we consider we have set a catch-up efficiency challenge which is conservative and comfortably achievable, and that our decision was supported by clear evidence and reflected the most updated information on companies' efficient costs. We provide a more detailed response to this issue in the 'Cost efficiency – common issues' document.[123]

Capital maintenance – assessing the company's bottom-up evidence

3.76 Our final determination includes a totex allowance and within this we separately determine an allowance for modelled base costs that includes capital maintenance. We believe that determining our allowance at this level provides a better comparison for companies that follow different investment strategies, for example by delivering efficiencies through operating rather than capital cost solutions. We believe that companies with a large, diverse asset base should be able to balance peaks, troughs and atypical lumps in investment on particular cohorts of assets within a long-term average allowance. However, our PR19 methodology includes the cost adjustment claim mechanism should this not be the case. We have a high evidential bar for cost adjustment claims as they override our established approach based on econometrics. In addition, as recognised by the CMA in its 2015 re-determination of the Bristol Water's price control, companies only raise issues that are positive additions to their allowance and this asymmetry is to the detriment of customers.[124]

3.77 Anglian Water claims that we failed to sense-check modelling results with the company's actual expenditure needs, specifically those relating to higher capital maintenance needs.[125] We fully assessed Anglian Water's cost adjustment claim for £197 million relating to its future capital maintenance needs. We could only provide detailed feedback in our final determination documentation as the claim was first submitted late, in June 2019, towards the later stages of our

[122] Utility Regulator, 'NIE Networks T&D 6th price control final determination (RP6)', June 2017.
[123] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 6.
[124] See CMA, 'Bristol Water plc: A reference under section 12(3)(a) of the Water Industry Act 1991, Report', pp. 46, 76, 127, paragraphs 3.33, 4.63, 4.256.
[125] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 125.

draft determination phase.[126] We rejected this claim as it fell significantly short of making a compelling case.

3.78 This claim was further revised in its August submission to £238 million. The company documentation from June 2019 gave the build-up of the value of claim.[127] Further information, again after the deadline for representations to our draft determination, was provided in October 2019. **The final value of the claim (£238 million) was not determined using bottom-up evidence** but set at the difference between our draft determination and the company's representations to this determination after accounting for our implicit allowance for growth.[128]

3.79 The company did not quantify the effects it described in its claim and we responded to each element in our final determination documentation.[129] The company's claim considered that capital maintenance requires consideration of the following points:

- the historical levels of expenditure, the period the expenditure is reviewed over and what it has delivered;
- the move away from a perceived capital bias to totex, and how changes in accounting standards affect the reporting of expenditure;
- impacts of innovation and efficiencies; and
- new regulatory obligations and future predicted asset deterioration.

3.80 Our econometric models use forecasts of cost drivers and we set an efficient allowance for the long-term based on eight years of historical cost data. We believe that companies with a large, diverse asset base should be able to balance peaks, troughs and atypical lumps in particular cohorts of assets within a long-term average allowance. Our sample of historical cost data includes two traditionally low years and six high cost years (due to the influence of the five-year price control). Therefore we consider our models are likely to over rather than under estimate allowances. We further reviewed our data to evaluate whether companies are considered to be efficient because of being in a trough of their maintenance expenditure cycle. We could find no evidence of this.

[126] See Ofwat, 'PR19 final determinations: Anglian Water - Cost efficiency additional information appendix', December 2019, pp. 2-14.
[127] Anglian Water, SOC157, 'Capital maintenance requirements CAC', pp. 8-9.
[128] Anglian Water, SOC213, 'Capital maintenance CAC', p. 7.
[129] See 'PR19 final determinations: Anglian Water - Cost efficiency additional information appendix', December 2019, pp. 10-14, Table 1.1.

3.81 Our econometric models are based on totex. Therefore, any accounting differences that change cost reporting between base capex and opex would make no difference to our overall allowance.

3.82 We expect the company to be innovative and that this should deliver efficiencies. We could not identify any specific point in the cost adjustment claim relating to innovation being the basis of additional costs.

3.83 We are fully supportive of companies in developing their approach to asset management that allows them to better understand future maintenance needs. We are satisfied that our allowance to be adequate to enable Anglian Water to maintain its asset base and secure future resilience, contrary to the company's opinion, particularly as our modelling approach uses forecast cost drivers. As stated previously, our cost adjustment claim mechanism provides an avenue for companies to present their case where their **overall future needs** are different to those seen historically.[130] We are disappointed that the company chooses to interpret our efficiency challenge as a need to reduce rather than optimise maintenance, or indeed meet this challenge through finding efficiencies elsewhere within its totex expenditure.[131]

3.84 We believe the inclusion of the cost adjustment claim mechanism ensures our PR19 methodology is consistent with the recommendations made in 2000 by the parliamentary select committee[132] referenced by Anglian Water[133]. Due to the asymmetry of information between ourselves and the company we consider that the onus is on the company to make a compelling case for the need for adjustment to our modelled base cost.

3.85 In making our assessment we are also mindful that the conclusion of the Competition Commission report[134] (referred to by the select committee[135]) that maintenance expenditure may not conform to an average pattern was relevant to small companies, rather than those with a large and diverse asset base such as Anglian Water. Further, the information provided to support the cost

[130] We expect companies to consider symmetrical adjustments where increase costs for one cohort are offset by decrease costs in another.
[131] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 143, paragraph 618.
[132] See House of Commons, 'Environment Audit report – Water Prices and the Environment', November 2000.
[133] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 136, paragraph 576.
[134] See Competition Commission, 'Mid Kent Water Plc: A report on the references under sections 12 and 14 of the Water Industry Act 1991', September 2000, p. 86, paragraph 6.47.
[135] See House of Commons, 'Environment Audit report – Water Prices and the Environment', November 2000, paragraph 203.

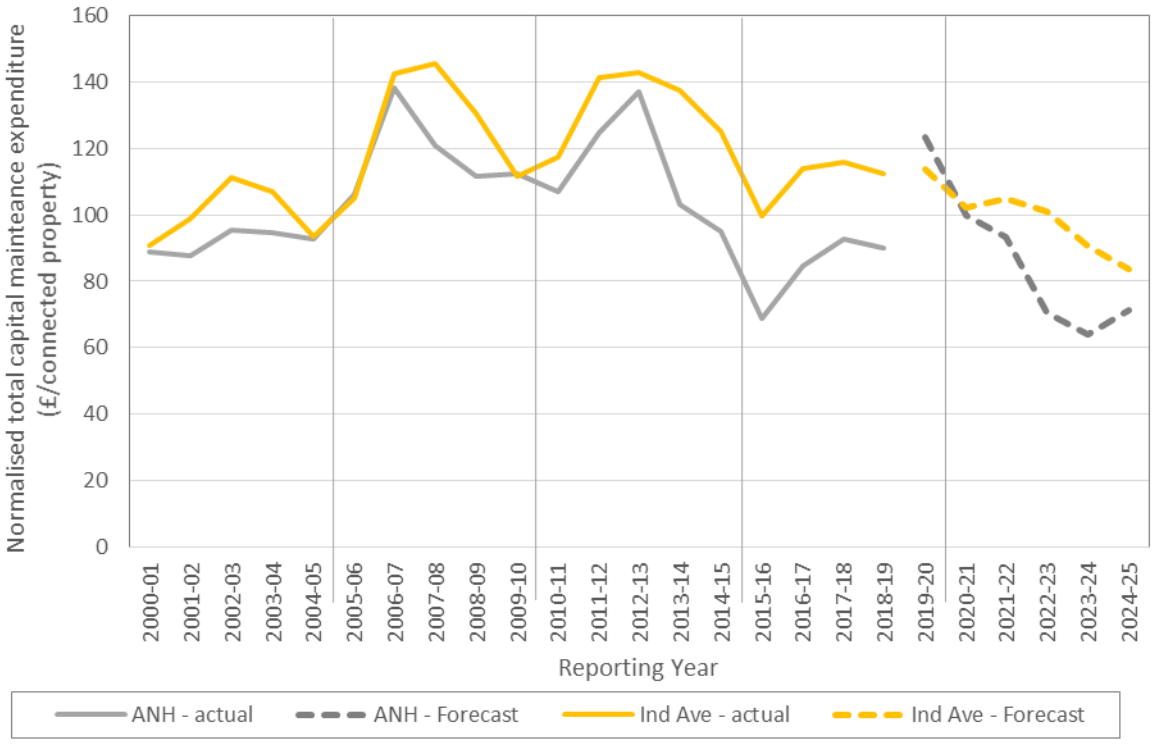
adjustment claim does not evidence the statement that the company followed the framework that was developed by the industry following the PR99 review,[136] i.e. the UKWiR Capital Maintenance Planning Common framework[137]. The case study presented below provides a more detailed explanation of our assessment in one area of the claim.

3.86 Figure 3.1 provides a trend of capital maintenance investment over time for the company and a comparison against the industry average. The figure shows that historically cycles in capital maintenance appear more correlated to price control periods rather than being directly related to the asset base. These investment cycles appear less pronounced since the introduction of totex allowances at PR14. Our totex approach further removed barriers to companies delivering efficiencies through a more holistic view of opex and capex. Notably also Anglian Water is forecasting a lower level of capital maintenance expenditure compared to recent and historical levels.[138] We recognise that this reducing trend can be partially attributed to efficiency and changes in accounting rules which changed the treatment of former capital costs to operating costs. However, we are not persuaded that the increase in base expenditure requested by the company can be attributed to increasing capital maintenance needs as asserted by the company.[139]

3.87 Even if Anglian Water is forecasting a peak in maintenance activity in 2020-2025 (which is not apparent from the chart above), we do not consider that an adjustment to our allowance is appropriate. Our cost allowance is appropriate on a long term basis and relatively immune to investment cycles. While there may be periods when a company has higher investment requirements, it will have periods with lower investment requirements where it might, if efficient, benefits from our independent cost allowance. In the 2015-2020 period, Anglian Water is forecasted to underspend its allowance. We expect companies to balance their expenditure over the long-term, thus greater needs in the future can be met through historical savings.

[136] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 136, paragraph 576.
[137] See UKWIR, 'Capital Maintenance Planning: A Common Framework', June 2002.
[138] The company is forecasting lower levels of capital maintenance in the 2020-25, as set out in Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 69, Table 2. This future reduction would be even higher if the exceptionally high expenditure in 2019-20 was not included. We are concerned that this year of expenditure is not representative (particularly since the move to totex framework) and may be driven by other factors than the efficient level of maintenance which have not been explained to us.
[139] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 125.

Figure 3.1: Comparison of Anglian Water to industry average for historical and forecast levels of capital maintenance (£ CPIH indexed /connected property)



Case study – Drinking water quality

In the statement of case, Anglian Water presents a case study to show the impact of the final determination on coliform failures from water treatment works.[140] The company claims that the frequency of coliform failures at 20 water treatment works would increase by 42% under the final determination compared to the level of performance under the company's planned level of expenditure.[141] There are clearly negative consequences to this for customers, but in order to protect customers from inefficient costs we expect supporting evidence to be compelling.

Testing water for coliform bacteria has been a cornerstone of ensuring the wholesomeness of drinking water for many decades. Coliform bacteria are widespread in the environment and a subset are enteric, i.e. of the human intestine. These bacteria are thus used as an indicator of potential faecal contamination. Drinking water is therefore routinely tested for their presence as a

[140] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 145, paragraph 627.
[141] This graph was also presented at the CMA meeting – Initial presentation meeting, 17th April 2020. The company representatives stated that the risk related to not undertaking repairs to the structure of water storage reservoirs.

surrogate for other enteric pathogenic bacteria. Water treatment processes (e.g. disinfection) are designed to ensure bacteriology quality prior to the water being distributed to customers. Distribution systems (pipelines and storage reservoirs) are thus designed and maintained to avoid the contamination of the water through this journey. Therefore, should the treatment and distribution system be poorly operated and insufficiently maintained, the presence of coliform bacteria may be detected.

There is no information in the statement of case that allows us to determine the reliability of the data nor model used to derive the bar chart submitted as evidence by Anglian Water in its statement of case. Anglian Water submitted two other documents to support its cost adjustment claim in June and October 2019.[142] Neither of these documents provided sufficient evidence to allow us to adequately test the validity of the results of the model presented.

The information presented in June 2019 states that in AMP7 (the 2020-25 period) the company requires less capital maintenance for water treatment works than in AMP6.[143] The company provides a chart of future investment needs 'based on typical asset lives'. It has not provided any indication as to what data it has used to derive these asset lives, nor what lives it has actually used to allow us to assess the validity of this chart, and thus whether the prediction is an under or over estimate.

The information presented in October 2019 (after our deadline for the final submission of representations in August) provides a similar bar chart of predicted coliform failures under lower levels of capital maintenance as presented to the CMA on 17th April 2020. These lower levels of investment are taken as lower than the already reduced levels as predicted in the June 2019 document. The company states that the relationship between maintenance investment and coliform failures is 'derived from our own service-impact models'.[144] It further states, in the same single paragraph, that it has a deterioration curve for each asset, that it understands the downstream consequence of failure and further that the models are validated using performance data and externally reviewed, albeit prior to PR14. However the company does not present any quantitative data that supports these assertions and thus underpins the model output. Therefore whilst we may accept the logic in the company's submission we cannot adequately assess its accuracy. The company claims it has followed the UKWiR Capital Maintenance Planning Common framework. The basis of this framework is an analysis of historical and forecast trends in service and asset performance and costs. We expect the company to present a compelling case and this would have included a presentation of these trends and deep dive of the functionality of their service-

[142] The two documents are SOC157, 'Capital Maintenance Requirements' (June 2019) and SOC213, 'Capital Maintenance CAC' (Oct 2019).
[143] Anglian Water, SOC157, 'Capital Maintenance Requirements', p. 10.
[144] Anglian Water, SOC157, 'Capital Maintenance Requirements', p.10.

impact models. Notwithstanding we would have further expected the company to set out why, when faced with an efficiency challenge, based on comparison with their peers, reducing maintenance in this crucial area was the best course of action.

Due to the asymmetry of data between the company and ourselves we consider that the onus is on the company to make a compelling case for an adjustment to our modelled base cost. Where such a case is not presented we consider it is in the best interest of customers to take a precautionary approach, particularly where a company has historically outperformed previous price control allowances.

Maintaining leakage levels – assessing the company's cost adjustment claim

3.88 In its statement of case, the company requests £213.6 million to meet its proposed performance commitment level. Of this request, £136.9 million is for additional base expenditure to maintain its leakage levels at its forecast 2019-20 position as set out in its cost adjustment claim.[145] In its statement of case, Anglian Water sets out that:

- it is a high performer on this measure of service quality;
- the cost to maintain leakage at its current industry leading levels are significantly higher than industry average;
- Ofwat challenges to base and enhancement expenditure along with ODI penalties means the company cannot deliver on its plans; and
- failure to reduce leakage will result in increased water abstractions and corresponding environmental impacts.

3.89 In our final determination we did not allow the company's cost adjustment claim. We consider that our approach to setting a base allowance, which we expect to include maintaining leakage levels at its forecast 2019-20 position, is robust. We respond in detail within our supporting document 'Cost efficiency – common issues'.[146] We do not consider that the company made a compelling case to support the claim for £136.9 million in addition to our base allowance.

[145] The company requests £76.7 million to further reduce its leakage performance beyond its forecast 2019-20 level. We made an allowance of £71.4 million in our final determinations. We discuss this below in 'Leakage enhancement expenditure' under 'Key issue – Setting the enhancement allowance'.
[146] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', April 2020, chapter 5.

3.90 In finalising our final determinations, to ensure the robustness of our modelling results, we explored alternative econometric model specifications. Some of the alternative specifications capture the effect of leakage on cost.[147] On the basis of the collective evidence from these alternative specifications, as opposed to the claim submitted by the company, we made an additional allowance of £50.2 million to Anglian Water's base allowance. We consider that this adjustment should address any possible link between leakage levels and expenditure.[148]

3.91 We do not consider the arguments provided by Anglian Water within its cost adjustment claim demonstrated why the specific costs it requested for maintaining leakage levels, based on historical expenditure, were efficient. The following concerns arose from our assessment of the data and analysis the company provided:[149]

- the company presents its own data but it does not provide any supporting evidence to demonstrate the assertion that its historical costs represent efficient delivery of leakage management activities;
- the company combines historical capex and opex costs but it is not clear if all of these costs are related to leakage activities.[150] The company does not explain how the data from 2011 onwards has been recorded or assured. We note that there is not a particularly strong correlation (R2 = 0.54) between leakage level and cost of maintaining leakage in the relationship that the company derives; and
- we do not consider that the company demonstrates the benefits of historical investment in leakage management improvements or that the proposed enhancement activities for 2020-25 are accounted for in its derived cost. For example, the company has optimised pressure management schemes and enhanced its network data visualisation capacity over recent periods, both of which should aid the maintenance of future leakage levels. For the 2020-25 period we would expect the company's extensive smart metering programme to enhance its ability to maintain leakage levels over that may be incurred by a marginal increase in cost.

[147] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 3.
[148] We note that the models that included leakage were not sufficiently robust on their own merit to warrant a cost adjustment. It is on the basis of the collective information from the set of alternative models that we decided to make an adjustment. Further, a PwC review of base models identified a number of limitations related the consistency of leakage data across the industry (PwC – Funding approaches for leakage reduction, 2019).
[149] Anglian Water, 'A001a and A001b – Response to Ofwat query ANH-DD-CE-012', May 2019.
[150] The activities included within the definition of the pre 2011 opex line are burst repairs, flushing, scrubbing and air scouring, leakage control activities and leak repairs, valve, hydrant and meter maintenance/replacement, communication pipe and stop tap replacement, provision of meter boxes associated with the above, and reactive and planned maintenance on aqueducts and dams.

3.92 The following main considerations have framed our decision on leakage base allowance:

- there is a need to challenge the industry including companies that are comparatively high performers to do more to deliver leakage levels required to ensure future resilience;
- our aim is to encourage companies to innovate, exploit existing and new technology and to revise business processes to reduce leakage;
- we do not consider the company provides compelling evidence that it requires an additional cost adjustment to our base allowance; and
- the company has not provided sufficient evidence to support that its claimed costs are efficient.

Growth expenditure

3.93 Growth expenditure relates to additional costs companies incur that are driven by population growth, such as connecting newly constructed houses to the network or reinforcement work to increase capacity of the network. In our final determination, we adopted an integrated approach to modelling operational, capital maintenance and growth-related expenditure for the reasons set out in our 'Cost efficiency – common issues' document.[151]

3.94 We recognised, however, that our base econometric models might not capture all drivers of growth expenditure. We therefore complemented our model outputs with the following:

- **Growth unit-cost adjustment** – we made adjustments to our base cost allowance depending on whether the company operates in a relatively high or low growth area relative to the historical average growth rate for the sector.
- **Deep-dive assessment** – we considered if companies presented strong evidence or arguments of material factors that were not captured in our models or by any other adjustments we made.

3.95 Following the additional assessments, through our growth unit-cost adjustment we made an upward adjustment of £11.5 million to Anglian Water's wholesale water base allowance, and an upward adjustment of £29.1 million to the company's wholesale wastewater base allowance, in consideration of the relatively higher growth rates expected in its region.

[151] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 4.

3.96 A key component of our final determination in relation to growth is our forecast of the number of connected properties, which was based on household growth rate projections produced by the Office for National Statistics (ONS). Companies and customers are substantially protected if outturn growth is higher or lower than forecast through the developer services reconciliation adjustment (DSRA), which we introduced for PR19.

3.97 Anglian Water considers that Ofwat has failed to provide adequate funding for growth because of four main reasons:[152]

- the company considers that Ofwat's ONS based connected property forecasts are implausibly low;
- it considers that Ofwat relied on inappropriate econometric models without any bottom-up assessment as a cross-check;
- it does not consider that the growth unit-cost adjustment addresses the needs of its region; and
- it does not consider the DSRA is sufficient to deal with growth uncertainty because it only partially covers growth costs and applies an unrealistic efficiency challenge.

3.98 We address each point in turn below.

Growth expenditure – Our forecast of new connections

3.99 Developing independent forecasts of cost drivers is a fundamental step in our approach to setting efficient allowances. It ensures that customers are protected from overly optimistic forecasts of cost drivers that will feed into cost allowances and customer bills.

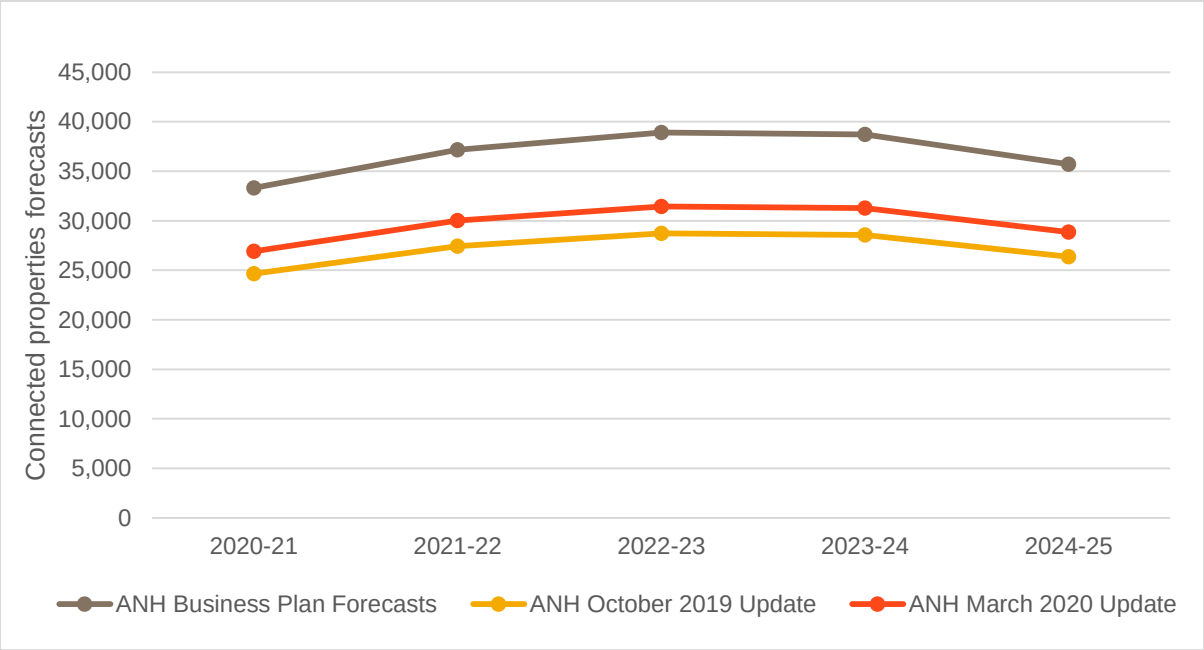
3.100 Our forecast of connected properties is based on Office for National Statistics (ONS) household projections and has received substantial attention from Anglian Water, who considers that our ONS based forecasts are implausibly low. **We strongly refute this claim**.

3.101 There is uncertainty around population growth. We note that **Anglian Water revised its household growth estimates twice in the span of six months**, which is not made particularly clear in the company's statement of case:[153]

[152] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 150, overview.
[153] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 84, paragraph 361, table 5.

- September 2018 (and August 2019) business plan forecasts: 183,810 new properties;
- October 2019 forecasts: 135,738 new properties; and
- March 2020 forecasts: 148,537 new properties.

Figure 3.2: Anglian Water's forecast of new connected properties (water)[154]



3.102 In its October 2019 late submission, the company reduced its forecast to roughly 75% compared to the forecast included in its August 2019 response to our draft determination.[155] In its statement of case, Anglian Water has revised its forecast again. The latest forecasts are lower than the August 2019 forecasts but higher than to the October 2019 forecast (roughly 81% (water) and 84% (wastewater) of the August 2019 forecast).[156] This represents a significant decrease compared to its September 2018 business plan forecasts and highlights the uncertainty and apparent lack of confidence that Anglian Water has in its own forecasts.

3.103 It is also surprising to see that Anglian Water's latest forecasts represent an increase compared to its October 2019 forecasts, given the potential negative

[154] Source: Ofwat, final determination models, Feeder model 3 wholesale water, December 2019. The revised October 2019 forecast is from Anglian Water, SOC215, 'Growth submission', p. 5, paragraph 11. The March 2020 forecast is calculated using data from Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 84, paragraph 361, Table 5.
[155] Anglian Water, SOC215, 'Growth submission', p. 5, paragraph 11.
[156] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 159, footnote 370.

impact Covid-19 is likely to have on housing demand and supply across the UK.

3.104 More notably, although Anglian Water revised its new connection forecasts downward by 19% compared to the August 2019 forecast,[157] **the company did not revise the requested growth expenditure for the period 2020-25. This casts doubt over the credibility and efficiency of the significantly high forecast expenditure the company put forward in its plan**, and over the credibility of the suggestion that the expenditure forecast is really affected by growth forecasts.

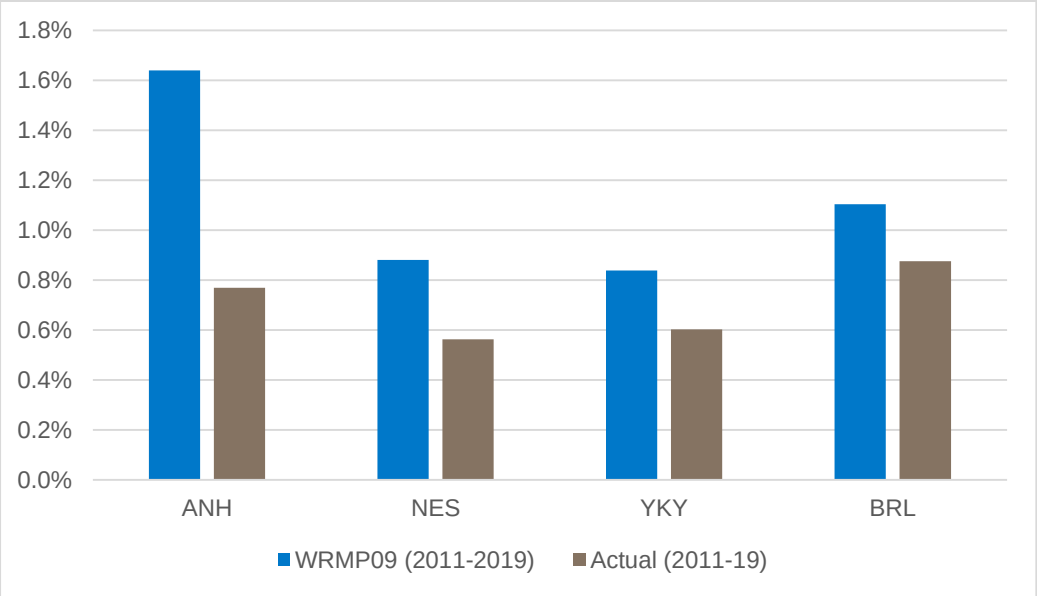
3.105 The company claims that Ofwat should have adopted its proposed forecasts of new connections, which are based on Local Authority planning data and are used in its water resources management plans (WRMPs).

3.106 **WRMP forecasts have historically over-estimated household growth.** Figure 3.3 presents a comparison of household forecast growth rates for the period 2011-19 from the disputing companies' WRMP09 plans, and the effective growth rates that took place in same period. **All disputing companies over-forecasted household growth. This is particularly true for Anglian Water**, whose average forecast rate was over twice the actual growth rate.[158]

[157] The March 2020 forecast is from Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 84, paragraph 361, Table 5. We compare this to data from PR19 draft determination: Developer services data request post draft determinations.

[158] We note that the 2007 guidance from the Environment Agency for estimating household growth indicated ONS forecasts as a starting point of household forecast figures. In its WRMP09, Anglian Water indicates that it applied a series of adjustments to these forecasts, namely it combined ONS household forecasts with property targets published by regional and Local Planning Authorities; it revised the draft WRMP to take into account a higher growth rate than experienced historically; and it considered that ONS might underestimate migration, and therefore allowed for headroom for this. See Ofwat, 'C006 AW_WRMP_2010_main_Report', February 2010, p. 26, paragraphs 3.16 to 3.18.

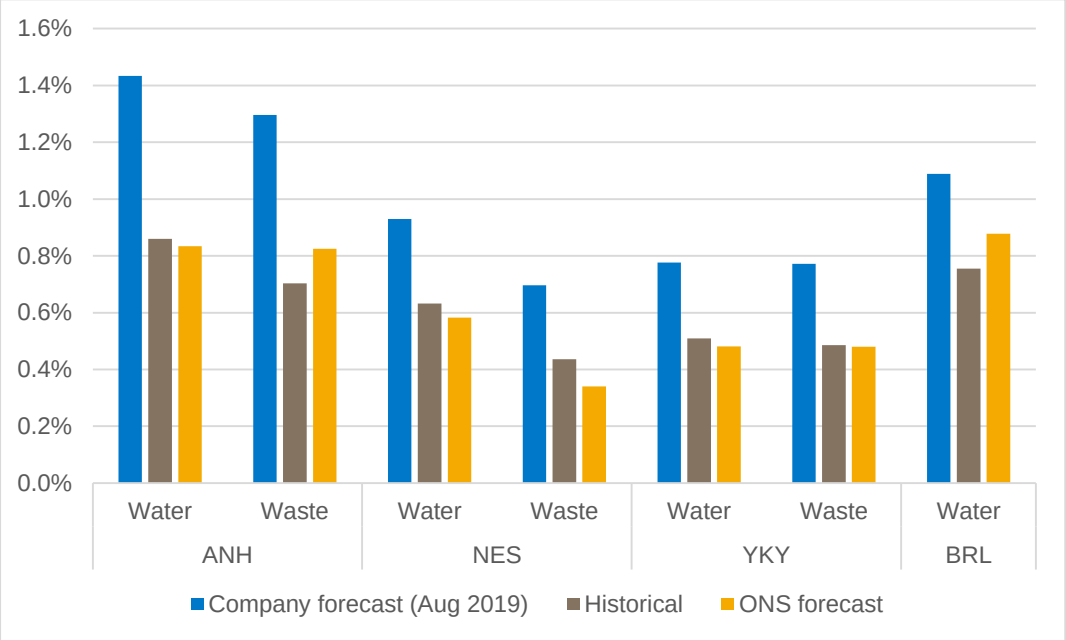
Figure 3.3: Comparison of forecast (WRMPs) and actual household growth rates[159]



3.107 Similarly, Anglian Water's forecast growth rate for the period 2020-25 is almost twice as high as the historical growth rate (Figure 3.4 below). This is because projections based on WRMP guidance tend to be on the upper quartile range of possible growth estimates, where they are used to identify long-term capacity requirements. While this may be appropriate for long-term plans such as WRMPs, over a shorter-term five-year **period the use of companies' forecasts would expose customers to a risk of excess cost allowances due to over-forecasting population growth**.

[159] Source: WRMP09 data not published online but available on request from the Environment Agency. Historical household growth rates calculated from Ofwat, final determination models, Feeder model 1 wholesale water, December 2019.

Figure 3.4: Comparison of forecast (business plans) and actual property growth rates[160]

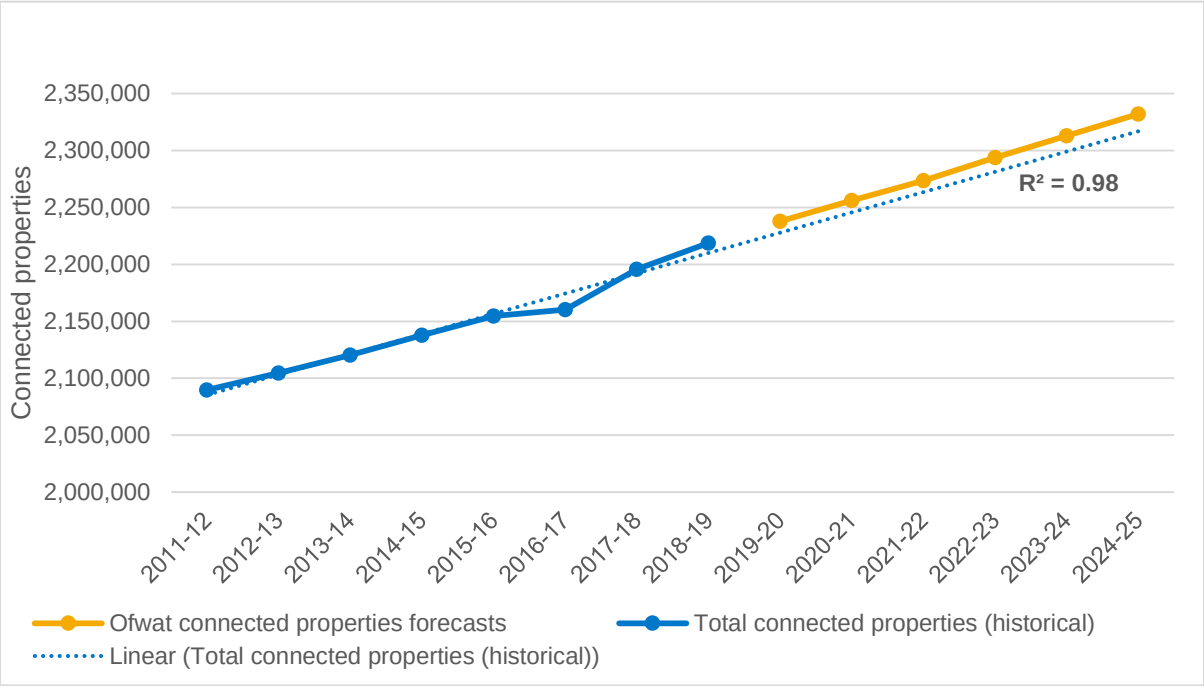


3.108 The ONS is the expert national statistical authority for the UK, and a respected and widely used source to forecast population growth. We reviewed these forecasts at both the draft determination and the final determination stages, and found them to be generally higher than time trends and lower than companies' projections.[161]

3.109 There is no merit in Anglian Water's claim that our forecast of new connections for the company is implausibly low. Figure 3.5 below presents our forecasts of total connected properties, which clearly shows that our forecasts are in line, if not slightly higher, than the historical trend. In addition, **the statistical relationship between total connected properties and the time trend is very strong, with an R-squared (explanatory power) of 98%**. We consider this figure clearly demonstrates the reasonableness of our connected property forecasts, which are higher than the forecast trend. In fact, our ONS-based connected property forecasts may even be overly optimistic given that ONS household projections do not take into account the potential impact of Covid-19 and Brexit on housing development.

[160] Source: Ofwat, final determination models, Feeder model 3 wholesale water, December 2019.
[161] This was the case for Dŵr Cymru, Southern Water, Thames Water, Wessex Water, Affinity Water, Bristol Water, SES Water and South East Water, and Anglian Water on wastewater growth rates.

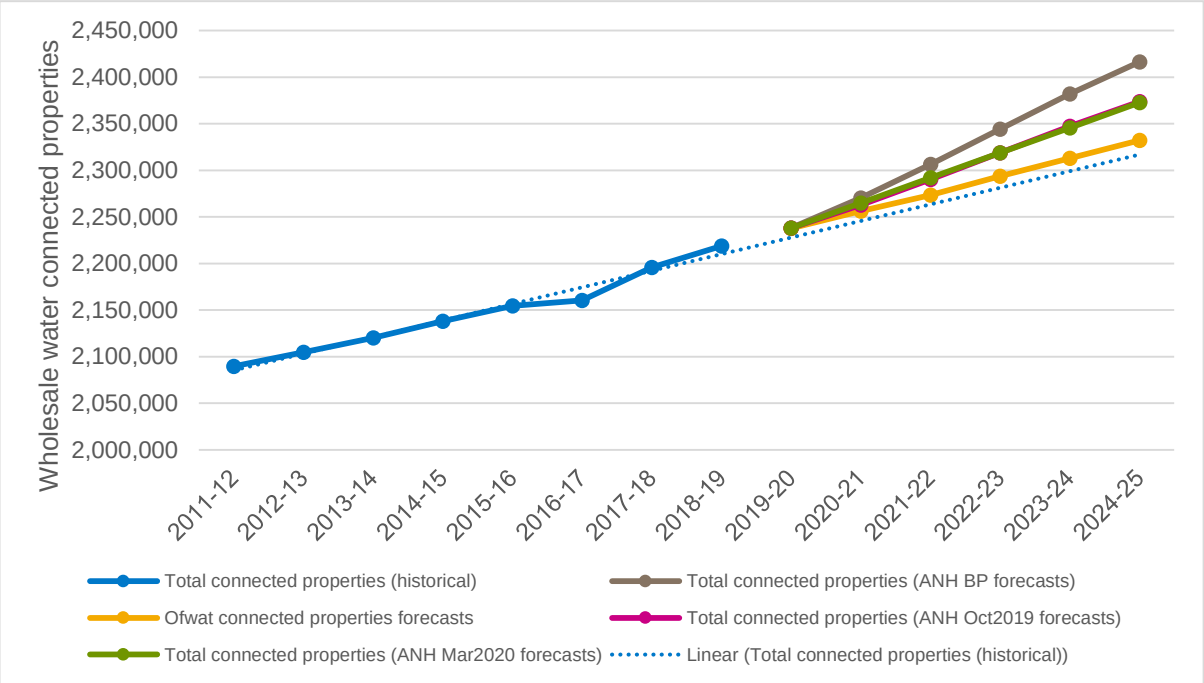
Figure 3.5: Ofwat connected properties (water) [162]



3.110 In its statement of case, Anglian Water argues that there is close alignment between its forecast and the historic linear rate of growth.[163] However, the company's linear time trend is calculated on reported new connections, rather than total connections. We consider that this way of presenting the information is misleading due to reporting inconsistencies in Anglian Water's new connections data (see below). If we plotted Anglian Water's forecast on a total connected properties basis, rather than new connected properties basis, this would clearly show that Anglian Water's connected properties forecast is significantly above the historical trend and appears overly optimistic, even after taking into account the reduction since its September 2018 business plan forecasts (Figure 3.6 below). We therefore consider that adopting the company's forecast would expose customers to a considerable risk of over forecasting the number of new connected properties.

[162] Source: Ofwat, final determination models, Feeder model 3 wholesale water, December 2019.
[163] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 160, paragraph 666, Figure 48.

Figure 3.6: Anglian Water's forecast of total connected properties[164]



3.111 In addition, total connected properties are reported based on well-known and understood definitions, which minimises the risk of reporting inconsistencies between companies and over time. In contrast, reporting of 'new connected properties' has been found to suffer from reporting inconsistencies between companies for a number of reasons:

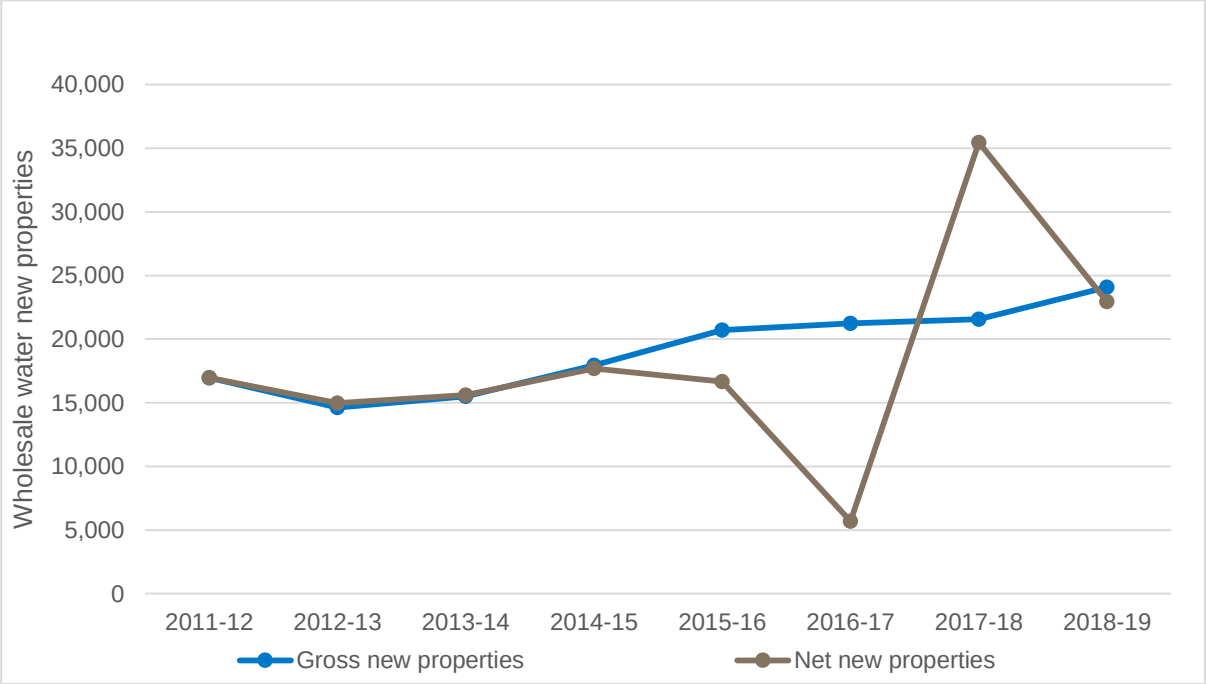
- some companies reported number of 'new connected properties' whereas other companies reported the number of 'new connections'. All else being equal, we would expect the number of new connected properties to be greater than the number of new connections as there could be instances where multiple properties connected to a single connection; and
- some companies included an estimate of new properties supplied on New Appointments and Variations (NAVs) and others did not.

3.112 This inconsistency in reporting is also visible within Anglian Water's own data. Figure 3.7 below presents the number of 'gross' new connected properties reported by Anglian Water between 2011-12 and 2018-19, and the number of 'net' new connected properties, which we calculate as the year-on-year difference in total connected properties for the company. There could be a

[164] Source: The historical and company business plan forecasts are calculated from Ofwat, final determination models, Feeder model 3 wholesale water, December 2019. The revised October 2019 forecast is from Anglian Water, SOC215, 'Growth submission', p. 5, paragraph 11. The March 2020 forecast is from Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 160, paragraph 666, Figure 48.

substantial difference between 'gross' and 'net' growth, in particular on brownfield sites if the previous use of the site was extensive. For example, if a site was converted from an airforce military base to domestic housing, the 'net' number of new connections would be lower compared to the conversion of a greenfield site. This could be a significant factor for Anglian Water, given a substantial proportion of its new developments are based on brownfield rather than greenfield land.

Figure 3.7: Comparison of 'gross' and 'net' new properties for Anglian Water

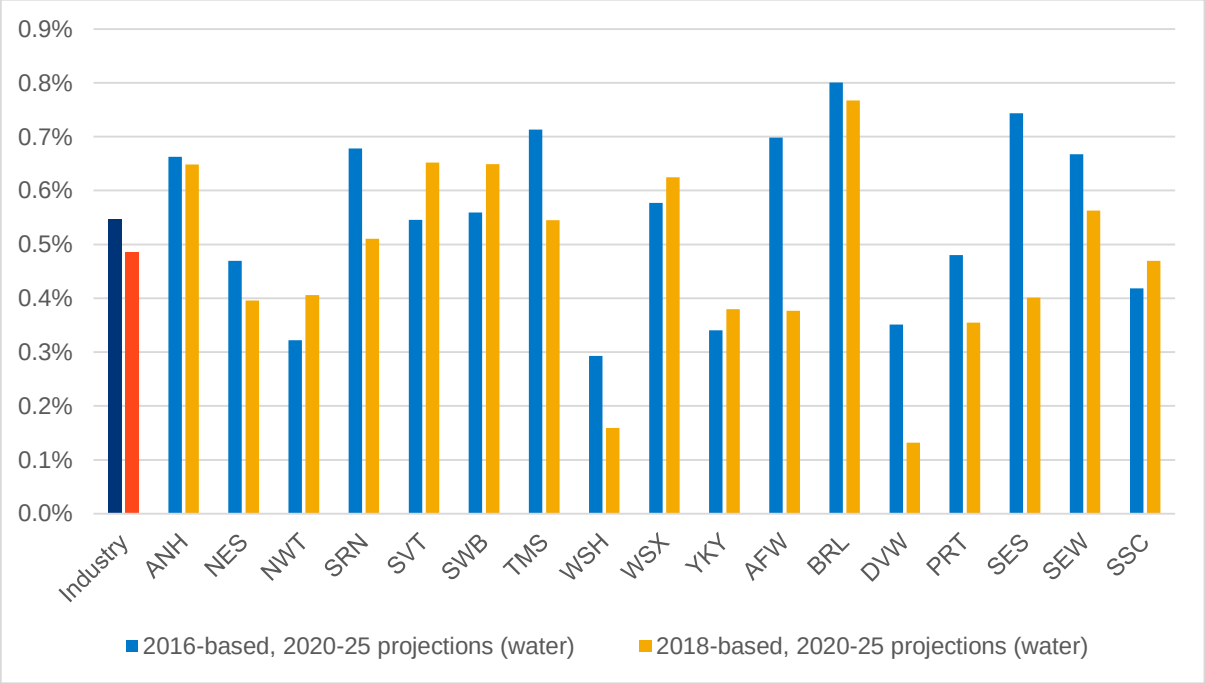


3.113 Figure 3.7 above shows there is a **large structural break** between the two series in the period 2015-16 to 2017-18. This structural break could be caused by several factors, which we consider **reinforces our decision to base our forecast of new properties on our forecast of total connected properties**:

- 'net' new properties are based on total connected properties, which only considers the net increase in new properties connected. As described above, this could be a significant factor for Anglian Water given a substantial proportion of its new developments are based on brownfield rather than greenfield land;
- timing issues could also be a factor given that only billed properties are reported within total connected properties; and
- internal reporting inconsistencies could also play a role given the large structural break that is witnessed between 2015-16 and 2017-18 that is unlikely to be solely driven by the two factors above.

3.114 **The latest ONS population projections predict lower growth rates in the UK, with Anglian Water's population growth not being the highest in the sector.** In March 2020, the ONS released updated population growth forecasts, based on 2018 data.[165] While our forecasts of growth rates are based on ONS household projections rather than population projections, the latest evidence on population projections can still provide useful insight.[166] Compared with the previous projections (based on 2016 data), the latest figures predict lower population growth in most company regions (Figure 3.8 below). In the next regulatory period, growth in the Anglian Water region is predicted to be in line with that of the Severn Trent and South West Water regions, and it is not the highest in the sector (Bristol Water). Although population projections do not perfectly align with household projections, it is clear that there is no evidence in support of Anglian Water's own projections, which are significantly higher than any other company's prediction.

Figure 3.8: Comparison of 2016-based and 2018-based ONS population projections (water)[167]



[165] Office for National Statistics, 'Subnational population projections for England: 2018-based', March 2020.
[166] For example, Anglian Water states population is a more important driver of off-site and treatment growth costs than the volume of connections. Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 83, paragraph 359.
[167] Source: Data for English companies from Population projections for local authorities: Table 2. Data for Welsh companies from Local Authority projections, 2018-based and 2014-based.

3.115 Anglian Water argues that Ofwat used the version released in 2018 of the ONS dataset (based on 2016 data), while the only version sanctioned for use by the Government is the 2016 version (based on 2014 data), which better reflects the objective of significantly boosting the supply of homes. It claims that the dataset Ofwat used forecasts a lower number of connections than the previous version, because it is based on historical trends which do not reflect step changes in future growth.[168]

3.116 ONS publish updated household projections at a local authority level every two years to reflect the latest information available on demographic trends. We adopted the 2016-based dataset because it reflected the most updated view of population forecasts, and although it may forecast lower growth rates than the 2014-based dataset, it would have been inappropriate to discard the latest and most updated evidence. In addition, the ONS went through an extensive consultation process on the methodology for the 2016-based projections, to make improvements from the 2014-based methodology.[169] Therefore, the latest 2016-based dataset reflects the most updated and accurate position on households' projections. In fact, the latest projections on population growth predict even lower growth rates (as discussed above).

3.117 Overall, we maintain our position that it would not be appropriate to adopt companies' forecasts based on Local Authority data from their WRMPs. These forecasts have historically proven to be high. Latest evidence highlights a downward trend in population growth, and confirms that Anglian Water is not expected to be the region with the highest population growth.

3.118 **Finally, we note that the impacts of Brexit and more importantly of Covid-19 have not been taken into account in our forecasts of household growth** (nor in the latest ONS population projections). In the current weeks we are witnessing a halt in new developments due to the restriction measures adopted in the country. The impact of an economic recession on new housebuilding volumes increases the likelihood that outturn new connections in the next five years might be well below ONS forecasts.

Growth expenditure – our modelling approach and additional assessments

3.119 Anglian Water claims that Ofwat relied on inappropriate econometric models to assess growth-related expenditure, without any bottom-up assessment as a

[168] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 158-160, paragraphs 657-67.
[169] Office for National Statistics, 'Methodology used to produce household projections for England: 2016-based', August 2019.

cross-check. It also does not consider that the growth unit-cost adjustment addresses the needs of its region.

3.120 Overall, **we consider that Anglian Water has over-simplified our systematic approach to assessing growth related costs in our final determination**. For final determination, we adopted a hybrid approach to assessing growth-related expenditure, which combined an integrated approach of modelling base and growth-related costs together with deep-dive analysis and a growth unit cost adjustment.[170] These additional assessments aimed to address the limitations of the modelling approach and ensure that each company received an appropriate and efficient growth allowance.

3.121 We disagree with the company's claim that our econometric modelling approach is inappropriate. Modelling together operational, capital and growth-related expenditure is appropriate for several reasons:

- dealing with population growth is a **routine part** of water companies' businesses, as it is in many other sectors. Water and wastewater companies have incurred growth-related expenditure in the past and will continue to incur growth-related expenditure going forward;
- growth related expenditure can be explained by **similar cost drivers** to operational and capital maintenance. Namely, company scale and population density. For example, all else being equal, a large company would be expected to have a greater number of new connections in any given year than a small company. Similarly, some companies (including Anglian Water) have argued that the remoteness of growth from existing assets and the type of property being connected are also drivers of growth costs, which we consider are captured by our density explanatory variables;
- **we do not expect a significant change in what drives growth enhancement during PR19.** Namely, we expect that the main drivers of growth expenditure in 2020-25 will be the same main drivers that have driven historical costs; and
- our integrated approach **mitigates for known company reporting inconsistencies** between operating, capital maintenance and growth-related expenditure. For example, some companies reported zero costs under historical new connections capex because they reported the costs as opex instead, and we are not able to distinguish between 'base opex' and 'growth opex' in the historical cost data (up to 2016-17). Regulatory Accounting Guidelines (RAGs) also allow companies to apply a level of

[170] See more detailed discussion on our final determination approach in Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 4.

discretion when apportioning costs between growth-related expenditure and capital maintenance. These reporting inconsistencies between companies could therefore make standalone growth and base model results misleading.

3.122 Anglian Water claims that expenditure for reducing sewer flooding risk and addressing low pressure should not be assessed within base costs.[171]

3.123 We disagree with the company. As explained in our final determination, companies have always had a requirement to address low pressure and there has been no change to the statutory threshold they need to obtain.[172] Because only four companies reported enhancement expenditure against this activity for 2020-25, we consider that this is likely to be a result of inconsistent interpretation of enhancement expenditure in this area across companies, where the majority of companies report related costs as base expenditure. Including these costs in base costs therefore provides consistency in the classifications of these costs across companies. We also note that these costs are very immaterial at £7 million across the four companies that reported them.

3.124 It is also appropriate to include costs for reducing sewer flooding risk in the base models. Costs to reduce sewer flooding risk are largely driven by population growth and should therefore be assessed together with growth expenditure. As new properties connect to the network, the risk of sewer flooding increases unless companies invest to ensure the sewer network has sufficient headroom to accommodate the growth. We also looked at companies' cost forecasts in this area and found that companies generally forecast a flat profile of investment over 2020-25, and that the investment is reasonably driven by population growth and the size of the company.

3.125 While climate change can also be considered a driver of this expenditure, the associated costs will be captured in our base models, as companies have been dealing with climate change over multiple price controls. We did not receive any evidence that climate change affects some companies differently to others in a material way. We therefore consider that these costs will be properly reflected in their base allowance, particularly by our scale variables.

3.126 We adopted a **growth unit cost adjustment** at final determination in response to companies' concerns that our base models would not **capture**

[171] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 164-165, paragraphs 696-701.
[172] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 15-16.

step changes in population growth rates. We acknowledged that our models might suffer from missing variables to capture growth, due to data quality challenges in this area.[173] This means that our models might fund the historical average growth rate across the industry and not capture step changes in population growth.

3.127 The adjustment provided an upward or downward adjustment to a company's allowance depending on whether the company operates in an area with relatively high or low forecast population growth, relative to the historical average growth rate for the sector. For each company, we calculate the forecast number of new connected properties above or below the historical average growth rate, and multiply it by the efficient historical unit cost.[174] For these reasons, we consider that our adjustment is **intuitive** and supported by a **sound rationale**. We note that the adjustment resulted in an additional allowance of £40.6 million allowance to Anglian Water.

3.128 Anglian Water considers that the unit rate applied in our adjustment is too low.[175] The unit rate we applied is the efficient historical cost per new connection, in line with our expectation that our models should fund the efficient cost.

3.129 Our deep-dive assessment added a final layer to our growth cost assessment and aimed to ensure that each company received an appropriate base cost allowance to fund growth in their region. Anglian Water provided a significant amount of evidence on its growth expenditure in response to our draft determination and in its late October 2019 submission.

3.130 **We systematically reviewed the evidence presented by Anglian Water ahead of our final determinations**, to decide whether any additional adjustments were necessary, but did not find sufficient and convincing evidence that an additional adjustment was required for Anglian Water.[176]

3.131 Further, based on the evidence provided in the company's statement of case, including additional stand-alone growth models developed by Vivid Economics, **we remain of the view that Anglian Water has failed to provide convincing**

[173] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 20-21.
[174] See Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, p. 22 for a detailed description of the calculation of the growth adjustment.
[175] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 164, paragraph 694.
[176] Full details of our deep dive assessment for Anglian Water are provided in Ofwat, 'PR19 final determinations: Anglian Water – cost efficiency additional information appendix', December 2019, pp. 19-26.

evidence that our base cost models, deep dive assessment, growth unit cost adjustment and DSRA in combination do not provide a sufficient growth allowance for the period 2020-25.

3.132 In its statement of case, Anglian Water claims that the cost drivers included in our models are inadequate to capture its growth costs. The perceived lack of cost drivers to capture variations in onsite and offsite connection costs was at the heart of Anglian Water's evidence base and remains a key part of its statement of case. The company considers there are two key 'complexity' drivers of growth costs that are not captured in our base cost models:[177]

- **Growth intensity** – a company operating in a region with a relatively high growth rate (i.e. intense growth) may incur higher costs associated with reinforcement due to headroom in the network being used up more quickly than a relatively low growth company.
- **Remoteness of growth** – a company operating in a region where new developments are being built in remote areas, away from existing infrastructure, may incur higher costs to connect such properties to the network.

3.133 This claim is plainly inaccurate. We are satisfied that **our hybrid approach appropriately takes into account growth intensity and remoteness**.

3.134 The growth unit cost adjustment was put in place to recognise that our base models may undercompensate companies with relatively high forecasts of population growth and therefore addresses growth intensity. Similarly, we consider the cost drivers in our base cost models capture differences in remoteness between companies:

- our wholesale water base cost models include a variable for population density / sparsity and the number of booster pumping stations, which are both related to remoteness; and
- our wholesale wastewater base cost models include population density / sparsity, sewer length, pumping capacity per sewer length, load treated in different size treatment works and number of sewage treatment works per property, which are all related to remoteness.

3.135 Anglian Water also states that property type is a driver of growth costs. We consider that property type is closely related to remoteness / sparsity, which our models capture. For example, companies operating in sparse regions of

[177] Vivid Economics finds that the type of property does not have a significant impact on on-site growth costs. Source: Anglian Water, SOC369, 'Vivid Economics Growth Report'.

England and Wales are more likely to build larger properties than companies operating in dense regions where land may be at more of a premium. In addition, **Vivid Economics, in its work for Anglian Water, was unable to find a significant relationship between property type and growth costs in their stand-alone growth econometric models**.

3.136 The evidence presented by Vivid Economics also supports our final determination position that property type is not a material factor that requires an adjustment given there are also likely to be other factors that may lead to Anglian Water incurring relatively lower onsite growth costs, such as **surface type** and **self-lay penetration**.

3.137 Overall, we consider that our approach to assessing growth costs captures the relevant drivers of growth expenditure, through a combination of modelling, deep dive assessments and unit cost adjustments. The DSRA will also retrospectively adjust allowed revenue in PR24 if outturn growth is more or less than our forecast growth.

3.138 We further note that **Anglian Water did not revisit its growth requested cost in the light of its lower forecast of new connections**, which casts doubts on the efficiency of the requested expenditure (as discussed in the section above).

3.139 We provide a full assessment of the additional models from Vivid Economics in our 'Cost efficiency – common issues' document.[178]

Growth expenditure – the developer services reconciliation adjustment (DSRA)

3.140 Anglian Water claims that the DSRA mechanism is not sufficient to deal with growth uncertainty, because it only partially covers growth costs and applies an unrealistic efficiency challenge. The company proposes an additional uncertainty mechanism for expenditure related to growth at sewage treatment works.

3.141 Our overall framework offers considerable protection against the risk of higher growth, and we do not consider there is a need for an additional uncertainty mechanism.

[178] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 4.

3.142 PR19 offers companies protection against high growth through three main mechanisms:

- the developer services reconciliation adjustment (DSRA) mechanism provides a volume driver revenue adjustment for new development costs;
- **the cost sharing mechanism**; and,
- **the resetting price control determinations every five years**, which provides the opportunity to adjust for high growth rates.

3.143 The totex regulatory framework also gives companies the opportunity to use its allowance flexibly to deliver outcomes for customers. This enables the companies to adapt to changing circumstances during the price control if it is in the customers' best interest to do so.

3.144 In its statement of case, Anglian Water raises some challenges in relation to the scope (arguing it is too narrow), unit cost (arguing it is too low) and efficient challenge applied to the unit cost of the DSRA (arguing it is too high).[179] We provided a detailed response to each of these issues at final determination.[180] In summary:

3.145 The objective of the DSRA was to encourage timely and quality new connections, and broadening the scope of the DSRA to include broader-related growth costs, as Anglian Water suggested in its response to our draft determination, would not better achieve this. Wider growth-related costs are covered by cost sharing arrangements.

3.146 The unit cost adopted is based on companies' forecasts. This would implicitly reflect the unique characteristics of each company, such as the degree of self-lay penetration, the mix of brown and greenfield development, etc.

3.147 We consider it is appropriate to apply the base cost efficiency challenge to the DSRA unit costs given that developer services are a key component of base costs. In turn, this ensures alignment between the DSRA mechanism and cost assessment.

[179] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 167-9, paragraphs 712-27.
[180] Ofwat, 'PR19 final determinations: Our approach to regulating developer services', December 2019, pp. 6-17.

3.148 No other company has argued for a different approach and companies in general appear to support the proposed DSRA based on the feedback we have received.

3.149 In its representations on the draft determinations Anglian Water also put forward the proposal for three additional uncertainty mechanisms on growth costs. In our final determination, we rejected all three mechanisms.[181]

3.150 Anglian Water is now requesting that the CMA considered the adoption of the third of these mechanisms, i.e. a mechanism for costs related to enhancements to sewage treatment works.[182] **We maintain the position that there is no need for additional special protection for Anglian Water.** The adoption of this mechanism would lead to distortive incentives for the company, and lead to decisions that are not in the best interest of customers.[183] [184]

3.151 Our cost assessment approach at price controls is to set a fixed totex allowance, in advance, for a period of five years. This approach has provides incentives for companies to seek efficiencies during the price control period, and provides stability for customers and investors.

3.152 Making an exception to this approach may be appropriate in certain cases. For example, introducing a volume adjustment can protect customer and companies from forecasting error of future volumes. For this reason we introduced a volume driver to our retail control, where the majority of costs are "marginal costs" that vary one-to-one with customers. And we introduced a volume adjustment for new development costs, that is for onsite and closely related offsite costs that vary one-to-one with housing growth.

3.153 However, unlike the cases above, costs related to enhancing sewage treatment works are not 'marginal' costs and do not vary one-to-one with population growth. The risk of incurring additional sewage treatment enhancement costs as a result of unexpected growth is lower than in retail or in new connections, and in any case can be mitigated by effective long term planning. On the same token, enhancements to water treatment works are

[181] Ofwat, PR19 final determinations: Anglian Water – Cost efficiency additional information appendix, December 2019, pp. 22-4.
[182] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 169, paragraph 727.
[183] We would like to clarify that we did not misunderstand the proposed measure as being related to the volume of wastewater treated. We understood that the mechanism was based on sewage treatment capacity created.
[184] Ofwat, 'PR19 final determinations: Anglian Water – Cost efficiency additional information appendix', December 2019, p. 24.

identified in the long terms water resource management plans of companies, and are not subject to an uncertainty mechanism.

3.154 We are concerned that **the proposed mechanism could distort company decision-making** and lead to sewage treatment capacity increases taking place during PR19 that were not originally in its plans given the added certainty the mechanism would bring in terms of cost recovery. The mechanism may therefore lead the company to adopt short term decisions that are not optimal for the long term or in the best interest of consumers.

3.155 We also consider the mechanism could be **challenging to implement effectively and may lead to unintended consequences**. The mechanism would operate against a baseline level of capacity that is expected to be delivered with the ex-ante base cost allowance. Determining the baseline level of capacity may be difficult. Especially since Anglian Water has changed its growth forecasts on two separate occasions since its original PR19 business plan. This may mean that the mechanism is triggered at the incorrect level of capacity, which **could lead to consumers funding investments twice**.

3.156 **Finally, other wastewater companies also operate in relatively high-growth areas and have not requested an additional uncertainty mechanism for growth at sewage treatment works.** This suggests that other wastewater companies support our position that growth at sewage treatment works investments are best funded through an ex-ante allowance and do not require an uncertainty mechanism. It may also be considered unfair to give additional special protection to Anglian Water given that other wastewater companies also face similar circumstances.

3.157 In combination, we consider that our final determination provides water and wastewater companies with sufficient protection against high growth. In fact, the introduction of the DSRA provides an **additional level of protection that was not provided in PR14**. We are therefore convinced that **companies are suitably protected** against the possibility that growth in their region could be higher than that forecasted by our independent forecasts of households' growth.

Smart metering

3.158 Smart meter installation will bring benefits to companies in terms of improved data on water consumption. This data can be used to better identify where leaks are occurring and to engage with customers to promote the efficient use of water. We welcome the significant advantages smart metering will bring to

customers and the wider environment. We fund the installation of new meters for residential and business customers under enhancement investment and the maintenance and replacement of existing meters within our base allowance.

3.159 In its statement of case, the company sets out an overall cost gap of £52.9 million in this area, consisting of:

- a rejected cost adjustment claim against its base allowance of £42.4 million; and for replacing meters before the end of their asset lives as a part of its smart meter deployment strategy
- an efficiency challenge of £10.5 million on its enhancement programme, of which £3.1 million is based on the output of our metering cost benchmarking model and £7.4 million is based on our unit cost of replacing old meters with new smart meter and consideration of new connection allowances.

3.160 The company considers that our challenges will prevent it from reducing demand and result in increased abstraction from the environment. It also argues that it will have to deliver its metering programme over a longer time period, deferring costs into future periods and this may impact its ability to deliver long-term performance levels in per capita consumption and leakage. The company considers this will particularly impact rural areas with environmentally sensitive abstractions.[185]

3.161 The company plans to roll out its smart metering programme on area by area basis. As a result it plans to replace fully functioning basic meters significantly before the end of their useful asset lives. The company considers the claim to cover this additional expenditure that would not be otherwise incurred. [186] We did not accept this claim. The approach to rolling out smart metering is discretionary and within management control. We consider that the company has the opportunity to optimise the delivery of this programme efficiently within its base allowance and balance the benefits against the costs.

3.162 We did not consider the company had presented justification for customers to bear the costs the basic meters replaced within their asset lives. The company has not provided compelling evidence of consideration of the cost and other benefits it will gain from replacing basic meters earlier with smart meters within its cost adjustment claim. For example the company identifies it expects the early installation to bring benefits such as reduced meter reading and customer

[185] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 26, 'WRMP Case Study 3', and pp. 191-192, 'Smart metering case study'.
[186] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', p. 191, 'Smart metering case study'.

service costs. We consider it is not appropriate for the company to ask customers to bear the costs when it will receive the majority of benefits from the early replacement strategy. [187]

3.163 We expect large companies to be able to manage long-term investment plans within their base allowance, which allows for an element of lumpy maintenance. We therefore consider this approach to be no different to any company selecting to bring forward asset replacement in order to deliver its chosen strategy. This is not an activity we consider appropriate to provide additional funding for beyond our base model allowance. This is consistent with the approach we have taken for other companies. We note that Northumbrian Water plans to undertake significant replacement of basic meters with smart meters and did not request any base allowance uplift.

3.164 In its statement of case with respect to £3.1 million of its requested metering enhancement expenditure the company references its previous representation our metering cost models not including a metering penetration variable.[188] The company refers to a report by Vivid Economics that suggests meter penetration should be taken into account. We have responded to this point previously in our draft determination and final determination documentation.[189] We tested for inclusion of metering penetration data and this had no material impact on the model fit or outputs but added uncertainty in terms of data confidence, and therefore we not to incorporate this variable.

3.165 The company also argues that we disallowed £7.4 million of requested expenditure due to failure to consider costs associated with different types of meter installations.[190] However, we consider that only £1.9 million of our enhancement challenge relates to the point raised by the company. For new connections we made no additional allowance for the type of meter installation because the costs for installation are included within the 'new connections' part of the growth allowance. Our metering enhancement allowance for new connections therefore is for the variance in cost between a basic and smart meter unit.

[187] Anglian Water, SOC206, 'Revised draft WRMP 2019 Technical Document: Option Appraisal', October 2018, p. 16.
[188] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 191.
[189] Ofwat, 'PR19 draft determinations: Securing cost efficiency technical appendix', July 2019, p. 55, and 'PR19 final determinations. Securing cost efficiency technical appendix', December 2019, p. 83.
[190] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 191, 'Smart metering case study'.

3.166 The remaining £5.5 million variance occurs because in our final determinations we used the cost per unit that the company included in its business plan narrative for the replacement of existing meters with smart meters.[191] We could not reconcile the amount the company requested with the unit cost uplift the company proposed for the proactive replacement of a basic meter with a smart meter, at £44.30 per meter. The company provided no evidence to explain this variance. However, we considered the company's unit cost to be evidenced and comparable to those presented by other companies. We therefore used the unit cost in our final determination, resulting in an allowance £5.5 million lower than the company's requested amount. Further detail of our assessment and the numbers of meters involved are in our final determination model.[192]

Key issue - Setting the enhancement allowance

Setting efficient costs for enhancement expenditure

3.167 Anglian Water argues that our overall allowance for enhancement investment is inappropriate due to our reductions for:

- our approach to cost benchmarking;
- company specific efficiency challenge;
- challenge to investment need and scope; and
- WINEP frontier shift adjustment (covered below, under 'Other issues raised by Anglian Water').

3.168 **We have not challenged the need for any area of enhancement investment**. Our final determination allowance for Anglian Water's enhancement programme is based on our view of efficient cost. We consider that this allowance is fully sufficient for the company to meet it statutory duties and improve the resilience of its treatment and distribution systems. We have intervened where the company has not provided sufficient and convincing evidence to justify that its proposed solutions meet these needs or where we consider that its costs are not efficient.

[191] Anglian Water, SOC168, 'PR19 Draft determination representation', August 2019, p. 131, Table 52.
[192] Ofwat, 'Wholesale Water Enhancement feeder model: Metering', December 2019. We note that additional information provided by the company suggests we have allowed a favourable rate because the company identifies a lower uplift cost of £19.50 per meter for a proactive exchange of meters at an internal installation. Anglian Water, 'A004 – WRMP 2019 Demand management options', September 2018, p. 17.

Our approach to cost benchmarking

3.169 The company considers our overall allowance for enhancement investment is insufficient and this is due to our approach to benchmarking costs including our treatment of enhancement opex. The company considered further that we did not use sufficient cost drivers, failed to correct for different adopted solutions, did not consider other evidence through deep dive assessment, and that the use of upper quartile was inappropriate.[193]

3.170 Our approach to setting the efficient cost for all areas of enhancement is set out in our final determination documentation.[194] We used enhancement benchmarking models only where we considered that they were robust. We also undertook deep dive assessments in parallel, for example particularly to check for any rationale to explain outliers. Where we were not satisfied with a model's reliability, we made adjustments that were frequently company specific or we allowed the costs in full. For example, in setting our allowance for WINEP flow to full treatment schemes, we made a specific adjustment to our modelled allowance for Wessex Water's individual circumstances based on the company's compelling evidence. In another example, for the WINEP sanitary parameters programme we allowed all companies their costs in full because we were not satisfied that the econometric models we created could predict efficient costs at a sufficient level of accuracy.

3.171 Where it was feasible and reasonable to do so we used cost drivers that were independent of any specific solution. This avoids treating certain solutions preferentially to others and allows for innovators to gain benefits where they have solutions that are more cost efficient compared to conventional solutions. In our WINEP network storage scheme model we modified the definition of our cost driver to be more neutral of different types of solution. This enabled us to better include innovative that Welsh Water had evidenced were beneficial both in terms of cost and environmental impact.

3.172 We are aware of the potential limitations of econometric models in this area and we controlled for this in two ways. Firstly, where feasible, we triangulated results from multiple models to arrive at a more considered view. An example of this is in determining our allowance for phosphorus removal schemes in WINEP where we triangulated multiple models. Secondly, for the wastewater schemes in WINEP we took a programme level approach. We set our view of efficient costs from the summation of the output of all area rather than develop our view

[193] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 175, paragraph 795.
[194] See Ofwat, 'PR19 final determinations. Securing cost efficiency technical appendix', December 2019, p. 48.

of efficient costs within each enhancement area. Following this process if a company is considered inefficient in one model and efficient in another, the outcomes will balance to a degree. We consider that this takes better account of the accuracy of individual models and potentially different approaches to cost allocations companies may make.

3.173 We have used the forecast upper quartile as a benchmark in enhancement areas where we consider the accuracy of our modelling sufficient, such as WINEP. There is no evidence known to us, nor is any presented by Anglian Water to show that the upper quartile level is driven by 'unrealistically optimistic forecasts by some companies'.[195]

3.174 Anglian Water present two case studies, one of phosphorus removal from wastewater schemes and the replacement of lead water pipes as examples of deficiencies in our setting of cost allowance in enhancement.[196]

3.175 The company's case study on **phosphorus removal schemes** in WINEP raises two issues. Firstly, that it is more appropriate to use a 1mg/L consent level instead of the 0.5 mg/L to generate the values used in our cost benchmarking model. Secondly, the company planned to use a solution based on mecana disk filter and chemical dosing and due to our efficiency challenge will now use chemical dosing alone. We understand that the stringency of the consent level will determine the level of phosphorus treatment and this is an important cost driver. Our selection of the 0.5 mg/L threshold was based on engineering rationale and the representations by some companies that this was the level below which costs increase significantly (non-linearly). Further details of our assessment of the representations regarding our phosphorus removal model are set out in our final determination documentation.[197]

3.176 Further, we do not accept that our efficiency challenge has resulted in Anglian Water having to implement inappropriate solutions. As set out previously, we do not mandate a particular solution companies should implement but set our view of efficient cost based on comparative analysis. Anglian Water thus remain responsible for choice of correct treatment and compliance with quality requirements which are monitored by EA. **Companies are thus free to innovate, manage the resulting risks and take advantage of the rewards**. The selection of the appropriate treatment process should involve consideration

[195] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 176, paragraph 799.
[196] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 196-8, paragraph 801.
[197] See Ofwat, 'PR19 final determinations. Securing cost efficiency technical appendix', December 2019, p. 99.

of the consent level and the performance of the current treatment process. Anglian Water has not provided sufficient detail in its case study to allow us to judge the risks of implementing chemical treatment alone. However, chemical treatment alone has been the primary treatment process implemented historically to reduce phosphorus levels. Thus, it remains an appropriate technology, albeit its use is dependent on the level of removal to be achieved.

3.177 Anglian Water challenges our approach to modelling costs for **reducing lead**.[198] Companies have an obligation to manage customer exposure to levels of lead below a statutory limit. We use benchmarking to assess companies' proposed expenditure in this area, which enables to highlight inefficient proposals. The company claims that our approach is under-funding its proposed expenditure, and goes against the Drinking Water Inspectorate's (DWI) long-term aspiration to remove the health hazard presented by lead.

3.178 Our final determination approach to modelling costs for reducing lead standards is theoretically sound and received substantial support from companies, (following the draft determination, only Anglian Water and Thames Water made further representations). After the initial assessment of plans, we introduced a number of changes to the model in response to companies' feedback. For example, we dropped the use of the total number of communication pipes as a model driver, following companies' suggestions that **the main driver of this expenditure is the number of communication pipes replaced**. This is reflected in the high explanatory power of our model (R-squared 0.8). We also moved from averaging the results of an historical and a forecast model to modelling forecast expenditure only. This was in **recognition of the ambition of companies' plans for the period 2020-25**, some of which have large trial programmes and include the replacement of pipes in customers' homes and at schools and nurseries.

3.179 We triangulated the results of the econometric log-linear model, which allows to better capture economies of scale, with the results of a unit cost model (cost per pipe replaced). The forecast median unit cost of £1,353 is credible as it is higher than the historical median unit cost (£1,083). The unit cost model provides a valid alternative result to that of the econometric model. In comparison, **Anglian Water's forecast unit cost of £5,284 is the highest in the industry**.[199]

[198] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 198.
[199] Ofwat, 'Wholesale water enhancement feeder model: Lead standards', December 2019.

3.180 In its response to the draft determination, Anglian Water claimed that its higher forecast unit cost was due to the replacement of additional 2,250 supply pipes (i.e. within the customer property boundary), which substantially increased the length of the pipe to be replaced compared to others.[200] The company argued that, if we were to assess lead standard costs on a per metre basis (rather than per communication pipe replaced), its cost proposal would be efficient.

3.181 We disagree. Anglian Water **did not provide any convincing evidence of longer supply pipes to other companies nor that a cost-per-meter model is better**. We considered that a costing approach based purely on meter rate did not adequately reflect the opportunities and cost efficiencies that could be expected. We would expect a model based on cost per meter rate to benefit companies estimating a greater pipe length, and expect increasing economies of scale. A marginal cost approach should have been considered and explained. In addition, other companies included the replacement of customers' pipes in their 2020-25 plans.

3.182 Nevertheless, at final determination we made an additional deep dive allowance to both Anglian Water and Thames Water for the replacement of supply pipes, based on the efficient cost per pipe. This was in consideration of the DWI's aspiration to minimise lead at customers' taps.

3.183 In its statement of case, Anglian Water claims that, because of our approach, its programme will need to be reactive and will continue to dose orthophosphoric acid (rather than replace pipes) to prevent lead uptake into the water. We note that Anglian Water was the only company to propose separate phosphate dosing solutions. We separately assessed the company's proposed orthophosphate treatment costs. We found limited evidence for the efficiency of its proposal and applied an efficiency challenge.

3.184 Anglian Water quotes a report from Vivid Economics in support of its claim that our model is not appropriate.[201] We consider this is misleading. The Vivid Economics report refers to our modelling approach at the initial assessment of plans, and does not reflect all the changes adopted in response to companies' feedback. In fact, Vivid Economics' recommendation was to maintain the modelling approach while assessing treatment costs separately, which is the approach we adopted (as mentioned above).

[200] Anglian Water, SOC169, 'DD Supplementary Evidence', August 2019, p. 27.
[201] Anglian Water, SOC128, 'Vivid Economics Enhancement Cost Assessment Modelling', March 2019.

3.185 Overall, we consider we have fully taken into account the DWI's long-term aspirations by funding companies' ambitious forecast plans and making additional allowances to Anglian Water and Thames Water for the replacement of additional pipes on the customer side, and that we have adequately considered Anglian Water's alternative treatment solution. However, **we do not consider that customers should be paying for Anglian Water's inefficient cost proposal**.

Company specific efficiency factor

3.186 Where companies' enhancement proposals were of low materiality (less than 0.5% of the company's water or wastewater totex), for reasons of proportionality we carried out a light touch assessment ('shallow dive'). We did so by applying a company specific efficiency factor, which we derived from the company's performance on the base costs we modelled in our econometric models.

3.187 Anglian Water argues that it was wrong of us to apply an efficiency challenge on enhancement costs that is derived from base costs. The company argues that, where Ofwat is not able to undertake any modelling, we should have at least carried out a deep dive.[202] We do not agree with the company's claim. We consider that the application of the company's efficiency factor is a proportionate approach for low materiality areas, where we do not require companies to support the proposed investments with substantial evidence as we do for more material areas. Where appropriate, we still carry out additional assessments ('deep dives') for investments that are below but close to the 0.5% threshold.

3.188 The company specific efficiency factor for Anglian Water was 10% in both water and wastewater, due to the high inefficiency of its base cost business plan proposal. The company considers it was disproportionate to apply the base challenge on its enhancement costs without any evidence of enhancement inefficiency. However, our analysis shows that a 10% efficiency challenge was a reasonable assumption for Anglian Water. **The company is inefficient in all areas of enhancement which we assessed using a modelling approach** (Table 3.9). Based on this, a 10% efficiency challenge was likely to be a generous approach.

[202] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 199, paragraphs 802-4.

Table 3.9: Anglian Water's efficiency in enhancement modelling areas

Enhancement area	Company view	Our allowance	Efficiency challenge
Lead standards	31.2	12.5	- 60%
Metering	136.8	126.3	- 8%
WINEP in-the-round	797.1	688.4	- 14%
First time sewerage	23.9	19.2	- 20%

Source: Ofwat, Final determination models, Enhancement aggregator.

Challenges to investment need and scope

3.189 Anglian Water highlights one challenge on scope relating to the WRMP interconnector scheme. Our assessment of this area is set out in our previous submission to the CMA.[203] Anglian Water has highlighted a number of investment areas where it considers we have challenged the need for investment.[204] We have not challenged the need for any enhancement investment. We have challenged the company where it requested enhancement investments in areas we believe are a part of its base service delivery. We have challenged the company where it has not provided sufficient and convincing evidence to justify that its proposed solutions efficiently meet the need or where we considered that its costs are not efficient. We provide a response to each of the areas highlighted by the company in table 3.10 below.

Table 3.10: Response to the investment areas that the company interprets as a need challenge

Investment area	Our response
Water resilience	We do not dispute the need for Anglian Water to ensure that its electro-mechanical assets are maintained to meet prevailing standards of operation, including ensuring that automatic safety protection systems are fit for purpose. However, we consider that these maintenance activities are a part of the normal running of its operations and within our wholesale base allowances.
Metering	We do not challenge Anglian Water's plan to use smart metering technology as a part of its demand management strategy within its WRMP. We have challenge the company where we believe its costs are not efficient. Our assessment of the company's smart metering plans are set out earlier in this chapter.

[203] Ofwat, 'Reference of the PR19 determinations: Key elements of the methodology appendix', March 2020, pp. 29-32.
[204] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 161, Table 20.

Investment area	Our response
Bioresources	We do not dispute the need for Anglian Water to appropriately treat and dispose of sewage sludge. We accepted the company evidence that sludge volumes will increase due to WINEP and population growth. However we determined that it had not provided sufficient and convincing evidence that it had assessed the full range of options available to source this additional capacity including from the wider bioresources market. We do not accept that non water and sewerage companies cannot obtain revised environmental permit to allow them to manage and store sewage sludge.
SEMD / non SEMD	We do not dispute the need for Anglian Water to ensure it operates securely and meets its legislative obligations. We allowed the company's enhancement costs at the 2015-20 price control as it was a large programme which provided a significant step-change in security across the network. We noted the planned 2020-25 projects will improve security further and that these are requirements which arose during 2015-20. Therefore for final determination we maintained our draft determination decision that any further SEMD costs should be met through the company's base totex allowance as we had provided sufficient funding at PR14. For our final determination we considered that a reduction for its requested non-SEMD costs was appropriate due to the lack of evidence provided for its high costs or in demonstrating how its costs have been derived. Our adjustment was not based on need.
Other water resource schemes	We do not dispute the need for Anglian Water to deliver the relevant schemes. However, we concluded from the evidence provided that we were not convinced the company had fully explored all available options. As a result we made an adjustment to protect customers from potentially inefficient costs.

Supply-demand balance expenditure

3.190 Water companies have a duty to make necessary arrangements to continue to be able to meet their water supply obligations. Ensuring resilience to drought is one component of a company's planning to ensure long-term resilience of its supplies. The company invests in maintaining its existing assets and enhancing its capabilities in order to deliver overall resilience. Therefore delivery of resilient supplies can be considered as being funded through a number of base and enhancement elements. These include, for example, capital maintenance, growth, supply-demand balance, metering and resilience.

3.191 This section focuses upon enhancement expenditure requested by Anglian Water to maintain the supply-demand balance and ensure resilient supplies in drought scenarios. Within this request the company includes expenditure to deliver further resilience to non-drought hazards and to address future

uncertainties. The company states that its proposed investment represents a best value plan for delivering long-term resilience.[205] We discuss the leakage element of this investment and the related investment in metering within separate sections.[206]

3.192 The company argues that our challenge to its proposed supply-demand balance expenditure contradicts the needs of the region in terms of its growth and climate challenges.

3.193 Anglian Water requests significant investment of £482.8 million that includes development of a regional scheme of interconnecting pipelines supported by development of new sources.[207] The company argues that our challenges will undermine its delivery of resilience, lead to sub-optimal solutions, and defer costs resulting in solutions with a higher whole life cost.[208]

3.194 The company highlights that its current allowance will prevent it from effectively delivering resilience to Ipswich and leave it exposed to residual risk.

3.195 We consider that our final determination of £436.8 million provides an appropriate allowance to deliver the investment required to ensure the balance of supply and demand. Our allowance also enables investment in resilience beyond the minimum requirements identified within the company's water resources management plan.

3.196 We engaged with the company in detail throughout its plan development which commenced prior to the PR19 process. We have consistently challenged the company regarding the transparency and robustness of its decision making. In our final determination, we made an adjustment to Anglian Water's requested costs where the company provided insufficient evidence to demonstrate that its proposals represented best value or efficient costs.

3.197 For company's proposal relating to Ipswich, our allowance is based on the company delivering greater than the minimum requirements to ensure drought resilience that are identified in the company's water resources management

[205] A best value plan typically considers the delivery of multiple objectives beyond delivery of the minimum requirements.
[206] We cover 'smart metering' and 'maintaining leakage levels – assessing the company's cost adjustment claim' within 'key issue – setting the base allowance'. 'Leakage enhancement expenditure' is within 'key issue – setting the enhancement allowance'. Investment in metering can reduce demand through encouraging reduced consumption and enhancing leakage detection capability.
[207] See table 3.11 for further breakdown of requested costs and allowances.
[208] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p.201

plan. The company has not adequately quantified the residual resilience risks and requirements to justify additional investment.[209]

3.198 We are concerned that the uncertainty regarding the future requirements that are driving the company's investment and the process it has followed in developing its plan does not result in an optimal long-term solution. We consider therefore that our allowance meets our duty to further the resilience objective while ensuring customers are protected.

3.199 In our final determination we made an allowance for the supply-demand balance programme of £437 million to Anglian Water. This is over £250 million greater than our allowance to any other company. This represented a 9.5% challenge on the requested amount. In addition to supply-demand balance enhancement expenditure, investment in metering and strategic regional developments contributes s to delivery of long-term supply-demand resilience. Considering these three elements together we made an allowance of £588 million to Anglian Water in our final determination. This is over £110 million greater than for any other company.[210] This represented an 8.8% challenge on the requested amount. Other companies who requested a lower allowance than Anglian Water, such as Southern Water and Thames Water, also face significant challenges with respect to supply-demand balance.[211] We include a summary of our challenge to Anglian Water's supply-demand balance expenditure request by component in Table 3.11.

Table 3.11: Our allowance for Anglian Water's supply-demand enhancement programme (£ million 2017-18 CPIH deflated prices)

Supply-demand balance enhancement components	Company view (August 2019 representations) (£m)	Ofwat view of efficient cost (£m)
Short-term enhancements (2020-25)	56.6	56.3
Long term enhancement (benefits beyond 2025)	5.7	4.3
Leakage reduction	76.7	71.4

[209] See table 3.13 for further discussion of individual schemes
[210] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, sheet 'ANH_CMA_Calcs'. This includes the enhancement expenditure allocated in our final determination feeder models for supply-demand balance, metering and strategic regional solution development.
[211] Full details of our supply-demand balance components and assessment approach can be found in our final determination documentation and was summarised in our day one submission Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 65-79 and 'Reference of the PR19 final determinations - Explanation of our final determination for Anglian Water', March 2020, pp. 23-28.

Supply-demand balance enhancement components	Company view (August 2019 representations) (£m)	Ofwat view of efficient cost (£m)
Internal interconnectors	343.8	304.9
Investigations and future planning	0.0	0.0
Total	482.8	436.8

Note: This excludes the allowance for the strategic water resource scheme development (£24.8 million) and the full cost of the Elsham scheme (up to £132 million) being progressed through a direct procurement for customers (DPC) delivery route.

3.200 The company based its requested supply-demand balance expenditure upon investment requirements it identified in its water resources management plan (WRMP). The company identifies within its WRMP that it needs to address a deficit of 30 Ml/d by 2025, rising to 150 Ml/d in 2045.[212] The production of a WRMP is a statutory process and we provided further explanation in our introduction to the CMA.[213]

Anglian Water's WRMP development

3.201 In developing its WRMP, Anglian Water has divided its region into 28 water resource zones (WRZs).[214] The company considered the supply-demand balance situation in each of these zones over the next 25 years under various drought scenarios. The company then selected options to ensure a supply-demand balance can be maintained in each of these zones. For each zone the company produced planning tables to describe the supply-demand position.[215] These tables include the options it has selected within its plan and demonstrate how these ensure a supply-demand balance is maintained. These tables record the forecast utilisation of the selected options under a 1-in-200 year drought scenario.[216]

3.202 The company determined the least cost programme of options to balance forecast supply and demand, therefore ensuring long term resilience of supplies against drought. It has then stress tested this least cost plan to identify opportunities to deliver further resilience to a selection of non-drought hazards and future uncertainties, such as more severe droughts and climate change. The company has built upon its least cost plan to produce what it considers to

[212] Anglian Water, SOC279, 'Water Resources Management Plan 2019', December 2019, p. 5.
[213] Ofwat, 'Reference of the PR19 determinations: Key elements of the methodology appendix', March 2020, pp. 29-32.
[214] The WRZ describes an area within which the abstraction and distribution of supply to meet demand is largely self-contained (with the exception of agreed bulk transfers).
[215] Anglian Water, 'A002 - Anglian Water WRMP planning tables', November 2019.
[216] Note that the utilisation of the options recorded in the company's planning tables relates to the requirements in the least cost plan drought scenario. We review this in our summary of our option assessment in Table 3.13 below.

be a best value version of its WRMP. This plan delivers some additional objectives beyond the level of drought resilience the company considered in its least cost plan. The company's plans include a significant investment in interconnector options. Interconnectors enable the company to transfer water between its WRZs moving surplus supply to areas of deficit.

3.203 Given that the terminology and description for the company's plans has changed during the WRMP and business plan development process, we consider it useful to clarify how we use the following terms within this document:

- **Least cost plan:** In this plan the company limits the interconnectors capacity to the maximum utilisation required in its baseline 1-in-200 drought scenario (i.e. the maximum flows in the WRMP planning tables). This plan has been optimised by the company on the basis of utilising existing resources while **restricting the selection of new sources** such as reuse or desalination before 2029.[217] This is based on the description used in the company's least worst regret analysis document.[218]
- **Best value plan:** In this plan the company bases the interconnectors' capacity on the least cost plan. The company then increases the capacity of some of these interconnectors where it considers this is necessary in order to meet some additional objectives beyond core drought resilience.

3.204 We note that in other documentation the company references a baseline least cost and alternative least cost plan. In this case the alternative least cost plan is equivalent to the least cost plan described in the point above. The baseline least cost plan is the optimised least cost solution based on the options the company considers **without constraining** the selection of new source development before 2029.[219]

3.205 In its statement of case the company stresses that we were fully consulted during the WRMP process.[220] We do not dispute this and agree that we have positively engaged with the company throughout the WRMP and business plan development process. We have also worked closely with the Environment

[217] Anglian Water, SOC206, 'Revised draft WRMP 2019 Technical Document: Option Appraisal', October 2018, p. 39.
[218] Anglian Water, SOC220, 'WRMP Least Worst Regret Analysis', September 2019, p. 1.
[219] Anglian Water, SOC219, 'WRMP Response to Ofwat Queries', October 2019, p. 3; SOC206, 'Revised draft WRMP 2019 Technical Document: Option Appraisal', October 2018, pp. 38-39 and SOC222, 'Anglian Water response to Ofwat Queries', August 2019, pp. 9-10. Note the baseline least cost plan presented as £440 million and best value plan presented as £552 million. However, this is prior to adjustments due to the potential metaldehyde ban and for real prices effects and productivity. The baseline least cost plan is not considered viable by the company or the Environment Agency.
[220] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 183, paragraph 773.

Agency throughout our assessment of Anglian Water's plans sharing knowledge and analysis to develop our view on the company's proposals. We have provided the company with multiple opportunities to present further explanation of its plan and provide further evidence. However, despite this engagement we remained concerned about the transparency and robustness of the company's decision making in identifying its preferred programme. We also stated that the company should ensure its proposed investment was fully justified and demonstrate its selected solutions were appropriate.

3.206 **We have consistently challenged the company with respect to its investment proposals.** For example, Anglian Water's draft WRMP opened for consultation in March 2018. As a statutory consultee we responded to the plan prior to the commencement of the business plan assessment.[221] Also, in addition to the information we provided to the company in our draft determination documentation we reiterated our issues with its proposals prior to its representation.[222] Our principal challenge has consistently been focused upon requiring the company to explain its decision making and the process followed from identifying its least cost plan to selecting its best value plan. This is focused upon the capacities selected for interconnectors and how the company decided upon the sizing for inclusion in its best value plan, balancing both the business as usual needs and possible future requirements. We have discussed these concerns directly with the company throughout the process and have reviewed many updated iterations of evidence that it has provided. We based our final determination on our assessment of this evidence.

3.207 The inclusion of the East Ruston scheme in our final determination is an example of how we based our decision on the latest evidence. This scheme had not been presented in the previous versions of the WRMP or business plans but was included by the company in its draft determination representation in August 2019, with further supporting information provided in October 2019.[223]

3.208 The summary of our challenge at final determination by component in Table 3.12 shows a gap of £46 million between the company's requested amount and our allowance, this represents 9.5% of the company's request. The main challenge relates to the company's interconnector programme and we breakdown our challenge into individual elements in Table 3.12.

[221] Ofwat, 'Anglian Water – draft water resources management plan 2019', June 2018.
[222] Anglian Water, SOC208, 'Letter to Ofwat re WRMP', 20 August 2019.
[223] For further details of our assessment of this scheme see Table 3.13 below.

Table 3.12: Elements of our challenge to Anglian Water's supply demand balance (SDB) request (£m)

Element of challenge	Total challenge (£m)	Proportion of total SDB request (%)	Challenge relating to inter-connectors (£m)[224]	Further comments
Scope	16.9	3.5%	16.9	We challenge scope by making an allowance based on delivery of a lower capacity interconnector
Cost efficiency[225]	24.9	5.2%	17.8	Total includes short and long term SDB components and leakage[226]
Other: subject to uncertainty mechanism	4.2	0.9%	4.2	Relates to East Rushton[227]
Total	**46.0**	**9.5%**	**38.9**	**Total request of £482.8m**

3.209 We consider that Table 3.12 demonstrates that in our final determination we have allowed investment to cover the majority of the company's identified scope. We made an allowance based on capacities greater than those identified in the least cost plan for all schemes. We consider that this is in accordance with customer support for 'investment now' while maintaining our duty as a regulator to challenge proposals to ensure requirements are well evidenced and costs are efficient.[228] We only challenged scope where we considered there was insufficient justification for the proposed capacity of the interconnectors in the best value plan. **We challenged scope by basing our cost allowance on a lower capacity interconnector. However, it is important to clarify that we did not set a maximum capacity to limit what the company can deliver.**

[224] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[225] Includes interconnector options subject to optioneering challenge.
[226] Further details of our leakage enhancement assessment within 'Key issue – Setting the base allowance', 'Maintaining leakage levels – assessing the company's cost adjustment claim' and 'Key issue – Setting the enhancement allowance', 'Leakage enhancement expenditure'. Details of our cost efficiency challenge on short-term and long-term-enhancements are in Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs', rows 37-77 & 95-120.
[227] For further detail of our assessment of this scheme see Table 3.13 below.
[228] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 174.

3.210 The company identifies the requirements to deliver resilience to a 1-in-200 year drought scenario within its least cost plan. The utilisation of its selected interconnector options required to deliver this are recorded in its WRMP planning tables. **In our final determination we only challenged the interconnector scope where the selected capacity was significantly larger than the maximum utilisation in the least cost plan and the company provided insufficient evidence to support this.**[229]

3.211 In its statement of case, the company argues that a major reason for increased capacity for its internal interconnectors in its best value plan is in order to address future uncertainty and resilience risks. The company makes reference to planning for a 1 in 500 year drought event and use of the latest climate change projections for the next round of WRMP development (WRMP24).[230] However, the WRMP24 guidance has not yet been issued and there remain decisions to be made regarding the assessment process. For example, a process to establish the appropriate risk levels to design to when faced with extreme droughts, forecast uncertainty and worst case climate change models needs to be established. The development of the WRMP that informs the PR19 business plan has used the WRMP19 guidance. The impact of this new planning approach on the whole system, including availability of supplies and changes in demand, would need to be fully assessed to understand how it impacted company requirements.

3.212 The company also argues that it needs to increase the capacity of its interconnectors in order to enable full utilisation of a new strategic reservoir being developed through our strategic regional solution programme.[231] The reservoir is just one of a number of strategic options being investigated to increase supplies to the south east of England and will be considered as part of regional plans which are not due to be finalised until September 2023. The initial draft of this option in terms of proposed operation and transfer routes will not be available before October 2022. The requirements of regional plans will be shaped by the needs of other companies and stakeholders. The companies

[229] The selected capacity refers to that selected in the best value plan and the utilisation considered was the maximum forecast over the next 25 years in the least cost plan which refers to a 1-in-200 year drought scenario.
[230] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 187. Latest UK climate predictions (CP) referenced are UKCP18.
[231] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 186, paragraph 777. We provide funding (separate from the supply demand enhancement allowance) for investigation and development of a number of strategic options in the 2020-25 period in our final determinations. This will enable companies to develop solutions on behalf of customers that are 'construction ready' for the 2025-2030 period. These solutions will then be compared and evaluated through the WRMP process to identify an optimal long-term plan. As a result of this process, not all options will be identified as being required in the medium or long-term. Ofwat, PR19 final determinations: Strategic regional water resource solutions, December 2019.

will have to incorporate the new WRMP24 planning guidance into establishing these needs. Our position therefore is that there is a considerable degree of uncertainty regarding the likelihood of development and the mode of operation of this reservoir. This therefore impacts an interconnection system that includes capacity to ensure outputs of such a scheme or an alternative can be utilised.

3.213 We consider that that the uncertainty in these areas could lead to a very different set of requirements which would result in a considerably different best value plan. We also note that the WRMP development process for the least cost plan already included the consideration of uncertainty so it is unclear how this is accounted for in the best value plan. Additionally the company has built its best value plan on the basis that all the interconnection routes selected in its least cost plan are required and that no supply options are selected prior to 2029. While the company considered that it could not deliver a desalination option prior to this point, the decision to restrict the selection of all supply options is extreme. **Our challenge that the plan does not demonstrate 'best value' is therefore appropriate. Our final determination reflects both the uncertainty regarding the requirements driving the increase of interconnector capacities beyond the least cost requirements and the constraints the company applied during plan development.**[232]

3.214 We have consistently challenged the company throughout the WRMP and business planning process to clarify its decision making process and how its stress testing led to the development of a best value plan from its least cost plan. In its statement of case the company states that a consultant has undertaken a least worst regret analysis which demonstrates that its plan is robust.[233] The company first provided detail regarding its least worst regret analysis to us in October 2019, stating that this built upon the previous stress testing used to develop its draft plan.[234] We do not consider that this analysis was therefore utilised in development of its draft WRMP or business plan.

3.215 We assessed the least worst regret analysis in our final determination. We did not consider it adequately explained the decision making process for developing the best value plan or justified the interconnector capacities being proposed. Our key points of challenge regarding this analysis were as follows:

[232] The company makes reference to least cost optimisation of solutions against its future scenarios but it is unclear how this was used to inform its decision making. The limited transfer options available to be selected would also influence the least cost outputs of these scenarios. Anglian Water, SOC206, 'Revised draft WRMP 2019 Technical Document: Option Appraisal', October 2018, pp. 48-50.
[233] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 183, paragraph 770.
[234] Anglian Water, SOC220, 'WRMP Least Worst Regret Analysis', September 2019.

- it is not clear how the levels of 'regret' was quantified and the decision making process to decide upon the capacity requirements for an interconnector is not clearly articulated;
- we considered there was the potential for the company, post stress testing or least worst regret analysis, to edit options in its portfolio to better align with its revised requirements. These are the requirements beyond those identified in the least cost plan. This would enable the company to re-run its optimisation to validate or amend its best value scheme selection. We consider the range of interconnector capacities considered was limited and this may result in a sub-optimal solution; and
- some scenarios are presented with return periods such as 1 in 500 years but for others the likelihood of occurrence is not indicated. The company does not identify how it considers these likelihoods in establishing the capacity requirements for an interconnector.

3.216 In its statement of case, the company references a number of its individual schemes and the impact of our challenge on scope. In Table 3.13 below we summarise our key points of challenge regarding these schemes.

Table 3.13: Scheme-specific challenges

Point raised in Anglian Water's statement of case	Summary of our key points of challenge
North Ruthamford to Fenland transfer, SFN4. The company identifies this scheme as being subject to a scope challenge, 40 Ml/d requested and an allowance based on 35 Ml/d. Statement of case, p. 179, Table 19.	For option SFN4, the least worst regret analysis report indicated 35 Ml/d was utilised in the best value plan scenario. [235] This represented 88% utilisation of the proposed 40 Ml/d capacity. The WRMP planning tables indicated a maximum usage of 29 Ml/d over the next 25 years. We did not consider that the company provided evidence to justify an allowance for a capacity of greater than 35 Ml/d in our final determination.[236] We considered that this transfer illustrates our concern that if the range of potential capacities for the interconnectors is limited, this may result in sub-optimal solutions. The next highest and lowest alternative capacity options to the 40 Ml/d option selected were 80 Ml/d and 22 Ml/d respectively. [237]
Emneth Hungate-Stoke Ferry, NFN4. The company identifies this scheme as being subject to a scope	For option NFN4, the least worst regret analysis report indicated 15 Ml/d was utilised in the best value plan scenario. [238] This represented 75% utilisation of the

[235] Anglian Water, SOC220, 'WRMP Least Worst Regret Analysis', September 2019, p. 3, Table 1.
[236] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[237] Anglian Water, SOC207, 'Revised Draft WRMP Supply Side Option Development', August 2019, p. 153, Table 6.206.
[238] Anglian Water, SOC220, 'Least Worst Regret Analysis', September 2019, p. 3, Table 1.

Point raised in Anglian Water's statement of case	Summary of our key points of challenge
challenge, 20 Ml/d requested and an allowance based on 15 Ml/d. The company considers this constrains downstream pipeline capacities reducing overall strategic feasibility and flexibility. The company considers this presents a significant risk in future drought scenarios and for utilisation of a strategic reservoir output. Statement of case, p. 179, Table 19 and p. 185, 'Interconnectors case study' and p. 187, 'WRMP Case Study 1'.	proposed 20 Ml/d capacity. The WRMP planning tables indicated a maximum usage of 9 Ml/d over the next 25 years.[239] We did not consider that the company provided evidence to justify an allowance for a capacity of greater than 15 Ml/d in our final determination. The company does not provide a clear explanation of the requirements under future drought scenarios and how the system would be utilised with the addition of a strategic reservoir. We considered that such requirements are subject to considerable uncertainty. See comment in ESU8 below regarding constraints on system flexibility.
Bury Haverhill to East Suffolk, ESU8 The company identifies this scheme as being subject to a scope challenge, 20 Ml/d requested and an allowance based on 10 Ml/d. The company considers this constrains downstream pipeline capacities reducing overall strategic feasibility and flexibility. The company considers this limits the company's ability to provide resilience to Alton WTW which impacts Ipswich's supply resilience Statement of case, p. 179, Table 19 and p. 185, 'Interconnectors case study' and p. 187, 'WRMP Case Study 1'.	For option ESU8, the least worst regret analysis report indicated 10 Ml/d was utilised in the best value plan scenario.[240] This represents 50% utilisation of the proposed 20 Ml/d capacity. The WRMP planning tables indicated a maximum usage of 8 Ml/d over the next 25 years.[241] The company indicated previously that the upsizing of this interconnector is driven by future uncertainty, rather than resilience need, and specifically the need to make allowance for possible future resource development.[242] It recognises the 'least worst regret' analysis did not indicate a requirement for 20 Ml/d but stated 'it is not possible to capture all potential future scenarios as part of the stress testing process and for this specific transfer route we consider the capacity of 20 Ml/d to be appropriate based on the evidence we have available to us'. We were unclear regarding this evidence and considered that there is considerable uncertainty regarding the transfer requirements following development of potential strategic resource options as part of regional planning. We also consider that the least cost plan assessment will include some uncertainty which will be reflected in the 10 Ml/d sizing. Therefore we found limited justification for the upsizing of this interconnector. The company did not clearly present all (drought and non-drought) resilience risks for Ipswich/Alton WTW and explain how it calculated a required capacity for transfer based on this assessment. The company referenced but does not identify any alternative options it has considered to increase Ipswich's resilience.[243] We also note from the high level summary of the company's interconnector scheme that the interconnectors

[239] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[240] Anglian Water, SOC220, 'Least Worst Regret Analysis', September 2019, p. 3, Table 1.
[241] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[242] Anglian Water, SOC220, 'WRMP response to Ofwat Queries', August 2019, p. 14.
[243] Anglian Water, SOC220, 'WRMP response to Ofwat Queries', August 2019, p. 14.

Point raised in Anglian Water's statement of case	Summary of our key points of challenge
	between water resource zones (WRZ) including NFN4 and ESU8 are typically transfers between water treatment works and storage points on the network. [244] The supply demand balances of individual WSZs will depend on the available sources and demands. It is therefore not necessarily required that an incoming interconnector will need to be larger than an outgoing interconnector in order to achieve the optimal solution. Balancing tanks and storage may provide the ability to manage such flows and utilise other sources. Due to the limited information provided for the scenarios the company is considering and the asymmetry of data between regulator and company with respect to network system operation, the impact of our final determination is unclear.
East Suffolk to South Essex, SEX4 The company identifies this scheme as being subject to a scope challenge, 15 Ml/d requested and an allowance based on 14 Ml/d. Statement of case, p. 179, Table 19.	For option SEX4, the least worst regret analysis report indicated 14 Ml/d was utilised in the best value plan scenario.[245] This represented 93% utilisation of the requested capacity. The WRMP planning tables indicated a maximum usage of 9 Ml/d over the next 25 years.[246] We did not consider that the company provided evidence to justify an allowance for a capacity of greater than 14 Ml/d in our final determination.
Norwich to Happisburgh, HPB1 The company identifies this scheme as being subject to a scope challenge, 1.5 Ml/d requested and an allowance based on 1.3 Ml/d. Statement of case, p. 179, Table 19.	In our final determination we considered that the capacity presented and costed was not fully justified in the evidence provided by the company because the capacity of 1.5 Ml/d selected is higher than the capacity proposed as required in the stress tests, 1.3 Ml/d.[247] The WRMP planning tables indicated a maximum usage of 1.1 Ml/d over the next 25 years.[248]
Potable hub: Central Lincs to Nottinghamshire, NTM1 The company identifies this scheme as being subject to a scope challenge, 3.5 Ml/d requested and an allowance based on 2.1 Ml/d. The company states that our final determination impacts 'WTWs (water treatment works) where the reduction in interconnector capacity will limit the opportunity to deliver additional resilience benefit in future'	In our final determination we considered that the capacity presented and costed is not fully justified in the evidence provided by the company because the capacity of 3.5 Ml/d selected is higher than the capacity proposed as required in the stress tests, 2.1 Ml/d.[249] It is unclear to us what additional resilience benefit the company reference relates to. We did not consider that the company provides any additional evidence to explain how the reduction in capacity specifically impacts the resilience at the water treatment works it identifies.

[244] Anglian Water, SOC204, 'Revised draft WRMP', August 2019, p. 12.
[245] Anglian Water, SOC220, 'WRMP Least Worst Regret Analysis', September 2019, p. 3, Table 1.
[246] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[247] Anglian Water, SOC222, 'WRMP Response to Ofwat Queries', August 2019, p. 15.
[248] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[249] Anglian Water, SOC222, 'WRMP Response to Ofwat Queries', August 2019, p. 15.

Point raised in Anglian Water's statement of case	Summary of our key points of challenge
Statement of case, p. 179, Table 19 and p.184, 'Interconnectors case study'.	The WRMP planning tables indicated a maximum usage of 1.6 Ml/d over the next 25 years.[250]
Little Melton-High Oak, NNR8 The company identifies this scheme as being subject to a scope challenge, 5.0 Ml/d requested and an allowance based on 3.4 Ml/d. The company states that our final determination impacts 'WTWs (water treatment works) where the reduction in interconnector capacity will limit the opportunity to deliver additional resilience benefit in future' Statement of case, p. 179, Table 19 and p.184, 'Interconnectors case study'.	In our final determination we considered that the capacity presented and costed is not fully justified in the evidence provided by the company because the capacity of 5.0 Ml/d selected is higher than the capacity proposed as required in the stress tests, 3.4 Ml/d.[251] It is unclear to us what additional resilience benefit the company reference relates to. We did not consider that the company provides any additional evidence to explain how the reduction in capacity specifically impacts the resilience at the water treatment works it identifies. The WRMP planning tables indicate a maximum usage of 2.6 to 3.0 Ml/d over the next 25 years.[252]
East Ruston The company identifies this scheme as being subject to a scope challenge, 5.0 Ml/d requested and an allowance based on 2.0 Ml/d. Statement of case, p. 179, Table 19 and footnote.	Our challenge on this scheme was not entirely due to scope but primarily due to uncertainty regarding future requirements in the area, including those from non-household customers.[253] However, our final determination additionally included an uncertainty mechanism for the East Ruston scheme. This provided additional totex if the company provides evidence to confirm a valid need for an extra 2 Ml/d.[254] This provides a maximum allowance based on the efficient costs of delivering a total of 4 Ml/d through options 1 and 2. The company did not provide sufficient evidence to justify a capacity of 5 Ml/d. The WRMP planning tables indicate a maximum usage of 3.5 Ml/d over the next 25 years.[255]
BHV Intra RZ Bury Haverhill Transfers	These four schemes are intra-zonal schemes for which a need is not clearly identified in the WRMP planning tables.

[250] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[251] Anglian Water, SOC222, 'WRMP Response to Ofwat Queries', August 2019, p. 15. For these options the company states 'the capacities included in the Best Value Plan are aligned with the original capacities costed for the EBSD. Due to the relatively small differences between the selected capacities and the maximum utilisation in the stress tests it was not considered appropriate to re-cost the transfers based on relatively small differences in capacity.' ESBD refers to the company's use of economics of balancing supply and demand approach to determining an optimised plan.
[252] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.
[253] Anglian Water, SOC222, 'WRMP Response to Ofwat Queries', August 2019, p. 15, pp. 6-9. Our understanding is that existing industrial/agricultural abstractors currently with their own private abstractions may require replacement supplies in the future due to the abstraction licence review in the area.
[254] Ofwat, PR19 final determinations: Anglian Water - Cost efficiency final determination appendix, December 2019, pp. 15-16.
[255] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'ANH_CMA_Calcs'.

Point raised in Anglian Water's statement of case	Summary of our key points of challenge
The company identifies this scheme as being subject to an optioneering challenge of £1.52m. **SD Resilience Diddington WTW** The company identifies this scheme as being subject to an optioneering challenge of £0.22m **RTS Intra RZ – Woburn PZ** The company identifies this scheme as being subject to an optioneering challenge of £0.36m **RTS Intra RZ – Meppershall PZ** The company identifies this scheme as being subject to an optioneering challenge of £0.32m Statement of case, p. 179, Table 19 and footnote 407.	In our final determination we considered that while the company had provided a high level description of its optioneering process, no specific examples of options considered and assessment of best value solutions had been provided for these intra-zonal schemes. We were concerned that the limited time spent developing these options may have restricted the opportunity to derive a best value solution and that these options were not focused upon earlier in the WRMP development process.[256] We therefore considered it appropriate to apply a cost efficiency challenge to these schemes in our final determination.

3.217 In its statement of case, the company argues that it had demonstrated the efficiency of its interconnection programme through a report by KPMG referencing a tendering process that Anglian Water had undertaken. The company states that this indicated the modelled unit rates in the plan were below average in all cases.[257] In our final determination, we reviewed the evidence that the company provided relating to the tendering process it had undertaken. This evidence did not cover all activities within the programme. For activities that were covered we reduced the efficiency challenge from our draft determination. We still considered there was scope for the company to achieve further efficiencies. For example, we did not consider the company had responded to our challenge regarding the potential for efficiency in delivery of the multiple projects together with combined tendering and design processes. Where no evidence was provided we applied the company-specific efficiency challenge rather than allow costs for activities that were poorly evidenced. The detail of our assessment is included within our final determination documentation.[258]

3.218 Throughout the process with respect to the supply-demand balance investment, the company has asserted that its WRMP needs to be delivered as currently stated. However, there are examples where the company has indicated this is not the case. For example, at draft determination we set an

[256] Anglian Water, SOC222, 'WRMP Response to Ofwat Queries', August 2019, p. 15.
[257] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 199, paragraph 803 and SOC132 'KPMG Strategic Pipeline Scheme Review', March 2019, p. 2.
[258] Ofwat, 'A005 – Wholesale Water Enhancement feeder model_Supply demand balance (update for CMA)', April 2020, 'Deep dive_ANH', cells B181:X203.

outcomes delivery incentive to ensure the company was incentivised to deliver the programme we were proposing to fund for its customers. In its response to our proposed outcomes delivery incentive the company argued there should be flexibility in terms of capacity of connections to be delivered. The company also referenced alternative options to its proposed Pyewipe scheme.

3.219 In summary, we would highlight the following main considerations that have framed our decision on the assessment of water supply demand balance investments:

- Our challenges to the company's proposals are the result of an in-depth engineering assessment and have been ongoing since the initial submission of the company's draft water resources management plan;
- the company did not provide convincing evidence to justify the decision-making in formulating its best value plan;
- there is significant uncertainty regarding the future requirements the company intends to deliver;
- the company did not demonstrate that its presented costs were efficient across all its activities; and
- the cost challenge we have applied in our final determinations is robust, the challenge we have applied reflects the areas of insufficient evidence and ensures that an efficient allowance is made.

Leakage enhancement expenditure

3.220 In its statement of case, the company requests £213.6 million to meet its proposed performance commitment level. This includes £76.7 million of enhancement expenditure to further reduce its leakage performance beyond its forecast 2019-20 level.[259] The company states that there will be increasing marginal costs of maintaining and further reducing leakage as the level of leakage decreases. The company argues that the base allowance in our final determination is not sufficient for it to maintain its low levels of leakage.

3.221 The company requested £76.7 million of enhancement expenditure to further reduce its leakage performance beyond its forecast 2019-20 level. In our final determination we allowed £71.4 million of the amount requested, on the basis that Anglian Water's performance commitment extends beyond the industry upper quartile level of leakage at 2024-25. We applied an efficiency challenge

[259] The company requests an additional £136.9 million for additional base expenditure to maintain its leakage levels at its forecast 2019-20 position. We discuss this below in 'Maintaining leakage levels – assessing the company's cost adjustment claim' under 'Key issue – Setting the base allowance'.

of 7% to the company's costs because it did not provide sufficient evidence to demonstrate its costs were efficient.[260]

3.222 In its statement of case, the company argues that enhancement allowance is insufficient in capturing the costs of driving down the leakage frontier further and therefore the requested £76.7 million should be allowed in full. The company states that there will be increasing marginal costs of maintaining and further reducing leakage as the level of leakage decreases. **Our approach takes the company's current leakage performance into account and recognises company specific costs, including marginal costs of reducing leakage**. Consequently, our enhancement allowance is largely based on the company's requested amount following assessment of the unit cost proposed by the company.

3.223 Anglian Water argues that at final determination we applied an efficiency challenge to its unit rate for leakage reduction on the basis of unit costs being greater than the industry median.[261] We would like to clarify that we used industry median cost as a filter to apply further scrutiny. As we state in our approach to assessing leakage expenditure at the final determination, 'we apply the company-specific efficiency factor if the company's unit cost for leakage reduction is above the industry median and the company provides insufficient explanation to justify its higher costs'.[262] Therefore we do not necessarily expect companies to deliver leakage reductions at the industry median unit cost, but we do challenge where we consider that insufficient evidence is provided that the costs presented are efficient. We consider that it is appropriate to challenge Anglian Water's unit costs because the company does not provide evidence to demonstrate its costs are efficient.

3.224 Anglian Water's unit cost is the third highest in the industry and higher than the costs proposed by both Bristol Water and South West Water, who are the other two companies performing beyond our threshold for enhancement expenditure at 2019-20.[263] Anglian Water's unit cost is significantly higher than

[260] At final determination we applied the company specific efficiency factor of 10% but also made an amendment to the proposed leakage volume reduction in response to the company's draft determination representation. This had a net impact equivalent to a 7% efficiency challenge. The company's performance commitment level is aligned with this revised reduction volume. Ofwat, 'Wholesale Water Enhancement feeder model: Supply demand balance', December 2019, 'PR19 final determinations', 'Deep dive_ANH', rows 82-91 and cell J24.
[261] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 263, paragraphs 1046-7.
[262] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, p. 68.
[263] Ofwat, 'Wholesale Water Enhancement feeder model: Supply demand balance', December 2019, 'PR19 final determinations', 'Unit costs'.

that it identified at PR14 and the company does not provide any justification for the specific increase in cost other than the statement that marginal costs will increase as leakage lowers.[264]

Table 3.14: Comparison of unit costs for leakage reduction

Company	Unit rate (£m/Ml/d)[265]
Anglian Water (PR19)	3.3
Bristol Water (PR19)	0.7
South West Water (PR19)	2.3
Anglian Water (PR14)	1.7[266]

3.225 We reviewed the supporting documentation to the company's water resources management plan in our assessment of the company's presented unit costs. The report for demand options identifies the sources of data used to build up costs but does not provide verification of their efficiency. In particular, the costing of the activity of targeted intervention of high leakage district metered areas (DMAs), is based on expert judgment with a limited historical dataset to draw upon. The assumption regarding proportions of 'easy' and 'hard' leakage appears to have a significant bearing upon the costs of Anglian Water's leakage management activities in the 2020-25 period.[267]

3.226 The company highlights adoption of new technology as a reason for increasing leakage management costs and identifies smart metering as one aspect of this. We described in our final determination approach that 'as metering is assessed separately, we remove the supply-demand balance benefits associated with metering from our assessment'.[268] We therefore reiterate that the leakage benefits brought through metering are considered in our allocation of metering expenditure and smart metering should not be considered as driver for increased costs to support the company's maintaining leakage cost adjustment claim or enhancement cost request.

3.227 In presenting its arguments for receiving its enhancement request in full, the company focuses upon a rise in marginal unit cost for leakage reduction as

[264] Anglian Water, 'A003 – Revised PR14 business plan data table commentary', pp. 28, 51.
[265] Unit costs in 2017-18 price base.
[266] PR19 proposed reduction in leakage is 177 to 146 Ml/d, at PR14 this was 193 to 172 Ml/d. Some overlap in ranges and company does not explain the specific increase of cost beyond marginal costs will increase as leakage levels decrease.
[267] Anglian Water, 'A004 – WRMP 2019 Demand management options', September 2018, pp. 44-5.
[268] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, p. 66.

leakage levels decrease. The company does not however provide further evidence to demonstrate that its specific proposed costs represent efficient or evidenced unit costs. We consider that we have made a modest adjustment to the company's requested amount. On a unit cost basis our leakage enhancement allowance for Anglian Water is larger than both our PR19 allowances made to most other companies and the allowance we made to Anglian Water at PR14.[269]

Managing uncertainty in the programmes related to direct procurement for customers and metaldehyde

3.228 In its statement of case, Anglian Water claims that we offered an uncertainty mechanism at final determination, for two areas of uncertainty, which has 'no practical effect'.[270] The company considers there is a 'strong possibility' that it will not be able to recover expenditure related to:

- works required should a ban on the use of metaldehyde as a pesticide be delayed or not be reintroduced by the government; and
- the Elsham treatment works and transfer scheme, in the event that it does not proceed as a direct procurement for customers scheme.

3.229 Before considering the company's assertion directly, we provide some background on 'Notified Items' and interim determinations.

Interim determinations

3.230 Under Part IV (Interim Determinations) of Condition B of Anglian Water's licence, its price controls can be reset within the five year price control period if certain events occur which significantly affect, either positively or negatively, revenues or costs. This process is known as an interim determination (also referred to as an IdoK in Anglian Water's statement of case).

3.231 The items that can be considered in an interim determination are the Relevant Changes of Circumstance specified in Condition B and Notified Items.

3.232 A Notified Item is an item that Ofwat notifies a water company has not been allowed for (either in full or in part) when setting price controls. An interim

[269] Note SES Water submitted a cost adjustment claim to justify the highest unit rate used at PR19. SES Water received a lower proportion of its allowance due to its 2019-20 position being lower than the performance threshold. Ofwat, 'Reference of the PR19 final determinations - Key elements of the methodology appendix', March 2020, pp. 14-18.
[270] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 22-3, paragraphs 119-24.

determination application can include any number of Relevant Changes of Circumstance or Notified Items).

3.233 An interim determination has the following key features:

- **Net present value:** In assessing triviality and materiality, we use the net present value of the related operating cost and revenue changes calculated over a 15 year period and the net present value of capital expenditure calculated over the five years of the price control period.
- **Triviality Test:** Each individual item (including a Notified Item) is subject to a triviality test (for example, in the past items where the net present value of the related change in costs (or revenues) have been excluded if they were less than 2% of the water company's relevant service turnover or (if they related to both water and waste water) 2% of the turnover of the entire regulated business).
- **Materiality Test:** If the net present value of the change in costs (or revenues) for all eligible non-trivial items in an application is at least equal to 10% of the water company's regulated business turnover then the application is material and the level of price controls will be changed.

Metaldehyde

3.234 Anglian Water proposed an uncertainty mechanism associated with possible additional costs resulting from the absence of, or delays in introducing, a ban on the outdoor use of metaldehyde as a pesticide from 2020 which, in July 2019, was overturned by the High Court following a judicial review challenge to the legality of the ban.

3.235 We included a Notified Item in respect of this issue in our final determination for Anglian Water. For most companies the costs we identified for this issue are not material, and companies are protected by the usual cost sharing rates and, in some cases, under other cost adjustment mechanisms. However, we accepted that potential costs forecast by Anglian Water could be material and **we considered a Notified Item to be the approach that best protects the interests of customers and provides the company with protection to the extent that material costs arise**.

Elsham direct procurement for customers scheme

3.236 Anglian Water intends to deliver the Elsham treatment works and transfer scheme using a direct procurement for customers process, which delivers the project by a third-party (a competitively appointed provider) to design, build,

finance, operate and maintain infrastructure. We did not therefore make any allowance for the scheme in our final determination beyond a £9.4 million allowance to progress the procurement and planning stages of the project. Under a direct procurement for customer route customers pay for the asset once it is operational and we expect Anglian Water's customers to start paying for this in the 2025-30 price control period.

3.237 In our final determination, we also recognised the need for an uncertainty mechanism for the unlikely scenario in which a direct procurement for customers scheme needs to revert to in-house delivery. For all seven water companies with direct procurement for customers schemes (including Anglian Water) we decided that a Notified Item was the appropriate mechanism. It is our view this provides the right incentives for managing cost efficiency (by more closely reflecting an ex-ante price review process than an ex-post recorded costs or adjustments to base totex approach) and it also has the advantage of utilising an established and familiar mechanism that allows price controls to be changed in-period in appropriate cases where there are material changes in costs.

3.238 However, we recognised that interim determinations in their current form may have drawbacks for some schemes that need to be delivered in-house by companies. This may make their application during the 2020-25 control period difficult for these schemes. We therefore committed to considering the case for amending Condition B following consultation **to introduce a specific interim determination process with bespoke criteria for direct procurement for customers**. In our February 2020 Consultation on proposed amendments to licence conditions for direct procurement for customers we re-iterated our intention to engage with stakeholders during 2020 on an interim determination for direct procurement for customers mechanism.[271]

3.239 During the price review process, some water companies expressed a preference for a direct procurement for customers uncertainty mechanism involving adjustments to allowed totex, based on the uncertainty mechanism used for the (WINEP). In their view this would be more flexible, less onerous and provide companies with greater certainty. We do not agree that it would provide greater certainty and be less onerous. As we discussed in our October 2019 Consultation on proposed PR19 uncertainty mechanisms in respect of direct procurement for customers, Ofwat would need to be satisfied in advance that costs were efficient and this in turn could facilitate the need for further

[271] Ofwat, 'Consultation on proposed amendments to licence conditions for Direct Procurement for Customers', February 2020.

evidence.[272] We consider interim determinations provide the best incentives for companies to manage efficient delivery of projects and protect customers.

Other issues raised by Anglian Water

3.240 Table 3.15 sets out other points made by Anglian Water in its submission in relation to costs and our response to each of those points.

Table 3.15: Other issues on costs raised by Anglian Water in its submission and our response

Other issues raised in Anglian Water's submission	Summary of our response
Real price effects: Anglian Water states that Ofwat uses a framework to calculate real price effects that is inconsistent with the methodology used by regulators in the past decade. Statement of case, p. 17, paragraph 90.	The framework is designed so that a real price effect allowance is only made if there is a sufficient and convincing case for including such an allowance. Past evidence for example from Ofgem, the Office for Budget Responsibility (OBR) and the Department for Business, Energy and Industrial Strategy (BEIS) highlights there has been a tendency to overstate real price effect forecasts and there is a need for caution when making an adjustment, in particular given the significant impact on customers and the other protections available to companies such as cost sharing. We provide a more detailed response below, under 'Real price effects' and in 'Cost efficiency – common issues', chapter 8.
Frontier shift: Anglian Water states that its forecast of a frontier shift of 1.0% per year is already challenging given the low levels of productivity improvement in the UK economy over the last decade. Statement of case, p. 189, paragraph 849.	While we accept that economy-wide productivity growth has been low in recent years, growth in comparator sectors has outstripped UK productivity by 0.5% to 0.6% per year. We provide a more detailed response below, under 'Frontier shift' and in 'Cost efficiency – common issues', chapter 7.

Real price effects

3.241 Anglian Water raises a number of concerns over the framework that we have used to assess real price effects. In particular Anglian Water considers that we should have used the same approach that some other regulators, including Ofgem have used over the last decade.[273]

[272] Ofwat, 'Consultation on proposed PR19 uncertainty mechanisms in respect of Direct Procurement for Customers', October 2019.
[273] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 188, paragraph 845.

3.242 The framework is designed so that a real price effect allowance is only made if there is a sufficient and convincing case for including such an allowance. The approach is also not particularly new, as we have used a similar structured approach when considering whether to introduce uncertainty mechanisms for other risks to companies' costs. We consider that it is critical that there is appropriate evidence for real price adjustments given:

- the problems identified with real price effect forecasts in the past, for example Citizens Advice estimated that out-turn values for real price effects for the RIIO-1 electricity transmission and gas distribution price controls would be £1.9 billion lower than Ofgem assumed, with companies keeping £0.9 billion of the savings as additional profit;[274]
- the information asymmetry between companies and Ofwat, where companies are likely to put forward cases where real price adjustments are positive rather than negative;
- the overstate of real input price forecasts in the past, in particular by OBR and BEIS; and
- the other protections that are provided by the regulatory regime, in particular cost sharing where any additional (or lower) costs are shared with customers.

3.243 We therefore made some improvements to the approach proposed by Anglian Water which was used by Ofgem in the RIIO1 controls. We did not make any real price effect adjustments (or frontier shift changes) in PR14. Further details of the approach and our rationale are provided in the 'Cost efficiency - common issues' document.

3.244 Our detailed consideration of Anglian Water's real price effect proposals are set out in Europe Economics report[275] and in our initial assessment[276], draft and final determinations[277]. We summarise additional arguments made by Anglian Water and our response in Table 3.16 below.

[274] These problems were highlighted in Citizens Advice, 'Energy Consumers' Missing Billions: The profits gifted to energy networks', July 2017, p. 20; and in Ofgem, 'Review of the RIIO Framework and RIIO-1 Performance – Prepared by CEPA', March 2018, p. 27, Figure 2.4.
[275] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019.
[276] Ofwat, 'Technical appendix 2: Securing cost efficiency', January 2019.
[277] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019.

Table 3.16: Other real price arguments by Anglian Water and our response

Other arguments in Anglian Water's submission	Summary of our response
Anglian Water states that it does not understand why no real price effect allowance should be made if water companies and households are spending comparable percentages on a particular input type.[278]	Our assessment framework considers whether CPIH indexation effectively captures the input price by examining the share of comparable items in CPIH (i.e., household spending). The logic is that if the share of a cost item in water company totex is similar to the share of that cost item in CPIH, then CPIH indexation should already capture the evolution of that cost item in company costs and no real price effects allowance is required. For example, in looking at whether CPIH indexation adequately captures the potential for electricity price increases, we consider the percentage share in CPIH of domestic electricity prices and other energy prices that might be expected to move in line with electricity prices. Suppose the share of energy prices in the CPIH basket is about 5% and energy costs represent about 10% of water company wholesale totex. In this case, if energy prices rise by 5%, all other things being equal, CPIH and water sector costs will increase respectively by 0.25% and 0.5%. Therefore the residual impact on water sector costs is only 0.25% after CPIH indexation has been applied (ie the difference between 0.25% and 0.5%), which is lower than the total percentage increase in energy prices.[279]
Anglian Water[280] states that input price volatility is irrelevant to Europe Economics' real price effect assessment criteria and that real price effect allowances are still necessary for predictable input price changes.	The wedge between an input price and CPIH may differ substantially from zero over the course of a five-year control period for either of two reasons: • it may be because in expectation the wedge is significantly different from zero; or • it may be because, even if the long-run expectation is that the wedge is not significantly different from zero, the cost exhibits sufficient variability such that over the course of a five-year control period the wedge may differ substantially from zero. The real price effect assessment takes into account both circumstances.
Anglian Water states that we have inconsistently applied true-up mechanisms, which transfer the risk of labour input price changes to customers but leave the risk of other input price changes with water companies.[281]	We have consistently considered true-up mechanisms within our real price effect framework and only applied true-ups on inputs which require a real price effect allowance. In our case labour costs. A true-up reconciles for differences between the forecast real price effect and the outturn underlying input price change. Given that we found evidence that there could be a material wedge between wage rates and CPIH measured inflation, the labour cost real price effect true-up protects customers and companies if

[278] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 188, paragraph 845.
[279] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 102.
[280] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 188, paragraph 846.
[281] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 206, paragraph 846.

Other arguments in Anglian Water's submission	Summary of our response
	underlying real wage inflation (as measured by manufacturing wages) is higher or lower than forecast (as customers will only be paying the costs of wages if they went up in line with underlying drivers). Companies (and customers through cost sharing) bear the risk between differences between water and manufacturing real wages. Given that wider movements in market wages are outside the control of companies, the absence of a true-up could allow companies to reap windfall gains (or losses) at the expense (or benefit) of customers, without any justification for allowing them to do so. Europe Economics explain that without a true-up the totex cost sharing mechanism is insufficient to protect customers from potential harm if real price effects turn out to be too generous, as it allows companies to retain some of the benefit of over-generous real price effect allowances. The impact of this can be substantial as illustrated by Ofgem's experience with RIIO-1 price controls.[282] We therefore consider that a true-up mechanism protects both customers from paying too much and companies from underlying movements in wage rates. A true-up was also supported by some water company consultants at the time.[283] We consider that true-up mechanisms should be used with caution and should only be included where there is evidence that a risk needs to be passed on customers, as, for example, this could encourage companies to simply link costs to that input price measure and not to manage costs appropriately. As other input price categories do not pass our criteria (which include considering whether there is a likely to be a material wedge over five years due to volatility), we do not consider that a true-up is appropriate and risks should be managed within the context of the normal risk protections such as cost sharing, which share risks between companies and customers.[284]
Anglian Water states that they were accurate at forecasting real price effects in PR14 and their PR19 forecasts are equally robust.[285]	In hindsight, given the differences between the economic circumstances forecast at the time and what has transpired, it is perhaps surprising to what extent Anglian Water's real price effect forecasts at the time of PR14 have been accurate. Independent forecasts have tended to struggle to accurately forecast real price effects. For example OBR and BEIS forecasts of wages and energy costs have been very different to outturns. OBR 2014 forecasts (the latest available to Anglian Water at the time) would have significantly overstated outturn wage growth, with a forecast average annual growth rate of 3.4% compared to an outturn average annual growth rate of 2.3%, over the period 2014-2018. This equates to an average of 1.1 percentage points per year.

[282] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 127, 134.
[283] NERA, 'Response to Ofwat's Draft Determination on Real Price Effects and Frontier Shift', August 2019, p. 31.
[284] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 134.
[285] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 206, paragraph 847.

Other arguments in Anglian Water's submission	Summary of our response
	BEIS 2013 forecasts (the latest available to Anglian Water at the time) predicted a rise in industrial electricity prices of 9.3% in 2015 and 7.9% in 2016, while in practice prices only rose by 1.2% in 2015 and fell by almost 3% in 2016. [286] On average, the BEIS forecasts are nearly 2 percentage points higher per year than the outturn growth. This equates to an overestimation of growth by about 12 percentage points over the 2015-2019 period. Based on the evidence available to compare forecasts with outturn values, OBR and BEIS forecasts have repeatedly failed to be accurate and caution should be placed on relying on external forecasts of real price effects.

Frontier shift

3.245 Anglian Water's proposed frontier shift is 1% per year. This compares to 1.1% per year used in our final determinations. We consider that there is a strong case for going beyond a 1% per year frontier shift: in particular to take some account of **value added measures** which tend to be well above 1% per year; **the additional impact of embodied technological change,** which increase productivity growth estimates by 60%; and a one-off uplift to reflect the potential for **additional efficiency improvement from the totex and outcomes framework**. Our productivity growth estimate is based on independent advice from two external advisers:

- Europe Economics, who recommended a frontier shift efficiency number towards the upper end of 0.6% to 1.2% per year range; [287] and
- KPMG, who recommended a range of 0.6% to 2.5% per year, taking into account both ongoing frontier shift as well as the impact of the introduction of the totex and outcomes regime.[288]

3.246 Anglian Water sets out a number of concerns with our assessment of frontier shift. Many of these issues have been raised previously during the PR19 process. We set out our response to the issues below. Further details of our

[286] Forecasts taken from BEIS, 'Updated energy and emissions projections: 2013 – Annex F: price growth assumptions', September 2013, Reference scenario; and outturn growth taken from BEIS, 'Updated energy and emissions projects: 2018 – Annex M: Growth assumptions and prices', May 2019, Reference scenario.
[287] Europe Economics, 'Real Price Effects and Frontier Shift - Final Assessment and Response to Company Representations', December 2019, p. 7, Table 4.
[288] KPMG LLP and Aqua Consultants LTD, Report for Ofwat, 'Innovation and efficiency gains from the totex and outcomes framework', June 2018, p. 24, Table 8.

assessment is set out in our final determinations[289] and Europe Economics report[290].

3.247 Anglian Water states that any uplift from the totex and outcomes framework to frontier shift was unjustified and was not supported by sufficient evidence.[291]

3.248 Our price control framework is designed to reward and encourage efficiency and innovation. At PR14, we introduced a totex and outcomes framework which has given companies the flexibility to decide how best to deliver their services, and to come up with the most cost-efficient and innovative solutions. In PR19, we expect that water companies, as well as the supply chain, will have better embedded the totex and outcomes frameworks in their business planning process.

3.249 In making our assessment of the potential for additional efficiency improvement from the totex and outcomes framework we drew on work from KPMG and Aqua consultants that forecast that there could be an additional 0.2% to 1.2% per year improvement in efficiency from the totex and outcomes framework over the next control period.[292] KPMG's range was based on three factors:

- **Outperformance:** KPMG examined outperformance from the totex and outcomes regime in the water and energy sectors and based on experience from the electricity distribution control (which is in its second totex control), made assumptions on the degree to which this was likely to continue in future controls.
- **Case studies:** 48 case studies provided by the water companies give examples of how they have been able to use the totex framework to realise greater efficiencies. These case studies varied across companies, and on their own, represented 3.8% of totex. KPMG found an average of 35.4% of efficiency savings, which by themselves translated to an overall efficiency improvement of 1.3% over 5 years.[293] These were drawn from a subset of over 180 examples provided by water companies and the supply chain.

[289] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 121-4.
[290] Europe Economics, 'Real Price Effects and Frontier Shift - Final Assessment and Response to Company Representations', December 2019, pp. 54-85.
[291] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 207, paragraph 848.
[292] KPMG LLP and Aqua Consultants LTD, Report for Ofwat, 'Innovation and efficiency gains from the totex and outcomes framework', June 2018, p. 95, Table 31.
[293] KPMG LLP and Aqua Consultants LTD, Report for Ofwat, 'Innovation and efficiency gains from the totex and outcomes framework', June 2018, p. 19.

- **Experience of other regulatory sectors:** KPMG reviewed performance improvements associated with structural or regulatory changes in 21 settings, and found the upper bound of comparable performance gains to be 6.7% per year.[294]

3.250 In setting our final determinations, we examined how outperformance forecasts for the period had changed in the light of the latest data available. KPMG adjusts, where possible, for outperformance that are clearly outside of management control, or where efficiency is not driven by the totex and outcomes framework, although there remains a risk that the analysis does not identify or account for all the drivers of outperformance. We have not attempted to make adjustments to reported outperformance. As shown in Table 7.4 in 'Cost efficiency – common issues',[295] better performing water companies appear to have maintained their outperformance between 2017 and 2019, although median outperformance appears to have declined. In our final determinations we reduced our frontier shift estimate from 1.5% per year to 1.1% per year in part due to the decline in totex outperformance from the sector.

3.251 Additionally, reported totex performance in the annual performance reports might understate true outperformance of the PR14 settlement. Companies state in their 2018-19 Annual Performance Reports that they have spent money on a number of initiatives that is not directly related to the delivery of the PR14 review. For Anglian Water, this includes spending up to £165m of outperformance reinvested to make an 'early start' on resilience plans and drive forward enhanced digital capability and customer experience.[296]

3.252 We reject the assertion that we have not provided sufficient evidence to justify an uplift from the totex and outcomes framework. We provided a significant body of evidence to support an uplift, including case studies put forward by the companies themselves together with evidence from both water and energy controls. Our uplift is small in comparison to upper quartile company outperformance of 2.4% per year. The case studies themselves suggest that there is substantial scope for all companies to learn best practice from their peers. KPMG's estimate was for the second control period for a totex and outcomes regime and therefore took into account that cost models were based on historical expenditure data.

[294] KPMG LLP and Aqua Consultants LTD, Report for Ofwat, 'Innovation and efficiency gains from the totex and outcomes framework', June 2018, p. 17, Table 5.
[295] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', Table 7.4.
[296] Anglian Water, 'Annual Performance Report 2019', December 2019, p. 4.

3.253 The alternative that Anglian Water appears to be suggesting is that no account should be taken of the totex and outcomes regime going forwards. We do not consider that this is a credible position and does not reflect the balance of evidence. Indeed we consider that our approach to the application of the totex and outcomes regime is conservative. While we reduced the uplift in the final determinations so that our overall uplift for frontier shift was 1.1% per year instead of 1.5%, we consider that there is significant evidence we could have used a higher uplift. In particular:

- the reduction in the uplift was based on the reduction in outperformance however at least some of this is due to companies additional expenditure in preparation of PR19;
- the upper quartile performers had retained their level of outperformance, potentially indicating substantial scope from outperformance from those which are making more extensive use of the totex and outcomes framework; and
- the case studies remain valid, and they on their own, indicated outperformance 1.3% per year (equivalent to 0.5% efficiency improvement per year), given the wide variety of these case studies, simple adoption of best practice by each company would lead to an efficiency improvement many times this.

3.254 Anglian Water states that we have incorrectly applied frontier shift to unmodelled costs including business rates, abstraction charges and traffic management act costs.[297]

3.255 The frontier shift estimates identified for comparator sectors are based on productivity growth across all costs, including both base and enhancement costs. Given that the frontier shift estimate was based on all costs in comparator industries (including costs that might be regarded as 'fixed'), we therefore applied frontier shift to all wholesale base expenditure. Water unmodelled base expenditure includes business rates, Traffic Management Act costs and abstraction rates which in combination accounted for 7.9% (£3,653 million) of allowed totex.[298] We consider that there is some scope for companies to reduce these costs, in particular Traffic Management Act costs for example through the use of innovative or non-invasive ways to make repairs. If the frontier shift estimate was not being applied to these costs, then

[297] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 207, paragraph 850.
[298] In our 'Reference of the PR19 final determinations: Cross-cutting issues' submission to the CMA we erroneously stated this was £40 million over the price control period rather than £40 million per year. Across the 2020-25 period and net of real price effects allowances this is equivalent to £96 million, or 0.2% of totex.

either comparable costs should have been removed from other sectors before productivity estimates are made; or the frontier shift on other costs should be increased as it is only being applied to a smaller proportion of costs in the water sector.

3.256 Anglian Water states that applying frontier shift to enhancement costs is double counting the efficiency gain. It states companies have already included frontier shift assumptions on enhancement costs.[299]

3.257 In our final determinations we considered that we should apply frontier shift (and real price effects) to elements of enhancement costs which are more common across companies including the wastewater water industry national environment programme (WINEP) and metering costs. This is because the potential gains from productivity improvements are likely to be more significant for large, relatively homogenous programmes of work that are more common across companies.

3.258 As noted in our final determinations[300] and 'Reference of the PR19 final determinations: Cross-cutting issues',[301] we reviewed company forecasts of frontier shift on enhancement costs. In general, we found that frontier shift assumptions on enhancement expenditure tend to be limited and were often offset by real price effect adjustments (where these are explicit). We therefore considered there was a case to apply frontier shift (and real price effect) adjustments to specific areas of enhancement costs to WINEP and metering costs where costs were more common and/or are part of large programmes of work. As we explain in further detail in 'Cost efficiency – common issues',[302] there is no evidence that the upper quartile companies have applied a net frontier shift challenge to WINEP enhancement expenditure, i.e. a frontier shift estimate that is greater than the corresponding real price effect adjustment. We therefore consider our application of frontier shift does not double count efficiency gains.

[299] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 207, paragraph 850.
[300] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 188-90.
[301] Ofwat, 'Reference of the PR19 final determinations: Cross-cutting issues', March 2020, p. 12, paragraphs 3.18-3.20.
[302] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 7.

3.259 We note that no company provided representation to the CMA on our application of frontier shift to metering costs. We did not apply a frontier shift estimate to other enhancement costs.

3.260 Europe Economics' recommended range for frontier shift is 0.6% to 1.2% if applied to totex, and 0.6% to 1.4% if applied to botex to reflect the greater scope for productivity growth in base expenditure.[303] In our final determinations we selected our frontier shift from the totex range as we were applying the frontier shift to base as well as some enhancement costs. However, if the frontier shift was applied to only base costs, then we suggest that it would be appropriate to take account of the higher potential for efficiency gains for base expenditure.

3.261 We summarise additional arguments made by Anglian Water and its consultants on frontier shift and our response in Table 3.17 below.

Table 3.17: Additional frontier shift arguments in Anglian Water's submission and a summary of our response

Additional argument in Anglian Water's submission	Summary of our response
Anglian Water states that Europe Economics was highly selective in its choice of comparator sectors, using evidence only from sectors where productivity improvements have been greater.[304]	The comparator sectors chosen by Europe Economics are similar to those put forward by companies (see Table 7.2 in 'Cost efficiency – common issues'), and comparators proposed by companies have only been rejected for good reason. For example because they are sectors that are subject to regulation (such as the utility sector) or are not similar to water (such as the agricultural sector).[305]
Anglian Water raises a concern over the derivation of the Europe Economics frontier shift efficiency range of 0.6% to 1.2% per year. In particular it state that Europe Economics has effectively excluded the construction sector from the frontier shift estimates.[306]	The Europe Economics range of 0.6% to 1.2% per year for frontier shift on total expenditure is based on historical productivity growth of comparator sectors after the financial crisis and over the longer term. The lower bound of 0.6% is based on average productivity growth of comparator sectors in the post financial-crisis period, which has been characterised by economy wide low productivity growth. Europe Economics considered that this was the lower bound as the economy may recover, or at least

[303] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 7, Table 4.
[304] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 207, paragraph 850.
[305] Further details on the choice of comparator sectors is set out in Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, section 3.8, pp. 115-17, 135-6.
[306] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 207, paragraph 850.

Additional argument in Anglian Water's submission	Summary of our response
	start to recover, to the pre-crisis long-run average over the course of the control period.[307] The upper bound of 1.2% is based on the stronger performing comparator sectors over both the pre and post crisis period.[308] Europe Economics considers that averages of comparator sectors would not provide an appropriate upper bound as historical performance indicates many sectors can perform more strongly than the average and by definition, an average provides a measure of the central value of a distribution rather than an upper value.[309] The upper end of the range also took into account the potential for additional productivity growth from embodied technological change and the higher productivity estimates from value added measures. We note that average growth under the value added measure of productivity was at least an average of 1.3% per year over the post crisis and full business cycle periods. The range explicitly considers productivity growth from the construction sector, as can be seen in Table 7.3 in 'Cost efficiency – common issues'.[310] We do not consider that the share of totex that companies spend on construction necessarily makes it a closer comparator than other sectors which have a similar nature of activity to the water sector.
Anglian Water states that Europe Economics' analysis was misleading by selecting 2009 as a base year, when economic activity was at its most depressed following the global financial crisis.[311]	Europe Economics considers both the more recent growth in the post crisis period, and also growth over a number of past full business cycles. In assessing total factor productivity growth Europe Economics considered productivity growth from EU KLEMS[312] for both the NACE[313] 1 dataset which covers 1970 to 2007 and the NACE 2 dataset which covers 1999 to 2014.[314] Productivity growth should, ideally, be measured over entire business cycles as it is pro-cyclical. Europe Economics

[307] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 79.
[308] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, pp. 79-80.
[309] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 116.
[310] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', Table 7.3.
[311] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 207, paragraph 850.
[312] The EU KLEMS database provides data on measures of economic growth, productivity, employment, capital formation, and technological change at the industry level for all European Union member states, Japan, and the US. Productivity measures have been developed using growth accounting techniques.
[313] NACE is the acronym used to designate the various statistical classifications of economic activities developed since 1970 in the European Union. It provides the framework for collecting and presenting a large range of statistical data according to economic activity in the fields of economic statistics and in other statistical domains. Statistics produced on the basis of NACE are comparable at European and, in general, at world level. The use of NACE is mandatory within the European statistical system.
[314] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 7, Table 3.

Additional argument in Anglian Water's submission	Summary of our response
	considered data for two complete business cycles from the NACE 1 dataset 1980-89 and 1990-2007. Europe Economics defined a business cycle as the period from just before one trough in GDP to just before the next trough in GDP, and therefore ensuring that each of the business cycles contained a full period of contraction and a full period of expansion.[315] NERA does not provide details on why it considers this definition to be inappropriate and would ignore economic downturns. The NACE 2 data set (1999-2014) does not cover a complete economic cycle[316,317] and there may be a structural break, with the trend pre-crisis productivity growth being higher than trend post-crisis[318] productivity growth. Europe Economics did not include 2008 and 2009 when productivity growth was strongly negative. First, if the crisis period were to be included in these figures, then they would not genuinely be "pre-crisis" and "post-crisis" figures. More importantly, inclusion of these crisis years would make the figures severely downward biased, since the figures would then include a full economic contraction but only an incomplete part of the period of economic expansion either side of the crisis.[319] The Europe Economics range takes into account both the pre and post crisis period as well as data from complete business cycles from the NACE 1 dataset. We note that Oxera's choice of time period for its estimates of 1996 to 2014 and NERA time period 1970 to 2007 might not represent the entirety of complete business cycles. Overall, Europe Economics' forecasts of frontier shift are based on an appropriate time period as they consider both growth over more recent years and a number of past full business cycles.

Conclusion

3.262 There has been a significant gap between our view of efficient costs and the expenditure requested by Anglian Water through-out the price review process. However, our view of efficient costs in the retail price control is only 1% lower than that of the company. Further, our view of efficient wholesale base cost are only 2% lower than the amount requested by the company excluding its cost

[315] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 141.
[316] Referring to the NACE 2 dataset, Economic Insight stated 'the EU KLEMS data does not contain a 'whole' business cycle'.
[317] Referring to the 1996-2014 period that it focuses on using the NACE 2 dataset, Oxera states that 'this might not necessarily represent a "full" business cycle'.
[318] This was recognised by water company consultants (Earwaker and Economic Insight).
[319] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, pp. 118-19.

adjustment claims. This difference includes investment for growth, an area of significant disagreement between with us. We consider our allowance in this area to be appropriate and that customers and the company are sufficiently protected should the actual growth rate to be different from that forecast. We do not find the company's plan relating to growth to be credible, particularly as it reduced its forecast growth by 19% during the price review process but did not correspondingly reduce its requested costs.

3.263 We do not find that, based on the information submitted, Anglian Water made a compelling case for any of its cost adjustment claims. The company's requested wholesale base costs including cost adjustment claims is 12% higher than our view. Due to the asymmetry of information and to protect the interests of customer we expect companies to make a compelling case for any adjustment. This is particularly so when in making that adjustment the company would receive an allowance significantly higher than historical cost, as is the case for Anglian Water. We do not accept that our base allowance is insufficient for the company to maintain its current level of leakage, balance maintenance needs across a large and diverse asset base and to take advantages of the benefits of smart metering.

3.264 There are also significant differences between our view of costs and the company's for enhancement investment. To be clear we have not challenged the need for any enhancement investment, and are fully aware of the obligations on the company resulting from its Water Resource Management Plan and the Water Industry National Environment Programme (WINEP). However, consistent with our duties, we have challenged the company where it has not provided sufficient and convincing evidence to justify that its proposed solutions meet these needs or where we have evidence that its costs are not efficient. We have not allowed enhancement expenditure for activities that are a part of the normal day-to-day running of a business. We do not consider the costs to deliver benefits through improving normal operations to qualify as enhancement expenditure, such costs are implicit in our base allowance. We have applied a frontier-shift to elements of enhancement expenditure, e.g. WINEP. We believe it is appropriate to apply this to large programmes that are common across the industry, particularly as any adjustment made by the company appears limited by comparison to it peers and likely negated by real price effects.

3.265 Our totex allowance sets an efficient allowance that should be considered within a broader final determination package that is stretching but achievable. We believe our allowance balances our duties to protect customer's interests and deliver a service that resilient for the long-term. We have developed our

assessment methodology in consultation with the industry and have provided opportunities for companies to engage we us through its development and application. Our totex allowance is derived from a combination of strategic econometric models and bottom-up engineering deep dives undertaken at a highly granular level of detail.

4. Delivering outcomes for customers

Summary

4.1 At final determination, we set an outcomes package for Anglian Water which includes 43 performance commitments. 15 of these performance commitments are common to all companies. Financial ODIs will apply to 26 of the company's 43 performance commitments.

4.2 **The company met over 90% of its performance commitments over the 2015-19 period, and achieved a positive return on regulated equity on its ODIs.** The company has performed particularly well on leakage and internal sewer flooding where it was the best and second-best performing company in the sector, respectively, over the 2015-19 period. The company is also a good performer on customer service, having achieved the highest Service Incentive Mechanism (SIM) score in the sector for 2017-18 and 2018-19.

4.3 In its September 2018 business plan the company proposed stretching performance commitment levels for internal sewer flooding. Our final determination retained Anglian Water's proposed performance commitment levels where we consider these to be stretching but achievable. However, we also took account of wider evidence to assess achievability, including historical and comparative performance information. We therefore **intervened to set performance commitment levels where this wider set of evidence indicated it was necessary and appropriate**.

4.4 The company provided generally sufficient and convincing evidence for its ODIs (for example on leakage, internal sewer flooding and pollution incidents) and we made limited interventions to its ODI rates only where this was indicated as necessary by our suite of ODI rate cross-checks.[320] The company did, however, propose a large number of deadbands, potentially reducing the stretch and strength of incentives of its performance commitment package and we intervened to remove these due to a lack of evidence of customer support for them being applied at the specific levels proposed.

4.5 Table 4.1 highlights the key points made by Anglian Water in its submission in relation to outcomes and a summary of our response to each of those points.

[320] See 'PR19 final determinations: Delivering outcomes for customers policy appendix', December 2019, pp. 93-4 for details of our ODI rates cross-checks.

Table 4.1: Key issues on outcomes raised by Anglian Water in its submission

Key issue in Anglian Water's submission	Summary of our response
Water supply interruptions achievability. Anglian Water's experience during 2015-20 demonstrates that improvements in water supply interruptions cannot be achieved within base by better using existing resources. Statement of case, pp. 225-7, box below paragraph 923.	We do not agree with the conclusions Anglian Water draws from its experience during the 2015-20 period. At PR14 companies' received funding from base allowances to deliver a common level of upper quartile performance. The expenditure required to deliver improving performance is reflected in the econometric models used to produce our PR19 base allowances. For PR19 we are similarly requiring companies to deliver a common level of performance from base expenditure. The vast majority of companies accepted a performance commitment level at least as stretching as our final determination performance commitment level in their response to our draft determinations, without requesting additional funding. Anglian Water has not demonstrated why it is unique in being unable to meet the performance level within base funding. We provide a more detailed response below, under 'Key issue – water supply interruptions'.
Consistency of stretch relative to 2015-20 performance improvements. Ofwat's analysis of stretch for 2020-2025, compared to 2015-20 performance improvements shows it is inconsistent across performance commitments in requiring a fourfold improvement for water supply interruptions but lower improvements for pollution incidents and internal sewer flooding. Statement of case, p. 227, paragraph 925.	We carefully calibrated and differentiated the appropriate levels of stretch for each performance commitment according to a variety of different factors, including the realism of upper quartile forecasts and their achievability. We conducted extensive checks on the achievability of our proposed performance commitment levels. This included checks on current and historical performance, the potential for catch-up to the best companies in the 2020-25 period, the achievability of overnight adjustments at the beginning of the period, and longer term forecasts of performance. We applied our deep knowledge of the sector, and our regulatory expertise, to set appropriate performance commitment levels. Furthermore, and contrary to Anglian Water's claim, we applied a consistent approach to our consideration of achievability across each of the three forward-looking upper quartile performance commitments. For water supply interruptions, compared to its best performance in the PR14 period, the PR19 2024-25 performance commitment level represents stretch for the company of only 32%, and its PR14 best performance represents a 46% improvement compared to 2012-13. Our detailed response to this point can be found in chapter 9 of 'Outcomes – common issues'.

Key issue in Anglian Water's submission	Summary of our response
Consistency of forward looking upper quartile with customer views. Ofwat's approach to using forward-looking upper quartile to set performance commitment levels sets aside customers' views. Statement of case, pp. 242-3, paragraphs 974-9.	As set out in our PR19 Methodology, customer views are just one of the inputs we asked companies to consider in setting stretching performance commitment levels. Accordingly, in assessing companies' proposed performance commitment levels we have applied a wider set of tests than just evidence of customer support. This approach recognises that there are areas where customers are not best-placed to determine whether a company's business plan is appropriate. We have been consistently clear about this during the PR19 process. We were, in particular, clear that we would use comparative information to set performance commitment levels and that three performance commitments with a common level of service would be based on forward-looking upper quartile values. But we nonetheless left flexibility to deviate from this where a good case was made. Our detailed response to this issue can be found in chapter 5 of 'Outcomes – common issues'.
Application of forward looking upper quartile to set performance commitment levels. Ofwat's application of forward-looking upper quartile uses a low number of data points and limited cross-checks. Statement of case, pp. 243-4, paragraphs 980-4.	Our use of forecast upper quartile in setting performance commitment levels is a starting point. We undertook detailed analysis to determine whether the implied performance commitment levels were a reasonable expectation for the sector reflecting a stretching but achievable level of service improvement by 2025. Our detailed response to this issue can be found in chapter 7 of 'Outcomes – common issues'.
Implications of 2015-20 performance on achievability. Ofwat draws incorrect conclusions on performance commitment level achievability, from its analysis of net outperformance payments over the 2015-20 period. Ofwat is wrong to conclude that in general, companies have achieved the upper quartile common performance commitments set in PR14, and that therefore that it is appropriate to set more stretching performance commitment levels. There is in fact considerable variations in performance across performance commitments and when Severn Trent Water's performance on sewer flooding is excluded, the industry only breaks even in terms of net ODI payments. Ofwat also does not consider whether 2015-20 performance commitments were achieved efficiently. Statement of case, pp. 226, paragraphs 985-8.	We do not agree with Anglian Water's claim that the net ODI payments for 2015-20 suggest the PR14 approach to setting performance commitment levels was sufficiently stretching. The ODI rates on PR14 performance commitments had a greater emphasis on underperformance payments than outperformance payments. It follows that, if the out- and under-performance payments received net off, there is likely to be more outperformance than underperformance, as demonstrated by the fact that most levels were met. Furthermore the company does not explain why it thinks we should exclude Severn Trent Water from our analysis. It also does not explain why it thinks that companies are not achieving the performance commitment levels efficiently. Our detailed response to this issue can be found in chapter 6 of 'Outcomes – common issues'.
Consistency of performance commitment levels with economically optimal levels.	As set out in the PR19 methodology and unlike at PR14, cost benefit analysis is only one element we

Key issue in Anglian Water's submission	Summary of our response
Ofwat's use of forward-looking upper quartile to set performance commitment levels is inconsistent with a previous CMA regulatory decision that upper quartile is unlikely to correspond to performance commitments being set at economically optimal levels. Statement of case, pp. 245-6, paragraphs 989-90.	asked companies to consider to inform the setting of performance commitment levels at PR19 as we do not consider that the use of company-specific views on cost alone would identify the efficient level of stretch. Our detailed response to this issue can be found in chapter 4 of 'Outcomes – common issues'.
Asymmetry of ODI skew. Ofwat's interventions have systematically increased risk and resulted in a materially downward skew to the potential return on regulatory equity performance range. Statement of case, p. 246, paragraphs 992-5. Anglian Water's ODI package is heavily skewed towards penalties. Statement of case, pp. 248-9, paragraphs 1008-11.	We were clear in our PR19 final methodology that our ODIs may not be symmetrical. This is because we expected the availability of outperformance and underperformance payments to be informed by customer engagement. It is also because for some ODIs, by their nature, it is appropriate to have underperformance payments only, for example where they related to statutory compliance. Moreover, our interventions did not systematically increase risk. We do not consider our incentive regime will give rise to a negative impact on realised returns for efficient companies on average. Our detailed response to this issue can be found in chapter 11 of 'Outcomes – common issues', and chapter 2 of 'Risk and return – common issues'.
Consistency of interventions with customer preferences. Ofwat's component-by-component interventions undermine the package Anglian Water developed with its customers. Statement of case, pp. 246-7, paragraph 996.	The interventions we made were targeted and proportionate based on the wider set of information available to Ofwat that was not available to customers. Furthermore our interventions have largely preserved the pattern of preferences implied by the company's September 2018 business plan. We provide a more detailed response above in chapter 2, 'General issues', under 'Engaging customers'.
Diminishing willingness to pay. Ofwat did not adjust ODI incentive rates to reflect interventions which increase stretch in performance commitment levels, in line with diminishing willingness to pay for service improvements. Statement of case, pp. 246-7, paragraph 996.	There is not a reliable basis on which to accurately adjust ODI incentive rates for diminishing willingness to pay for service improvements, nor has the company provided or suggested one. We provide a more detailed response below, under 'Key issue – ODI rates'.
The use of 'reasonable ranges'. The use of standardised ranges in intervening in ODI rates limits customer choice. Statement of case, p. 247, paragraphs 997-1001.	We do not mechanistically impose standardised ranges. Whilst we do compare against normalised range our approach to intervening in ODI rates is bespoke to each company, based on triangulation using companies' own ODI rates and preserves the pattern of preferences implied by Anglian Water's September 2018 business plan. We provide a more detailed response below, under 'Key issue – ODI rates'.
Consistency of interventions on ODI rates.	We do not accept our methodology was inconsistent. We adopted a targeted and

Key issue in Anglian Water's submission	Summary of our response
In making ODI rates interventions Ofwat took the most punitive rate, resulting in it accepting customer evidence on outperformance rates for particular performance commitments for a company but rejecting it for the corresponding underperformance rate, or vice versa. Statement of case, p. 247, paragraph 1000.	conservative approach for intervening which was led by a customer interest test. We provide a more detailed response below, under 'Key issue – ODI rates'.
Accounting for variations in service levels on ODI rates. Ofwat's approach to setting ODI rates fails to recognise that companies are performing at materially different service levels and this has implications for current costs and willingness to pay components of company's ODI rates. Statement of case, p. 247, paragraph 1002.	No company has provided evidence to demonstrate that differences in performance levels can explain the wide variation in ODI rates we observed across companies. We therefore do not think it is appropriate or practical to make an adjustment. Notwithstanding the impracticalities of doing so, it is also not clear that we should take variations in status quo performance levels and marginal costs into account in setting ODI rates. This is because is many cases differences in starting performance and cost are due to factors within management control and making an adjustment for such factors could perpetuate inefficiencies. We provide a more detailed response below, under 'Key issue – ODI rates'.
Approach to ODI caps. Ofwat's approach to ODI caps results in inconsistent opportunities to outperform across companies. Statement of case, pp. 247-8, paragraphs 1003-5.	Since our approach to caps is based on company specific factors such as customer engagement and companies estimates of risk, there is some differentiation in their application between companies. Indeed, we took account of this for Anglian Water making changes to caps to better align with customer preferences, as it requested. Our detailed response to this issue can be found in chapter 11 of 'Outcomes – common issues'.
Assessment of ODI risk. Ofwat has focussed on assessing ODI payments at P10 and P90 levels of performance which do not reflect likely outturns. Statement of case, p. 248, paragraphs 1006-7.	We formulated our own view of risk by taking companies P10 and P90 values as a starting point and making adjustments where we thought appropriate. We consider the adjustments we made were appropriate because (i) we have the advantage of being able to use the comparative information from companies on P10 and P90s to identify outliers, trends and asymmetries (ii) we are setting out risk for an efficient company and (iii) companies have incentives to understate the upside and overstate the downside risk in their submissions to us. Our detailed response to this issue can be found in chapter 11 of 'Outcomes – common issues'.
Bating water quality performance commitment. There are flaws in how the Bathing Water Quality performance commitment operates because financial incentives are linked to performance commitment levels that are	At final determination we updated our interventions for the bathing water quality performance commitment so that financial incentives would only apply in the final year of the period. We consider therefore the issues raised by the company have been addressed.

Key issue in Anglian Water's submission	Summary of our response
measured in part on performance in previous regulatory periods. Statement of case, p. 248, box below paragraph 1006.	We provide a more detailed response below, under 'Key issue – Bathing water quality'.
Water quality contacts performance commitment levels. Ofwat's use of % upper quartile performance improvement to set performance commitment levels for the Water Quality Contacts does not take account of Anglian Water's current good performance and the increased difficulty it will as a result face to deliver further improvements. Statement of case, pp. 249-50, box below paragraph 1012.	While Anglian Water is currently an upper quartile performer on water quality contacts, its proposed performance commitment level delivers no improvement on current performance and would see its relative performance deteriorate over the 2024-25 period. The company does not provide any evidence to demonstrate the cost or difficulty of meeting its performance commitment level and we consider its performance over the recent historic period demonstrates that the performance commitment level is achievable. We provide a more detailed response below, under 'Key issue – Water quality contacts'.
Leakage performance commitment levels and ODIs. Ofwat's ODIs for leakage are manifestly wrong and do not reflect customer views. Statement of case, pp. 263-7, paragraphs 1048-1070.	Anglian Water's ODI package for leakage has been calibrated to ensure customers do not pay twice for the same service improvement and that Anglian Water is required to deliver a step-change in current performance before enhanced outperformance payments accrue. We provide a more detailed response below, under 'Key issue – Leakage'.

Considerations for the CMA

4.6 Our final determination retained Anglian Water's proposed performance commitment levels where we considered these to be stretching but achievable. In particular, we found the company proposed generally convincing and sufficient evidence to support performance commitment levels for its bespoke performance commitments. However, where available, we also took account of wider evidence to assess achievability, including historical and comparative performance information. This is particularly the case for the company's common performance commitments, for which we had sector comparative information. We therefore intervened to set performance commitment levels where this wider set of evidence indicated it was necessary and appropriate.

4.7 In its September 2018 business plan, the company provided generally convincing evidence for its ODIs (for example on leakage, internal sewer flooding and pollution incidents) and we made limited interventions to its ODI rates only where this was indicated as necessary by our suite of ODI rate cross-checks.

4.8 Despite the targeted and proportionate nature of our interventions, the company is requesting that the CMA revert to the performance commitment and ODI package set out in its original business plan. **It is therefore in effect proposing that the CMA takes no account of the broader set of information available to Ofwat as a sector regulator.** Instead, the company is effectively requesting that the CMA sets an outcomes package on the sole basis of the information available to Anglian Water at the time it developed its business plan. We consider that doing so would fail to take due account of the full set of information revealed on achievability and customer preferences that is now available to Ofwat (and the CMA) and on which Ofwat, as a prudent sector regulator, has used in making its final determinations.

4.9 Finally we note **there are areas where Anglian Water is already delivering at the level required in its final determination for 2025** and it has the opportunity to improve the service for its customers and earn outperformance payments.

4.10 For internal sewer flooding Anglian Water's 2018-19 performance was 0.93 incidents per 10,000 connections. This current performance is far better than the final determination levels that start at 1.68 for 2021-22 and reduce to 1.34 for 2024-25. If the company maintains its 2018-19 performance it would receive £18 million in outperformance payments over the period, under our final determination

4.11 For external sewer flooding Anglian Water's 2018-19 performance was 2,333 incidents. This current performance is far better than the final determination levels that start at 4,191 for 2021-22 and reduce to 3,991 for 2024-25. If the company maintains its 2018-19 performance it will would receive £36.7 million in outperformance payments over the period under our final determination.

Our response to key issues raised by Anglian Water

Key issue - Water supply interruptions

4.12 For 2020-25 we set a common performance commitment for all companies that measures the average number of minutes lost per customer for the whole customer base for interruptions that lasted three hours or more. This performance commitment is designed to incentivise companies to minimise the number and duration of extended supply interruptions. This delivers benefits to

customers in the form of improved reliability of supply and a reduction in negative social and public health impacts.

4.13 In its statement of case, Anglian Water states that for the 2015-20 period Ofwat's view was that improvements in water supply interruptions performance could be achieved within its base allowance through using existing resources more efficiently. Anglian Water claims that it overhauled its practice and procedures to do so but despite these initiatives, additional investment of £18 million was required to improve performance by approximately 9 minutes over the period. The company argues this demonstrates further improvements in water supply interruptions cannot be achieved without a corresponding increase in costs. It therefore argues the performance commitment level we have set for 2020-25 is not achievable given the level of funding provided in base allowances. The company argues this incentivises it to deliver lower performance levels because the cost of improvements to service are higher than the resulting underperformance payment.[321]

4.14 At PR14 the company was fully funded within its base allowance to deliver upper quartile performance, as reflected in its performance commitment levels. We therefore disagree with the company's claims that 'additional' investment was required to improve performance on supply interruptions. We note that the company does not explain how it has determined the allowance within its PR14 base funding for water supply interruptions and therefore does not demonstrate the extent to which this expenditure on improving water supply interruptions is in fact 'additional' to base.

4.15 Similarly for PR19, and as set out in our PR19 Methodology, we are requiring companies to deliver a common level of performance which we consider is achievable within base allowances. As we set out in 'Outcomes – common issues', our econometric benchmarking models are based on historical actual spend over the period 2011-12 to 2018-19. The base allowances in our final determinations therefore reflect the actual expenditure undertaken by companies during the 2015-19 period to improve their water supply interruptions performance (with appropriate adjustments for efficiency). We also expect technological progress and improvements in operational practice to enable companies to deliver performance improvements more cost effectively. Given this out base allowances ensure adequate funding is provided to deliver an improvement in (rather than simply maintenance of) performance.

4.16 Our performance commitment levels for 2020-25 have been calibrated based on analysis of comparative and historical sector performance. We note that in

[321] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 225-7.

their representations on our draft determinations thirteen out of the remaining sixteen companies accepted a performance commitment level that was at least as stretching as our final determination level, without requesting any enhancement funding for reducing water supply interruptions. In contrast Anglian is an outlier in the sector in continuing to propose a performance commitment level of 5 minutes and 34 seconds by 2024-25 (compared to our final determination performance commitment level of 5 minutes).

4.17 Anglian Water has not submitted any evidence to demonstrate why it is different to other companies in respect of its ability to meet the common final determination performance commitment level. In fact we note that Anglian was able to reduce water supply interruptions by 46% in its best performing year over the 2015-2019 period, within its PR14 base allowance. Our performance commitment levels only require it to achieve another 32% reduction on that year to meet its 2024-25 performance commitment.

4.18 We also note that its position, as being one of only four companies not to accept our performance commitment level within base allowance in its draft determination representations, appears at odds with the results of its customer research which showed that its customers place a relatively high willingness to pay value on reducing water supply interruptions.

4.19 The company also argues that our analysis of stretch in 2020-25 compared to 2015-20 performance improvements shows we have been inconsistent in our approach to setting performance commitment levels by requiring a fourfold improvement in performance for water supply interruptions (on historic reductions achieved) but lower rates of improvement for pollution incidents and internal sewer flooding.

4.20 As we set out in 'Outcomes – common issues', our approach to setting performance commitment levels is based on a detailed and bespoke assessment of achievability for each of the common performance commitments.[322] Conversely, the application of a standard rate of performance improvement across common performance commitments would be arbitrary, fail to take account of differences between performance commitments and may result in performance commitment levels that are either unachievable within base allowance or insufficiently stretching such that the company is overfunded.

[322] Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', chapter 9.

4.21 With respect to the company's claim that it is incentivised to target an underperformance payment, because this is lower than the cost required to avoid it by investing to meet its performance commitment level, we address this point in 'Outcomes – common issues'.[323]

Key issue - ODI rates

4.22 In its statement of case, Anglian Water argues that Ofwat should have adjusted ODI incentive rates in its final determinations to reflect interventions which increase stretch in performance commitment levels, in line with diminishing customer willingness to pay for service improvements.[324]

4.23 While we acknowledge that there is some evidence from the results of companies' valuation research for diminishing willingness-to-pay for service improvements, we did not make any adjustments to ODI rates to reflect this, for example by reducing ODI rates for performance commitments where we intervened to make performance commitment levels more stretching.

4.24 This is because we do not have a robust basis on which to make such interventions and nor does the company suggest as basis on which we should do so. In particular, we do not have any reliable evidence on customer marginal benefit curves over the relevant range of performance. The reason for this is that companies' willingness to pay research typically estimates a linear (or piecewise linear) approximation of willingness to pay over two to three service increments (for example two increments in performance and a decrement in performance). The resulting outputs of companies' willingness to pay research are typically a point estimate across the two/three performance intervals and therefore do not give us a reliable basis on which to estimate the gradient of customers' marginal benefit curves. We consider that attempting to apply the outputs of companies' willingness to pay research in a way it was not designed would be inaccurate and potentially give rise to unintended consequences by distorting companies' incentives to deliver for their customers.

4.25 We also note that the company itself has not provided any evidence upon which we could base such adjustments, nor has it suggested the scale of the required adjustments.

[323] Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', chapter 13.
[324] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 246-7, paragraph 996.

4.26 In its statement of case, Anglian Water argues that Ofwat's application of 'standardised ranges' limits customer choice and customer influence over incentive rates. The company argues that this contradicts Ofwat's stated focus on customers' views.[325]

4.27 In our final methodology we said we would 'compare companies' marginal valuation amounts, marginal cost information, and outperformance and underperformance payment rates, for the same performance commitments. We will challenge companies on their proposed outperformance and underperformance payment rates, where appropriate'.[326]

4.28 When we reviewed the ODI rates proposed by companies in their September 2018 business plans, we found substantial variation when comparing rates on a normalised basis (as summarised for the customer-facing common performance commitments in Table 4.2 below). For example, for leakage, proposed ODI rates implied households were willing to pay between 3 pence per % distribution input and £42 per % of distribution input, with a sector average of £5.79 per % of distribution input. The extent of this variation in willingness to pay between households across companies' operating areas is neither explained by known factors which vary across companies, nor credible. Companies were similarly unable to provide an explanation for this variation.

Table 4.2: Variation in implied willingness to pay from companies' proposed September 2018 ODI rates

	£/household per normalised increment of performance				
	Leakage	Per capita consumption	Water supply interruptions	Pollution incidents	Internal sewer flooding
Average	5.79	0.39	0.94	0.43	8.11
Maximum	41.58	1.10	4.19	0.90	17.25
Minimum	0.03	0.01	0.10	0.00	1.46
Difference between maximum and minimum	**137574%**	**13757%**	**4269%**	**28785%**	**1082%**

4.29 We therefore attempted to reduce the influence of unexplained variations in survey results, and so better align ODI rates with actual customer preferences,

[325] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 247, paragraphs 997-1001.
[326] Ofwat, 'Delivering Water 2020: Our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, p. 90.

by triangulating companies' proposed rates against other sources. This triangulation process uses the companies' proposed rates, and therefore incorporates companies' own customer research results into our final determination ODI rates. However, given the extent of unexplained variation we also incorporate wider information, including industry average rates (and points in the distribution of rates around this) in the form of our 'reasonable ranges'.

4.30 We do not impose 'standardised ranges'. We use 'reasonable ranges' (derived as ± 0.5 standard deviations around the industry average rate on a normalised basis) as just one of a series of cross-checks in assessing companies' proposed rates. Our actual interventions are based on a wider set of checks (including our assessment of the quality of a company's WTP research and triangulation, comparisons against PR14 rates, past performance and the relative degree of stretch).[327] Indeed, there are cases where companies' final determination rates remain outside our 'reasonable range'.[328]

4.31 Furthermore, as set out in Figure 2.1, our interventions on Anglian Water's ODI rates largely respect the pattern of preferences implied by the rates submitted in its September 2018 business plan. As such, it is not correct that we have restricted customer choice through our application of 'reasonable ranges'.

4.32 In its statement of case, Anglian Water argues that Ofwat's 'reasonable ranges' do not reflect factors such as varying quality of customer research, and approaches to calculating marginal costs.[329] However, we explicitly take account of the quality of companies' customer research in forming our interventions; this is one of our many cross-checks. Our 'reasonable ranges' are also constructed by including only those data points which we are confident are derived from the basis of primary valuation research. We therefore exclude low quality observations which are derived using inappropriate research approaches such that these do not influence our interventions for other companies.

4.33 With respect to the company's point that variation in ODI rates may reflect varying approaches to marginal cost, we conclude that this is unlikely to be the primary driver of the extreme variation in ODI rates given we observe as much

[327] See 'PR19 final determinations: Delivering outcomes for customers policy appendix', December 2019, p. 93 for further details of the suite of checks applied.
[328] For example one or both of Yorkshire Water's ODI rates for leakage, per capita consumption and water supply interruptions remain outside the 'reasonable range' in our final determinations. Similarly, this is the case for Anglian Water's pollution incidents outperformance rate and Bristol Water's water supply interruptions underperformance rate.
[329] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 229, paragraph 1001.

variation in outperformance rates (which should be based solely on willingness to pay values) as we do for underperformance rates.[330]

4.34 In its statement of case, Anglian Water argues that Ofwat was inconsistent in applying its interventions across outperformance and underperformance rates by, in some instances, accepting customer evidence on outperformance rates for particular performance commitments for a company but rejecting it for the corresponding underperformance rate, or vice versa.[331]

4.35 We do not accept that we were inconsistent in applying interventions to ODI rates. Given our emphasis on the importance of companies engaging with customers to build their ODI packages we were cautious to intervene in company's ODI rates unless it was fully justified by our nine cross-checks that we applied to assess companies' ODI rates.

4.36 As we set out in our final determinations we do not apply these tests deterministically in deciding whether an intervention is required.[332] Instead we arrive at an assessment for each company's ODI rate taking into account a number of factors, including the potential harm arising from intervening/not intervening given the specific tests failed. In line with this conservative approach, our interventions are guided by whether they are required for customer protection purposes. This is more likely to be the case for an outperformance rate that appears too high, or an underperformance rate that is too low (rather than for an underperformance rate that appears too high or an outperformance rate that appears too low). This means there are some cases where we intervene to increase a company's underperformance rate (for example where customer evidence supporting it is not credible) for customer protection purposes, but do not need to step-in to increase a companies' outperformance rate.

[330] The standard formula for setting ODI rates is set out in our PR19 final methodology. This formula requires that underperformance ODI rates are set based on estimates of incremental benefit and incremental costs of service as well as cost sharing rates, whilst underperformance rates are set based on estimates of incremental benefit and cost sharing rates. The underperformance rate formula is designed to compensate customers for the loss they experience as a result of a failure to fully deliver a performance commitment. The outperformance rate formula does not include an incremental cost component. Further detail can be found in 'Delivering Water 2020: Our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, pp. 90-3.
[331] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 229, paragraph 100.
[332] Ofwat, 'PR19 final determinations: Delivering outcomes for customers policy appendix', December 2019, p. 94.

4.37 We do not consider this to be an inconsistency in our methodology. Rather, we are ensuring that interventions are led by customer interest rather than mechanistically applying the results of our cross-checks.

4.38 In its statement of case, Anglian Water argues that our approach to assessing ODI rates fails to recognise that different companies are currently performing at materially different service levels and this has implications for current costs and willingness to pay for future changes to service.[333]

4.39 While status quo performance levels tested with customers may, in theory, be one of the factors determining customers' willingness to pay for further improvement or to avoid deteriorations in performance, no company has provided evidence of a stable and predictable relationship between current performance levels and willingness to pay. Nor have they demonstrated that variations in performance levels across companies explain the large variation in ODI rates we have observed. It is therefore not feasible for us to take this factor explicitly into account when assessing companies' proposed rates and determining whether they are industry outliers for this reason.

Key issue - Bathing water quality

4.40 The purpose of this performance commitment is to incentivise the company to improve water quality at the beaches designated for swimming within its region, in line with its Water Industry National Environment Programme (WINEP) commitments. The performance commitment measures the number of bathing waters in the company's region that attain 'Excellent' status, as designated by the Environment Agency, based on an average of four years' results. Anglian Water currently has 49 designated bathing waters and new designations during the 2020-25 period will not be included in the reporting against this performance commitment.

4.41 The company states that since bathing water assessments are based on three years of previous data plus the current year, then 2020-25 performance is impacted by 2015-20 performance. It argues that Ofwat is therefore wrong to set a performance commitment level requiring improvements in performance from year three instead of year four onwards. The company proposes the performance commitment levels be set in line with its plan so that there is only

[333] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 247, paragraph 1002.

one performance commitment level and financial incentive in the final year of 2020-25.[334]

4.42 At final determination we updated our interventions for this performance commitment so that financial incentives only apply in the final year of the period. We continued to set performance commitment levels for every year of the period in order to incentivise the company to deliver benefits as quickly as possible. Importantly, the financial incentive still only applies for service delivery in 2024-25 because the performance commitment is cumulative and underperformance or outperformance should only be applied once. The glidepath we set therefore is a way for the company to regularly report on progress and to ensure timely and efficient delivery; the final incentives do not apply in these intervening years.

4.43 Furthermore in setting performance commitment levels, we took into account performance up to 2018, so it is only a change from forecast performance in the last year of the 2015-20 period that could impact the reported performance during 2020-25. We also note that past performance directly influences reporting of performance for the per capita consumption and leakage performance commitments (which are reported on a three year average basis) and that the bathing water quality performance commitment is not unique is this regard.

Key issue - Water quality contacts

4.44 This performance commitment incentivises companies to improve the appearance, taste and odour of drinking water by measuring the number of consumer contacts the company receives in relation to the appearance and taste and odour of drinking water. It was an option for companies to select for their bespoke asset health performance commitments from the asset health 'long list' in our final methodology.[335]

4.45 Customers contact their company about the appearance, taste and odour of their water usually as a result of issues such as disturbance of deposits in the network, the use of chlorine as a disinfectant, seasonal water quality effects or a change in the source of water. Companies can mitigate customer contacts through a range of activities including: optimising drinking water treatment processes, utilising granular activated carbon in treatment, active water quality

[334] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 230, box below paragraph 1007.
[335] Ofwat, 'Delivering Water 2020: our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, p. 28.

monitoring, proactive mains cleaning/flushing programmes, proactive education with customers on the causes of taste/odour variations and clear communication when work is happening which may temporarily affect supplies.

4.46 The company states that it currently has good comparative performance, which means that the performance commitment level set in the final determination is harder to achieve and it will expect to earn penalties of £3.3 million during 2020-25 if current performance is maintained. It states that because of its current good performance, its customers did not consider it a high priority area for improvement. It proposes to the CMA that an alternative performance commitment level be set at 1.09 contacts per thousand population served in each year between 2020-21 and 2024-25.[336] This compares to our performance commitment level of 1.09 in 2020-21 decreasing to 0.77 by 2024-25.

4.47 The company's proposed performance commitment levels offer no improvement in performance and are less stretching than the performance commitment levels it proposed in its response to our draft determination. Whilst the company is currently an upper quartile performer, its lack of ambition in its forecast means it would no longer be upper quartile in 2024-25 if all other companies achieved their set levels, hence its relative position would deteriorate (the current upper quartile is 1.20 contacts per 1000 population, whereas the forecast upper quartile in 2024-25 is 0.67 contacts per 1000 population). We could not find evidence in the research materials submitted by the company that its customers were made aware of this in its engagement with them.

4.48 While the company states that it will face increased difficulty as a current upper quartile performer to deliver further service improvements it does not provide an estimate of the cost of doing so or demonstrate the increased difficulty that it alludes to in its statement of case.

4.49 The company has improved performance by 25% over the 5 year period from 2013-14 (1.48) to 2018-19 (1.11). This is similar to the percentage improvement on current (i.e. 2018-19) levels that is required by our 2024-25 performance commitment level (30%). The company has also outperformed its 2015-20 performance commitment level in three out of four years. We therefore consider that the performance commitment level is achievable.

4.50 In contrast, we consider that the company's PR19 proposed levels lack ambition and would mean that its performance deteriorates in relation to other

[336] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 249-50, box below paragraph 1012.

companies. The company should be able to continue its sustained improvement over the last five years and maintain its upper quartile standing in the sector. Other companies with similar levels of current performance such as Wessex Water, Southern Water, Bristol Water and South Staffs Water have all proposed or accepted significant improvements that bring them closer to the forward-looking upper quartile.

Key issue - Leakage

4.51 In its statement of case, Anglian Water proposes a leakage performance commitment level equivalent to a 6.2% reduction on 2019-20 levels by 2024-25. This is equivalent to the leakage performance commitment level proposed by the company in it September 2018 business plan.[337]

4.52 The company also proposes to apply an underperformance deadband between its 2019-20 performance and its performance commitment level such that ODI underperformance payments only apply when leakage increases on current levels. The company also proposes to apply an enhanced ODI to outperformance immediately above its performance commitment level, such that no standard ODI outperformance payments apply.[338] This request is equivalent to the calibration of the leakage ODI mechanism in the company's September 2018 business plan.

4.53 In its statement of case, Anglian Water argues that the leakage ODI package in the final determination does not reflect customer views and is manifestly wrong for the following reasons:

- it will incur penalties if it maintains its current frontier performance, whereas other companies would receive rewards for poorer levels of performance;[339] and

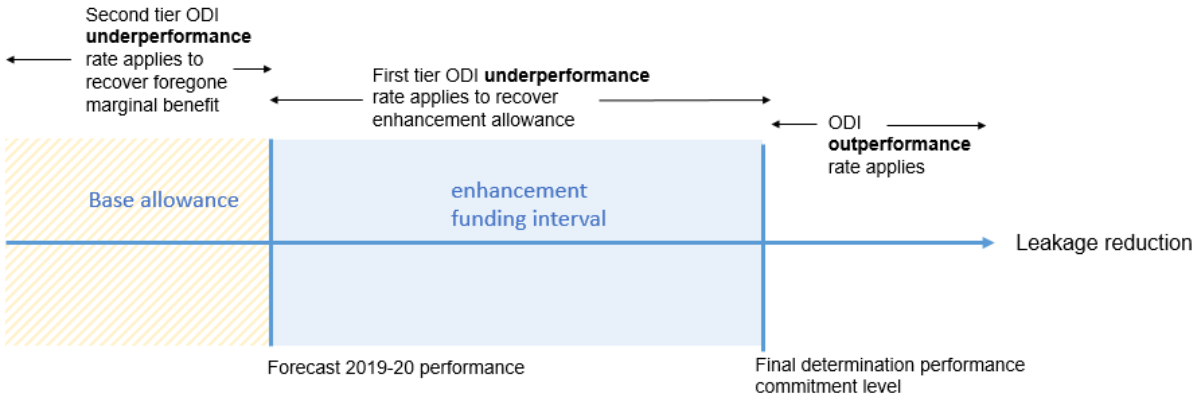
[337] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 249, Table 34.
[338] Enhanced ODIs apply to performance levels that represent a frontier-shifting step-change on current sector performance. Accordingly, enhanced ODI rates are higher than standard ODI rates to incentivise companies to deliver major performance improvements and compensate them for the extra effort and risk involved.
[339] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 246, paragraph 1055.

- its customers support its proposal to receive enhanced outperformance payments for exceeding its performance commitment level given this represents frontier shifting performance.[340]

Summary of our final determination

4.54 In our final determination we aligned the company's performance commitment level to the level of leakage reduction for which we had granted enhancement funding (i.e. a 16.4% reduction on 2019-20 levels by 2024-25). We removed the company's proposed underperformance deadband given the company did not provide evidence of customer support for it applying at the specific level.[341] We also introduced a two tier ODI underperformance rate. The first tier rate applies to the interval of performance for which the company received enhancement funding and is calibrated purely to claw back the funding for customers in the event that the funded levels of leakage reduction are not delivered. The second rate applies to performance worse than 2019-20 performance and is calibrated using the standard ODI formula to compensate customers for the foregone marginal benefit of underperformance (see Figure 4.1 below).

Figure 4.1: Calibration of Anglian Water leakage ODI rates



4.55 We also reinstated standard ODI outperformance payments for the company so that there is a step-change in performance on the industry frontier before enhanced ODI outperformance payments apply.

[340] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 245, paragraph 1051.
[341] Deadbands are zones of performance close to the performance commitment level, for which no financial ODI applies. In our PR19 final methodology we discouraged companies from proposing deadbands because they remove the incentive for companies to improve their performance. They also require judgement to set and setting the level may be difficult and reduce transparency to customers. We said that companies that wish to propose deadbands will need to provide strong evidence as to why their proposals are appropriate and in the interests of their customers. See 'Delivering Water 2020: our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, pp. 94-5.

Our response to the company's statement of case

4.56 The company states that the acceptability testing of its plan demonstrated that 82% of household customers agreed that this was a stretching performance commitment level. However, we do not consider this research is necessarily reflective of Anglian Water's customers' views for the following reasons:

- it is not clear from the research report what sector comparative or historic performance information was presented to customers when the question was posed to them. We therefore cannot verify that customers' had the necessary information to make an informed choice;
- it is not clear whether alternative performance commitment levels were offered to customers, or instead whether the proposed performance commitment level was presented to customers in the abstract. It is therefore not possible to say customers would not have chosen a more stretching performance commitment level had it been offered to them; and
- customers were not aware in answering the question that Anglian Water had received a specific enhancement funding allowance to reduce leakage further below the level presented.

4.57 Moreover, as we explain in 'Outcomes – common issues', customers are not necessarily well-placed to assess what is a stretching performance commitment level as they generally will not have access to the detailed analysis of sector historic and comparative performance data that Ofwat has undertaken.[342] It would therefore be a derogation of our responsibility as a prudent regulator not to scrutinise and, where appropriate, challenge the results of companies' customer research, based on the wider set of information available to Ofwat (such as historical and sector comparative information), and the extent to which they have used it appropriately to form their business plan.

4.58 Our performance commitment level grants the company an explicit funding allowance to reduce leakage levels by the volume requested by the company in its supply demand balance submission (which aligns to its water resource management plan). By not aligning the performance commitment level with this funding allowance we would have in effect be requiring customers to pay twice for the company to deliver its water resource management plan leakage level (i.e. once via the enhancement funding allowance and once via the ODI outperformance payments the company would receive for exceeding its performance commitment level). Therefore if the CMA were to make the company's performance commitment level less stretching, the accompanying

[342] Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', chapter 5.

enhancement funding would also need to be reduced to ensure customers will not be paying twice for a given level of performance.

4.59 In its statement of case, the company argues there should be a deadband around the performance interval between its current leakage level and its performance commitment level.[343] The company states that in the absence of this deadband it will be penalised for maintaining levels of leakage that other companies would receive outperformance payments for.

4.60 We do not consider this to be an accurate characterisation of the ODI mechanism in our final determination. As set out in Figure 4.1 above, a two tier ODI mechanism applies to the company's leakage performance. More specifically, the 'tier 1' ODI underperformance rate that applies to the interval of performance between the company's current performance and its performance commitment level (over which the company argues a deadband should apply) is calculated on the basis of pure claw back of enhancement funding associated with the performance interval. The foregone marginal benefit to customers is not included in this 'tier 1' ODI rate. As such there is no punitive element to the ODI rate and the company will not be 'penalised' for maintaining current performance. The company will only have to return the foregone benefit to customers in the event that its leakage levels deteriorate below current levels.

4.61 We consider this is appropriate to protect customers against deteriorations in performance from which the company has been funded. In contrast in proposing a deadband, Anglian Water is apparently proposing to retain the enhancement funding it was granted even if it does not deliver the associated reduction in leakage.

4.62 We also note that while the company provides evidence of customer support for a deadband to apply to leakage as a general principal, it does not present evidence of customer support for applying the deadband to the specific performance interval. It is also not obvious that customers were aware, in responding to the research questions, that the company would be awarded a funding allowance specifically to reduce leakage beyond frontier levels and that a deadband would effectively allow it to not deliver the enhancement while retaining the funding.

[343] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 266, paragraph 1069.

4.63 On the other hand, in its statement of case the company is proposing that it should immediately earn enhanced outperformance payments as soon as it outperformance its performance commitment level.[344] It argues that customers support its proposal to receive enhanced outperformance payments for frontier-shifting performance.

4.64 In our final methodology we clearly set out that enhanced ODIs should be allowed for companies that deliver a step change in performance.[345] We also said that the enhanced outperformance payment would compensate companies for the extra effort and risk involved in delivering a major improvement in performance. Furthermore, we explicitly stated that 'Companies that are already the leading company will need to demonstrate stretch in the enhanced outperformance payment threshold levels they are proposing'.[346] In line with our final methodology, we do not consider that Anglian Water should earn enhanced payments for any incremental improvement in performance around its performance commitment level as this is not commensurate with a step change in performance requiring remuneration for the extra effort and risk involved.

4.65 Notwithstanding the above, we note that under our final determination the company only needs to deliver a step change in leakage on its performance commitment level of 2.3% in 2024-25 in order to qualify for enhanced ODI payments (which are equivalent to c.3.5 times its standard ODI rate).

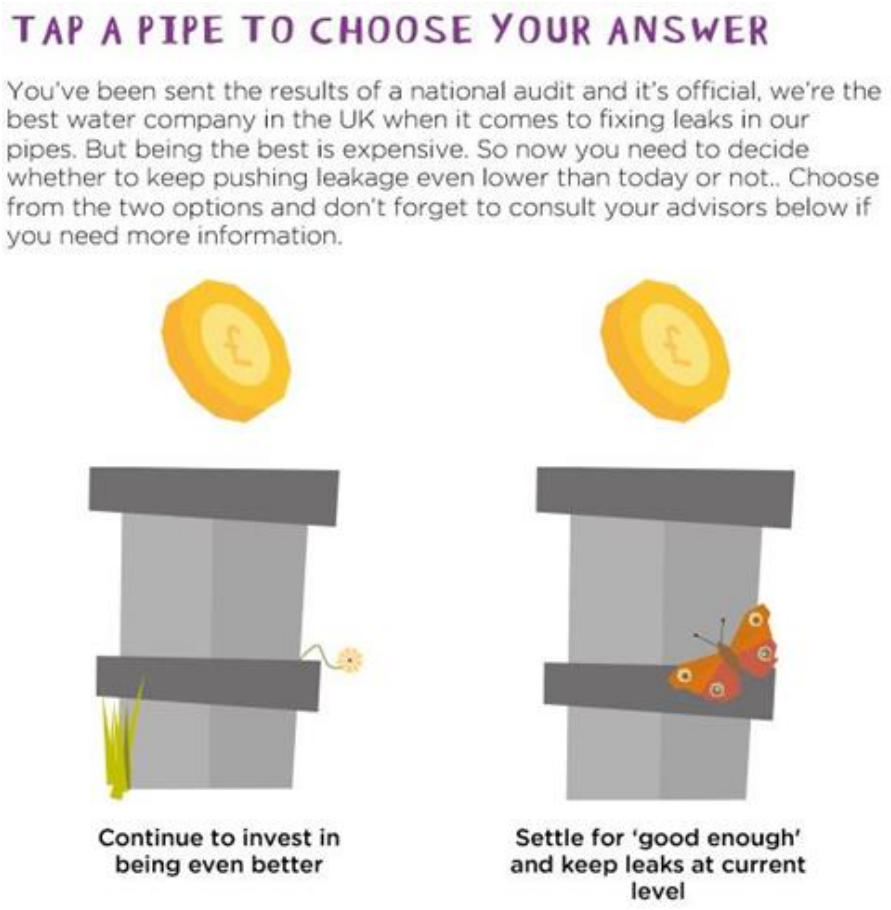
4.66 Secondly, we consider that the customer research the company has presented in support of its proposed enhanced ODI package does not unequivocally support it earning enhanced payments for outperformance immediately better than its performance commitment levels. The company cites the results of its 'Be the Boss' research that 78% of customers supported a £4 annual bill increase for delivering frontier shifting performance as evidence that customers support its enhanced ODI package.[347]

4.67 However, this support was derived from a single choice question in which customer were asked to choose between a £4 bill uplift for frontier shifting performance or a flat bill to 'keep leaks at current level' (see screen-shot in Figure 4.2 below). The research is therefore not associated with a specific

[344] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 249, table 34.
[345] Ofwat, 'Delivering Water 2020: our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, p. 69.
[346] Ofwat, 'Delivering Water 2020: our methodology for the 2019 price review, Appendix 2: Delivering outcomes for customers', December 2017, p. 85.
[347] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 245, paragraph 1051.

interval of performance over which the company should receive enhanced ODI payments. It was also derived without testing any intermediate trade-offs with customers with respect to leakage level and bill impacts.

Figure 4.2: Screenshot of Anglian Water leakage customer research



4.68 Furthermore, the company's own willingness to pay value for leakage does not support the premise that customers are willing to pay enhanced ODI rates for performance immediately beyond the industry frontier. The company's standard ODI outperformance rate of £0.219m/Mld is based on willingness to pay values elicited from customers by testing performance increments equivalent to a 60% reduction in leakage on base levels. The company's performance commitment level requires a reduction in leakage of only 16.4%. This research suggests that standard ODI rates remain valid for incremental leakage improvements around the company's performance commitment level and that when that faced with trade-offs around service quality and bill impacts, customers are not in fact willing to pay for enhanced rewards over the performance increment proposed by Anglian Water. We attach more weight to this research (compared to its 'Be the Boss' research) because it was derived in the context of multiple trade-offs

between service levels and bill impacts which more robustly identify customers willingness to pay for performance improvements.

4.69 Finally, the company's own ODI research also contradicts the level of enhanced outperformance payment the company is proposing to receive. For example in its ODI research results show that the most preferred enhanced ODI rate is two times the standard ODI rate and that the majority of customers support an enhanced ODI rate between 1.5-2 times the standard rate, whereas the company is proposing a rate over four times as large.[348]

4.70 The company's enhanced ODI package (in terms of both the enhanced ODI rate and the interval of performance for which enhanced ODI payments apply) is therefore not supported by the results of its own customer research. Instead, Anglian Water's approach to setting ODIs for leakage shows that it ignores its own customer research and favours its own financial interest in setting over-generous rewards.

Conclusion

4.71 Our final determination provided a set of performance commitments for Anglian Water that reflect appropriate levels of services for customers, together with calibrated ODIs to achieve and outperform these. Anglian Water is a high performing company and in some areas, such as internal and external sewer flooding, and is already delivering at the level required in its final determination to outperform is performance commitment levels.

4.72 However, in its statement of case Anglian Water requests that the CMA should revert to its business plan package of performance commitments and ODIs in full, without accepting any of our targeted and proportionate interventions. It is therefore in effect proposing that the CMA takes no account of the broader set of information available to Ofwat as a sector regulator.

4.73 In its statement of case the company appears to suggest that Ofwat is wrong to make interventions that depart from the outcomes package it developed based on the results of its engagement with customers. The company does not appear to accept the role of Ofwat, as a responsible and prudent regulator, in scrutinising the results of companies' customer engagement and the extent to which they accurately reflect these results in their business plans.

[348] Anglian Water, SOC044, 'ICS ODI Research', p. 27, Figure 3.2.

4.74 The company makes a lengthy representation on the appropriateness of Ofwat's interventions in its leakage ODI package. However, leakage is a clear example of where the company misuses the results of its customer engagement to propose an enhanced ODI package that is not in its customer interest.

5. Overall stretch across costs and outcomes

Summary

5.1 Our aim in the final determinations was to set a stretching but achievable level of overall challenge for the companies. If a final determination is too generous, a company will end up overfunded, and investors will enjoy high returns without appropriate incentives to deliver for customers. If the final determination is too harsh, a company may end up underfunded and investors may receive less than a fair return. In the final determination we considered the overall stretch on costs and outcomes individually and together, in the round.

5.2 In its statement of case, Anglian Water raises a number of issues around the overall stretch across costs and outcomes. Its arguments largely centre on what it presents as a 'disconnect' between cost efficiency and service performance. The company claims that we have not provided sufficient evidence to demonstrate that companies can perform well on both costs and outcomes.[349] It also suggests that our approach to the overall stretch across costs and outcomes was determined by a belief that there is 'no trade-off' between cost reduction and quality.[350]

5.3 Contrary to the company's statement, we agree with Anglian Water that there can be a trade-off between service quality and cost, and improvements in service quality can come at a higher cost. Although this is not necessarily always the case and good management can lead to good performance on cost efficiency and service quality and some measures such as customer service improvements can improve both cost efficiency and service quality. Rather, we have observed that **some companies have managed to simultaneously achieve high service quality and cost efficiency**. The impact on cost efficiency should not be used as an excuse for other companies not to achieve the same level of service quality as their peers.

5.4 Anglian Water states that its final determination fails to recognise the additional costs required for an already high-performing network to improve from this position to push the frontier further out.[351] This is untrue. **We recognise that there can be additional costs of improving the service frontier** and this is why we provided the company with additional funding of £71.4 million to further

[349] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 220-1, paragraphs 905-6.
[350] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 218.
[351] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 219, paragraph 896.

reduce leakage given its current good performance. The performance commitment levels for water supply interruptions, internal sewer flooding and pollution incidents are common across all companies and some companies are already performing at this level. The stretch for these levels is consistent with that has been achieved historically within base funding, and has been validated against company forecasts. We do not consider that companies need additional funding to meet these levels. Given Anglian Water's good historic service quality performance we are unclear why it requires more funding than other companies to meet the same levels.

5.5 We also fully accept that cost differences across companies can result from a range of factors. That is why in addition to our econometric modelling, and setting the efficient benchmark at the third or fourth company rather than the frontier company, we also allowed companies to put forward cost adjustment claims. Companies should set out in these claims the differences in circumstances which would drive their higher (or lower) costs. Where companies made a compelling case, we made adjustment.

5.6 In response to Anglian Water's criticisms of the evidence we have presented, we have revised our analysis of the relationship between cost efficiency and service quality at a company level. In our 'Introduction and overall stretch' document, we present the evidence at water, wastewater and retail level, using interval rather than ordinal rankings, and reversing the company rankings.[352] In all instances, **we do not find evidence of an inverse relationship between service quality and cost efficiency at a company level**. Instead there is positive relationship between the two, which suggests **companies can deliver good cost efficiency and good outcomes for customers concurrently**.

5.7 **The stretch on a number of companies that accepted our final determinations are greater than the disputing companies**.

5.8 Table 5.1 highlights the key points made by Anglian Water in its submission in relation to the overall stretch across costs and outcomes and a summary of our response to each of those points. We also discuss these issues in more detail in our 'Introduction and overall stretch' document.[353]

Table 5.1: Key issues on the overall stretch across costs and outcomes raised by Anglian Water in its submission

[352] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 7.
[353] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case'.

Key issue in Anglian Water's submission	Summary of our response
Company level relationship between cost efficiency and outcome performance: Anglian Water states that we fail to recognise the costs of reaching and maintaining high-quality performance, and of improving from this position to further push the frontier. Statement of case, p. 219, paragraph 896. The company also states that our position on the relationship between costs and service delivery is poorly substantiated. Statement of case, pp. 222-3, paragraphs 916-18.	The data shows that some companies have managed to achieve high service quality and cost efficiency at the same time. We recognise the costs of pushing the frontier, which is why, for example, we allowed an additional £71.4 million of enhancement expenditure for Anglian Water to improve leakage performance. In 'Introduction and overall stretch', we present several variations on the scatter plot we published at final determination, including providing more granularity, using a cardinal scale and reversing the rankings.[354] In all cases, we do not find an inverse relationship between cost efficiency and service quality remains robust. We provide a more detailed response below, under 'Company level relationship between cost efficiency and outcome performance'.
Cost service disconnect: Anglian Water states that Ofwat's position on the relationship between costs and service delivery is at odds with economic theory. Statement of case, pp. 221-2, paragraphs 911-15.	We agree with Anglian Water that there can be a trade-off between service quality and cost, and improvements in service quality can come at a higher cost (although that this is not necessarily always the case). However we dispute the inference that Anglian Water is taking from our company level analysis. Our analysis does not suggest that better outcomes should cost less, but that cost efficient companies can also be high quality. We provide a more detailed response below, under 'Cost-service disconnect'.
Achieving upper quartile on costs and outcomes: Anglian Water states that we assume there are companies that deliver upper quartile companies in all service areas within their cost allowances. Statement of case, p. 219, paragraph 896.	We do not expect companies to be upper quartile on all outcomes, as we are not expecting a company to be good at everything. We would, however, expect an efficient company, on average, to have net zero ODI payments. Overall, the data indicates that it is possible for a company to have both upper quartile outcome performance and upper quartile cost efficiency at the same time. We provide a more detailed response below, under 'Achieving upper quartile on costs and outcomes'.
Inclusion of service quality in cost modelling: Anglian Water states that our base models omit key explanatory factors by excluding cost drivers relating to quality, meaning high quality is viewed as 'inefficiency'. Statement of case, pp. 219-20, paragraphs 897-903.	While our models do not include service quality variables, they do include cost drivers that would affect output quality. We provide a more detailed response in chapter 3 above, 'Securing cost efficiency', under 'Base econometric models' and in 'Cost efficiency – common issues', chapter 3.
Costs of improving performance on leakage and water supply interruptions: Anglian Water states that companies have provided historical and forward-looking cost	We recognise that improving leakage performance beyond the frontier increases costs and allowed the additional requests for funding from all companies in the upper quartile of leakage performance, including

[354] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 7.

Key issue in Anglian Water's submission	Summary of our response
and performance evidence that it costs more to improve their performance on leakage and water supply interruptions. Statement of case, pp. 224-5, paragraphs 921-2.	Anglian Water. Using our alternative modelling specifications, two of which included leakage, we also considered whether any companies' allowances were likely to be insufficient in the round. On this basis, we provided Anglian Water with an additional £50.2 million. We explain further in chapter 3 above, 'Securing cost efficiency', under 'Maintaining leakage levels – assessing the company's cost adjustment claim' and later on in 'Leakage enhancement expenditure'. None of the evidence that Anglian Water provides suggests that it requires an uplift of base expenditure allowances to meet its PR19 water supply interruptions level. Anglian Water's historical performance shows that its level is achievable, and sector evidence shows that efficient companies can achieve upper quartile performance on water supply interruptions. Our detailed response to this issue can be found in chapter 9 of 'Outcomes – common issues'.
Comparability of companies with different service levels: Anglian Water states that Ofwat's approach does not account for differences in service levels between water and wastewater companies (WaSCs). Statement of case, pp. 227-9, paragraphs 925-32.	In our analysis in the 'Introduction and overall stretch' document we have only focused on common performance commitments which we used in PR14 to set upper quartile levels.[355] We consider that these metrics are sufficiently comparable across companies for the analysis to be valid.

Considerations for the CMA

5.9 Water companies should be able to earn a reasonable return when met customer's expectations, and we provide this through the allowed return on capital. Companies get further opportunities to earn higher returns from better performance on outcomes, outperforming out totex allowance and financing. In the PR14 period, **Anglian Water shareholders earned a total return of 11%, more than double the base return on regulated equity (RoRE) we set at the price review**.[356] This return was derived from both financing and outcomes and under-spending their totex allowance. It is important therefore that we calibrate our broader final determination package to the right level of stretch.

[355] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 7.
[356] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 6, Figure 6.6.

The evidence from our assessment of the company's performance in PR14 concludes that it can deliver more for customers.

5.10 **Anglian Water has underspent its expenditure allowance in each of the last four price control periods.**[357] It has underspent its PR14 allowance by 9.2% from 2015-2019.[358] In addition, the company has made it clear that it has spent some of its PR14 allowance on additional investment, suggesting the true level of PR14 outperformance could be even higher.[359] This has occurred despite little or no evidence of productivity growth in the sector in recent years.[360]

5.11 Anglian Water also met 93% of its PR14 common performance commitments in 2018-19.[361] Overall, **it met over 90% of its performance commitments over the 2015-19 period**, and achieved a positive RoRE on its ODIs.[362] Over this period, the company received net outperformance payments of £30 million just for its performance on the three upper quartile performance commitments.[363]

5.12 The company is **well-placed to outperform a number of its PR19 performance commitments**, and to earn further returns for delivering high levels of service. Indeed, many companies are already outperforming some of their 2024-25 commitments. Anglian Water has already met its 2024-25 performance commitment level on internal sewer flooding during PR14, and on pollution incidents the company only requires an 8% improvement from its best performance year (2015-16) to meet its 2024-25 level. At the same time, Anglian Water's significant outperformance on costs at PR14 reveals lower costs as the starting point for the subsequent price review. The company appears not to recognise this, and has proposed a substantial and unjustified increase in expenditure.

5.13 In its statement of case, Anglian Water states that 'Where companies' historical performance is strong, and customers support maintaining this level in future,

[357] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 6, Table 6.1.
[358] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 6, Table 6.1.
[359] Anglian Water, 'Annual Performance Report 2019', December 2019, p. 4.
[360] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 5.
[361] Ofwat, 'Service delivery report 2018-19', October 2019, p. 12.
[362] Ofwat, Service delivery report data – 2018-19, October 2019.
[363] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 6, Table 6.2.

this should inform the level of costs customers pay'.[364] We are concerned about what the company implies. Anglian Water implies that if it is performing well then customers should continue to pay the same bill and receive the same level of service (without improvement). **In PR19 customer bills are reducing due to a reduction in the allowed return, a reduction in retail costs and an increase in customer numbers**.[365] If bills are maintained as Anglian Water suggests then **Anglian Water is proposing that the benefits of these improvements should transfer to investors and not customers**. We therefore ask the CMA to reject Anglian Water's arguments on overall stretch across costs and outcomes and reject its request for additional funding on improve service quality.

Our response to key issues raised by Anglian Water

Company level relationship between cost efficiency and outcome performance

5.14 At final determination, we compared the historical cost and outcomes data to analyse the relationship between cost efficiency and service quality performance.[366] We plotted our estimates of cost efficiency against service quality rankings of companies. Service quality was based on a combined average ranked score across the measures that we use in the service delivery report: leakage, water supply interruptions, water quality contacts, pollution incidents, internal sewer flooding and the service incentive mechanism.

5.15 The data did not suggest that there is an inverse relationship between historical cost efficiency and good outcome performance. Rather at a company level the data suggested that better outcomes could be associated with lower costs. We stated that this could have reflected better managed companies performing well on both costs and outcomes. For example, both Portsmouth Water and Wessex Water demonstrated that they were able to deliver high quality and upper quartile efficiency at the same time.

5.16 **Overall assessment:** Anglian Water states that the positive relationship is weak and not statistically significant.[367] At a company level the analysis shows a positive correlation between cost efficiency and service quality. And contrary

[364] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 221, paragraph 907.
[365] This is set out in more detail in chapter 2, 'General issues', above.
[366] Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 38.
[367] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 223, paragraph 917.

to what some of the disputing companies including Anglian Water have suggested, we do not observe an inverse relationship between service quality and cost efficiency. We therefore continue to consider that 'better outcome performance should not necessarily increase cost'. We acknowledge that improving outcome performance could impose costs on companies. Nevertheless, some companies have managed to achieve both high service quality and cost efficiency. Indeed, a number of companies are delivering better service quality and lower costs than Anglian Water. In summary, **the potential impact on costs should not be used as a cover for companies such as Anglian Water achieving a lower level of service quality than their peers.**

5.17 **Separate analysis by water, wastewater and retail:** Anglian Water states that the results of our analysis are impacted by the combination of water metrics rated out of 17 and wastewater metrics rated out 10 and the correlation reduces if this is allowed for.[368] It states further that we should take account of the relative difference between companies when assessing performance. In 'Introduction and overall stretch', we repeat our analysis at segment level (water, wastewater and retail) and also to account for the relative differences between each company.[369] **In all cases, we do not observe an inverse relationship between service quality and cost efficiency at a company level**.

5.18 **Averaging rankings:** Anglian Water[370] and ICS[371] (on behalf of Anglian Water) states that averaging rankings for service quality is inappropriate The issues of averaging are now significantly reduced as we are now considering water, wastewater and retail separately. Willingness to pay evidence, as suggested by ICS, is most useful when looking at changes in the level of metrics, rather than comparisons across companies, which is the case here. Therefore to allow comparison with cost efficiency and as a simplification we continue to consider that averaging of performance across these measures is valid.

5.19 **Relative differences:** Anglian Waters we should take account of the relative difference between companies when assessing performance (rather than using a strict ordinal ranking of 1,2,3,4 ...17). We have revised our scatter plot to show the efficiency vs quality relationships for the companies, accounting for the relative differences between each company. Again there is a positive

[368] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 223, paragraph 917.
[369] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 7.
[370] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 223, paragraph 917.
[371] ICS, 'Exploring the relationship between service quality and costs – by ICS Consulting in collaboration with Anglian Water', March 2020, p. 17.

relationship for both water and retail. Further details are in the 'Introduction and overall stretch' document.

5.20 **Implications of the analysis:** Finally, Anglian Water suggests that the company level assessment of the cost efficiency and service quality relationship is the only piece of analysis that Ofwat has undertaken to establish whether Ofwat should provide additional funding to improve performance on the three common upper quartile performance commitments.[372] It also states that the final determination did not undertake an 'in the round' assessment of service and cost proposals.[373]

5.21 This is fundamentally untrue. At the final determinations we set out in detail in a separate document our assessment of the overall level of stretch across costs, outcomes and risk and return. **We used a wide range of analysis to make sure that cost and service proposals were appropriate** including historical evidence of cost and service performance, company forecasts and cross company benchmarks.

Cost-service disconnect

5.22 Anglian Water states that Ofwat's position on the relationship between costs and service delivery is at odds with economic theory.[374]

5.23 We agree with Anglian Water that there can be a trade-off between service quality and cost, and improvements in service quality can come at a higher cost. Although this is not always the case and good management can lead to good performance on cost efficiency and service quality and some measures can improve both cost efficiency and service quality. However, we dispute the inference that Anglian Water is taking from our company level analysis. Our analysis does not suggest that better outcomes should cost less. However, our analysis does suggest that cost efficient companies can also be high quality. **We do not dispute that Anglian Water has delivered high service quality in the past. We do dispute whether it is proposing to deliver those services at an efficient cost in the future.**

[372] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 220-1, paragraph 905.
[373] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 221, paragraph 907.
[374] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 221-222, paragraphs 911-15.

5.24 Anglian Water[375] and ICS (on behalf of Anglian Water)[376] state that Ofwat has not sufficiently distinguished between movements along a supply curve (relationship between costs and outputs) and a shift in a supply curve (change in efficiency).

5.25 The analysis is not seeking to demonstrate a relationship between costs and outcomes in the terms that seem to be suggested by Anglian Water. **We are not suggesting that better service quality reduces costs**, we are simply suggesting that some companies have achieved high service quality and cost efficiency, and we see no reason why other companies cannot do the same and that our calibration of service and cost is appropriate for PR19.

5.26 In our final determinations we used company forecasts of the forward-looking upper quartile, evidence of historical improvements and benchmarking across companies to set stretching performance commitment levels. **In PR14 we did not provide additional funding to achieve historic upper quartile performance commitments**. Most companies achieved their PR14 upper quartile common performance commitments as well as outperforming on their upper quartile-based cost allowances.

5.27 Based on historical performance we expected some improvement in quality over time without increasing cost. We allowed enhancement costs where there was good evidence that further improvements in service require an efficient company to incur higher costs.

5.28 As set out in our 'Introduction and overall stretch' document, to the extent that historical improvements in outcomes required net additional costs, these costs were included in our cost models and were be reflected in our allowances to allow similar improvements in the future.[377] **For water supply interruptions, pollution incidents and internal sewer flooding, we carefully considered the level of stretch implied by the forward-looking data, taking account of historical improvement**. For water supply interruptions, we reduced the stretch in the final determinations to take account of the historical evidence and companies' evidence. For pollution incidents and internal sewer flooding, we confirmed that the pace of improvement in the historical period was consistent

[375] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 222, paragraph 913.
[376] ICS, 'Exploring the relationship between service quality and costs – by ICS Consulting in collaboration with Anglian Water', March 2020, p. 10.
[377] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 7.

with the forward looking estimate. Further detail is provided in 'Outcomes – common issues'.[378]

Achieving upper quartile on costs and outcomes

5.29 Anglian Water states that Ofwat assumes that there are companies that deliver upper quartile companies in all service areas within their cost allowances.[379]

5.30 The company mischaracterises our position on this issue. **We do not expect companies to be upper quartile on all outcomes**, as we are not expecting a company to be good at everything. We recognise that even an efficient company may be good in some areas and less good in others. We would, however, expect an efficient company, on average, to have net zero ODI payments. Overall, the data indicates that it is possible for a company to have **both upper quartile outcome performance and upper quartile cost efficiency** at the same time.[380]

5.31 For example, as shown in our 'Introduction and overall stretch' document, for wholesale water it can be seen that two companies (Portsmouth Water and South Staffs Water) that are above or at our efficient cost benchmark (defined as the fourth company for wholesale water) are also upper quartile for supply interruptions (with Yorkshire Water in fifth position) and both companies have already met the PR19 2024-25 performance commitment level (and Yorkshire Water is forecasting to in 2019-20).[381] We consider that this demonstrates that it is possible to meet our cost benchmark and meet the water supply interruptions 2024-25 performance commitment level.

5.32 For wholesale wastewater, it is even clearer that it is possible for efficient companies to meet our performance commitments. As shown in table 7.3 of our 'Introduction and overall stretch' document, on wholesale wastewater Severn Trent Water, Wessex Water and Northumbrian Water are cost efficient based on historical expenditure. All of the three efficient companies perform well on service quality. Wessex Water has been upper quartile for both internal sewer flooding and pollution incidents, and has already met the 2024-25 performance commitment level for internal sewer flooding. Northumbrian Water has met the

[378] Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', chapter 10.
[379] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 219, paragraph 896.
[380] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 7.
[381] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', Tables 7.2 and 7.4. The upper quartile for water is defined as between the fourth and fifth company.

2024-25 performance commitment level for pollution incidents. And even Severn Trent Water is the fourth ranked company on both internal sewer flooding and pollution incidents (the upper quartile is defined as between the third and fourth company for wastewater).

Costs of improving performance on leakage and water supply interruptions

5.33 Anglian Water states that companies have provided historical and forward-looking cost and performance evidence that it costs more to improve their performance on leakage and water supply interruptions.[382]

5.34 As we cover above, we recognise that it is more difficult for companies performing well to reduce leakage further. Therefore, we provided additional funding to companies that are performing well and are beyond the forecast upper quartile. We provide further detail in chapter 3 above, 'Cost efficiency'.

5.35 None of the evidence that Anglian Water provides suggests that it requires an uplift of base expenditure allowances to meet its PR19 water supply interruptions level. Our base cost models include the expenditure required to meet its PR14 commitments and the improvement in the level of performance it has made over this period. Anglian Water has achieved a 46% reduction in water supply interruptions to its best performance year in PR14. It only needs to achieve another 32% reduction on that year to meet its 2024-25 performance commitment. We provide further detail in 'Outcomes – common issues'.[383]

Other issues raised by Anglian Water

5.36 Table 5.2 sets out other points made by Anglian Water in its submission in relation to the overall stretch across costs and outcomes and our response to each of those points.

Table 5.2: Other issues on the overall stretch across costs and outcomes raised by Anglian Water in its submission

Other issues raised in Anglian Water's submission	Summary of our response
Anglian Water and Economic Insight (on behalf of Northumbrian	Our approach is designed to satisfy our statutory duties taken in the round, in particular by ensuring that current and

[382] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 224-5, paragraphs 921-2.
[383] Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', chapter 9.

Other issues raised in Anglian Water's submission	Summary of our response
Water, Yorkshire Water and Anglian Water) states that the overall level of stretch across costs and outcomes is inconsistent with Ofwat's duties as there has not been historic outperformance of price controls.[384] Economic Insight also state that there is no evidence of 'substantial, systematic and persistent historical outperformance' in the sector, and there is no case for a step change in performance, as they claim there has not been historic outperformance of price controls.	future customers pay no more than efficient costs and receive high quality services from their water company. Our proposal for a step change is not based on historical outperformance, however it is informative in particular on how companies respond to the challenges that we set. Water companies, including Anglian Water have consistently outperformed their totex allowances over the past four price controls. Anglian Water's average totex outperformance is 5.7% and it has earned significant outperformance payments on two of its three PR14 upper quartile performance commitment levels. Anglian Water has also outperformed their base return having total shareholder return in excess of 10%. We consider the overall level of stretch across costs and outcomes is stretching but achievable for an efficient company. Our detailed response to this issue can be found in chapter 6 of 'Introduction and overall stretch'.
ICS (on behalf of Anglian Water) states that a company's silence on a specific issue does not signify acceptance of the determination on that issue.[385]	Thirteen companies did not dispute the final determinations while four companies did. Some of these companies such as Dŵr Cymru and United Utilities proposed significant improvements in cost efficiency in their business plan. PR19 used comparative benchmarking on costs and outcomes and a single industry allowed return on capital and so allowing comparison across companies. Overall the stretch for the disputing companies is lower than it is for a number of companies that accepted the final determination. These companies accepted the determinations in the round, and so it seems reasonable to assume that those companies that accepted the determinations considered that the overall level of stretch was achievable and they could meet their performance commitments within the funding allowed. Our detailed response to this issue can be found in chapter 7 of 'Introduction and overall stretch'.
Economic Insight (on behalf of Anglian Water, Northumbrian Water and Yorkshire Water) state that it is problematic to draw strong policy inferences from any out or under performance observed only over a short time horizon.	As explained at final determination, the totex and outcomes regimes was only introduced in PR14, so we consider it most appropriate to focus on outperformance during the PR14 period. However, analysis of companies' historical performance of actual total expenditure versus their allowance in the final determination, shows that Anglian Water have outperformed their totex allowance in each of the previous four price control periods. Anglian Water has material totex allowance outperformances over these control periods, averaging 5.7%. Our detailed response to this issue can be found in chapter 6 of 'Introduction and overall stretch'.

[384] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 230, paragraph 940.
[385] ICS, 'Exploring the relationship between service quality and costs – by ICS Consulting in collaboration with Anglian Water', March 2020, p. 8.

Other issues raised in Anglian Water's submission	Summary of our response
Economic Insight (on behalf of Anglian Water, Northumbrian Water and Yorkshire Water) states that Ofwat's claim that its challenge is no greater than the past is at odds with its stated objective of driving a step change in the industry.[386]	The overall level of stretch on costs and outcomes in PR19 is similar to PR14, with the key difference being that we have 'baked in' the performance improvements we expect companies to make in the price control. Our stretch on outcomes is similar to that which has been achieved in PR14. For Anglian Water, the stretch on historic base costs is just 2.7%, which is below the sector average. At the same time, as we show in 'Introduction and overall stretch', company improvement over PR14 provides insight into the achievability of the performance commitment levels we have set.[387] Our detailed response to this issue can be found in chapter 4 of 'Introduction and overall stretch'.
ICS (on behalf of Anglian Water) states that we fail to indicate where average or upper quartile performance is represented on the scatter plot.[388]	We do not consider this a shortcoming of our approach to illustrating the relationship between service quality and cost efficiency. We clearly indicate average and upper quartile performance in the ranking tables we provided at final determination[389] and again in our introduction to the CMA.[390] Our detailed response to this issue can be found in chapter 7 of 'Introduction and overall stretch'.
Anglian Water[391] and ICS[392] (on behalf of Anglian), state that we have shown the relationship between levels of service quality and levels of cost efficiency when we should be concerned with the relationship between changes in service quality and changes in cost efficiency.	While changes in rankings over time could in theory be informative, historical cost and service quality rankings can be impacted by a range of factors in any one year. We therefore consider it is more robust to consider rankings averaged over a reasonable period of time, particularly cost efficiency which can be affected by timing of expenditure across individual years. Consistent service quality rankings can only be identified over a five-year period. We do not consider that five years provides a sufficient period of time to both: average rankings across a sufficient period of time; and allow for two distinct periods to allow the change in rankings to be examined. We therefore we do not consider that examining changes in rankings over time would be robust.

[386] Economic Insight, 'Top-down analysis of the financeability of the notionally efficient firm – A follow on report for Anglian Water, Northumbrian Water, and Yorkshire Water', March 2020, p. 4.
[387] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 5.
[388] ICS, 'Exploring the relationship between service quality and costs – by ICS Consulting in collaboration with Anglian Water', March 2020, p. 17.
[389] Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and cost of capital policy appendix', December 2019, p. 39.
[390] Ofwat, 'Reference of the PR19 final determinations: Cross-cutting issues', March 2020, A1 Overall stretch appendix, pp. 80-2.
[391] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 223, paragraph 917.
[392] ICS, 'Exploring the relationship between service quality and costs – by ICS Consulting in collaboration with Anglian Water', March 2020, p. 16.

Conclusion

5.37 Anglian Water suggests that our analysis of the company level relationship between cost efficiency and service quality is flawed. As set out above and separately in 'Introduction and overall stretch', our analysis remains robust after taking into account the points raised by the disputing companies. We continue to consider that at a company level there is a positive correlation between cost efficiency and service quality. And unlike that proposed by some companies, we do not observe an inverse relationship between service quality and cost efficiency. Some companies have managed to achieve high service quality and cost efficiency, and so the impact on cost efficiency should not be used as an excuse for other companies to not achieve the same level of service quality as their peers. **We do not dispute that Anglian Water has delivered high service quality in the past. We do dispute whether it is proposing to deliver those services at an efficient cost in the future, and in particular why it requires more money than other companies to meet the same performance commitment levels.**

6. Aligning risk and return

Summary

6.1 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.

6.2 **We are satisfied that our final determination for Anglian Water provided an appropriate balance of risk and return**, with significant scope to earn upside from outperformance with modest negative skew overall to its overall risk range, driven primarily by ODIs.

6.3 **Anglian Water's determination is financeable on the notional structure**. We advanced revenue of £80 million from future periods through pay as you go (PAYG) adjustments. Following the revenue advancement, we assessed the financial ratios on the notional structure to be consistent with a credit rating two notches above the investment grade. Consistent with the PR19 methodology and our approach at previous price reviews, our financeability assessment was on the basis of the notional capital structure and before taking account of reconciliation adjustments for past performance.

6.4 **Anglian Water is a highly geared company**. It reported gearing of 79% as at 31 March 2019. It is the company's responsibility to maintain its financial resilience under its actual financial structure. Our final determination set out how we will closely monitor the steps Anglian Water takes so that financial resilience is maintained in 2020-25.

6.5 Table 6.1 highlights the key points made by Anglian Water in its submission in relation to risk and return and a summary of our response to each of those points.

Table 6.1: Key issues on risk and return raised by Anglian Water in its submission

Key issue in Anglian Water's submission	Summary of our response
Unacceptable balance of risk and return. Anglian Water states that the final determination provides an unacceptable balance of risk and return that will not allow the company to properly finance its functions. It also does not provide effective incentives to improve service for customers. It claims Ofwat has failed to achieve	Efficient companies have significant scope to outperform our determinations. Anglian Water has had significant opportunity through the price review process to provide convincing evidence in support of its circumstances. There are significant risk protections in place, including inflation indexation, totex cost sharing, ODIs and revenue reconciliation mechanisms.

Key issue in Anglian Water's submission	Summary of our response
the correct balance between allowed revenues, expenditure and risk. Statement of case, p. 110.	PR19 includes additional mechanisms over past price reviews that further mitigate risk, including cost of new debt indexation, tax reconciliation, bespoke incentive rates for business rates and abstraction charges and reconciliation for the relative price effects of labour costs. We provide a more detailed response below, under 'Key issue - Unacceptable balance of risk and return'.
Asymmetric cost sharing rate. Anglian Water would receive no more than 35% of the benefits of any outperformance but would pay at least 65% of the costs of any underperformance, against Ofwat's allowances. The company claims it is incentivised simply to implement the final determination in whatever way it can but not to improve upon it; it claims the cost sharing scheme penalises companies which put forward evidence-based plans, as Anglian did, that Ofwat does not support. Statement of case, p. 119, paragraphs 507-8.	Asymmetric cost sharing rates were introduced to simplify the menu incentive applied at PR14, to (i) maintain strong incentives on companies to deliver stretching cost estimates in business plans in the context of asymmetric information and (ii) to provide ongoing incentives for cost efficiency. Asymmetric sharing is a long-standing tool used by Ofwat and in other regulated sectors. Anglian Water's arguments on cost sharing rates must be considered taking account of the wider aims of the incentive regime and with consideration of the impacts over the long term. We provide a more detailed response below, under 'Key issue - Unacceptable balance of risk and return'.
Cost of capital too low. Ofwat's assessment of the WACC is significantly less than Anglian Water's cost of capital. The shortfall in allowed returns is exacerbated by the risk of the final determination package in the round. Statement of case, p. 5, paragraph 22.	Anglian Water requests a higher allowed return (2.5% - 2.9% in RPI terms) than was included in its business plan (2.4% in real RPI terms). Our determination provides a reasonable return for an efficient company and there is significant opportunity for Anglian Water to outperform our determination on cost, service and financing outperformance, aligning its own interest with those of customers. We discuss the calculation of the allowed return on capital below, under 'Key issue - Calculation of the allowed return', and provide further detail in chapter 3 of 'Risk and return – common issues'.
Cost of capital calculation errors. Anglian Water argue that the components of the cost of capital have been skewed by Ofwat towards a lower WACC. It argues that a material part of the WACC reduction is a result of a fundamental methodological change, particularly in respect of the Total Market Return (TMR) and the cost of embedded debt.[393] Statement of case, pp. 227-9, paragraphs 925-32.	The CMA's provisional determination for NERL is consistent with our determination on the components of the allowed return that are relevant to this determination (total market return and risk free rate). We have set the cost of embedded debt by reference to a market benchmark; our outperformance adjustment to the market benchmark takes account of evidence that water companies are persistently able to outperform the benchmark.

[393] Anglian Water, 'PR19 CMA Redetermination – Statement of Case', April 2020, p.121, paragraphs 518-519

Key issue in Anglian Water's submission	Summary of our response
	We provide a more detailed response below, under 'Key issue - Calculation of the allowed return'.
Financeability adjustment error. Our determination advanced £80 million of revenue through pay as you go adjustments. The company claims this does not help preserve credit ratings as rating agencies have explicitly stated they will not include PAYG adjustments in their calculations. Statement of case, p. 121, paragraph 520.	Revenue advancement through pay as you go is the most appropriate approach to address a financeability constraint taking account of our duties. Cash flow profiling adjustments more fairly balance customer interests than permanent increases to customer costs through uplifting the allowed returns to equity.[394] Our 'Risk and return - common issues' document sets out that the revenue advanced in final determinations does not adversely impact the long term financial resilience of the sector. We provide a more detailed response below, under 'Key issue - Financeability'.
Financeability. Anglian Water argues it falls short of meeting the thresholds to maintain a Baa1 rating under the key credit metrics adjusted interest cover ratio and funds from operations to net debt on the basis of the notional capital structure. It further argues there is insufficient headroom in relation to the key credit metrics to conclude Anglian Water is financeable on the basis of the notional capital structure. Statement of case, p. 31, paragraphs 167-8.	Evidence that efficient companies with gearing close to our notional level can maintain a credit rating two notches above the minimum investment grade supports our view that the final determinations are financeable on the basis of the notional structure. We provide a more detailed response below, under 'Key issue - Financeability'.
Misallocation of opex and capex. Anglian Water argues that the growth expenditure included in the Botex Plus model had a significantly higher proportion of capex than its base costs overall. For companies where Ofwat's cost challenge on growth expenditure was higher than its challenge on base expenditure, this approach led to a misallocation of opex as capex which is used to derive PAYG rates. Anglian Water claims the financial ratios are overstated as it would incur an additional c.£157m of opex and consequently have less revenue than the final determination states. Statement of case, p. 11, paragraphs 27-59.	The PAYG rates applied in the final determination were consistent with the basis set out by Anglian Water in its business plan, adjusted for changes made to base and enhancement costs. We do not consider base and growth separately for the purpose of calculating the split of opex and capex. We model base and growth costs together as both types of expenditure have similar cost drivers and to minimise cost allocation inconsistencies between them. We do not separately challenge base and growth costs, rather we have a single challenge for both costs. We have changed aspects of our approach to modelling base and growth costs, such as making an additional allowance for high growth companies. We provide a more detailed response below, under 'Key issue - Misallocation of opex and capex'.
Financing duty. Anglian Water claims the findings in the final determination are	The financial ratios and the levels of the financial ratios assessed in our determination

[394] Ofwat, 'PR19 final determinations: Aligning risk and return technical appendix', December 2019, pp. 83-7.

Key issue in Anglian Water's submission	Summary of our response
incompatible with its financeability duty. Anglian Water states that the CMA has previously noted that when 'assessing financeability, it is good regulatory practice to consider the views of the credit rating agencies, and by implication, the financial ratios they partially base their views on'. Anglian Water claims the final determination does not deliver financial metrics compatible with a credit rating of Baa1 or higher for the notional company and does not address the underlying flaws in the balance between allowed revenues and expenditure. Statement of case, pp. 105-6, paragraphs 441-5.	draw on the approaches adopted by the credit rating agencies and the levels of financial ratios for the notional capital structure on which financeability in business plans was based. We do not adopt exactly the same definitions of financial ratios as used by the credit rating agencies as each credit rating agency has its own distinct methodology and makes adjustments to take account of the specific circumstances of each company, taking account of non-regulated activity and past financing decisions of actual structures. We provide a more detailed response below, under 'Key issue - Financeability', and discuss how we have met our duties in chapter 2 above, 'General issues', and chapter 3 of 'Introduction and overall stretch'.
Gearing outperformance mechanism. Anglian Water states that there is no basis for Ofwat's introduction of the gearing outperformance sharing mechanism in PR19 for the following reasons: • the mechanism is unjustifiable in principle; • Anglian Water's real world performance shows the mechanism is unjustified; and • the introduction of the mechanism undermines the stability of the regulatory regime. Statement of case, pp. 29-31, paragraphs 151-62.	The gearing outperformance mechanism was introduced as we concluded that company decisions that increase gearing levels materially above the notional level are not appropriately aligned to the interests of customers. Where companies adopt high levels of gearing, they may increase risk to equity investors and reduce financial resilience, they also may transfer some risk to customers and/or potentially taxpayers, in the event that a company fails. We provide a more detailed response below, under 'Key issue – Gearing outperformance mechanism'.

Considerations for the CMA

6.6 **The issues raised by Anglian Water on risk and return, including the balance of risk and return, the calculation of the allowed return and financeability predominantly relate to the common application of our policy across companies.** While we summarise our response to the issues raised by Anglian Water in the following sections, we refer the CMA to our 'Risk and return – common issues' document for a more detailed discussion of our view on the common issues.[395]

[395] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case'.

6.7 **Anglian Water requests an allowed return that is materially higher than its business plan or its representations**. It states an allowed return in the range 2.5% to 2.9% (RPI basis).[396] It is materially above the return included in the company's April 2019 revised business plan of 2.40% (RPI basis), equivalent to 3.40% in CPIH terms.

6.8 Anglian Water has not stated disagreement with our approach to adjusting the Appointee allowed return for the **retail margin** to calculate the wholesale allowed return and states agreement with our approach to adopting a **notional** capital structure.[397]

6.9 Companies were very clear on our approach to cost sharing from the beginning of the review. Anglian Water did not raise concerns with the cost sharing rates in its response to our draft PR19 methodology and it has not raised the same concerns during the price review process as it raises in its statement of case.

Our response to key issues raised by Anglian Water

Key issue – Unacceptable balance of risk and return and asymmetry

6.10 Anglian Water argues that the final determination results in an asymmetric package of measures which is unfinanceable. The company claims that:

- the underfunding of Anglian Water's plan is exacerbated by the 'at risk' elements of the package being strongly **skewed** towards penalties rather than rewards;[398]
- high penalties relative to low rewards and unattainable levels translate into a pronounced downside skew where companies are likely to trigger penalties even if improving performance levels;[399]
- the final determination imposes **cost-sharing rates** for total revenue controls that are heavily skewed towards penalties. Anglian Water would receive no more than 35% of the benefits of any outperformance but would

[396] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 9, paragraph 136.
[397] For example, Anglian Water claim the final determination is not financeable on a notional basis because of two key elements (i) allowed expenditure and (ii) the allowed return, as set out in Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 307, paragraphs 1292-3.
[398] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 5, paragraph 21.
[399] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 18, paragraph 105.

pay at least 65% of the costs of any underperformance, against Ofwat's allowances;[400]and

- in the round, the final determination creates an untenable asymmetry between risk and return and is unfinanceable on a notional and actual basis.[401]

6.11 We disagree with Anglian Water's assertions on expected **skewed** returns. The cost allowances and performance commitment levels included in our final determination are stretching but achievable for an efficient company. Our determination provides Anglian Water with a reasonable return if it meets the cost allowances and performance commitments set out in our determination on the basis of the notional structure. The company has significant scope to earn upside from outperformance with modest negative skew overall to its overall risk range, driven primarily by ODIs.

6.12 ODIs are intended to incentivise companies to follow through on their business plans, and only go further where this is what customers want. While we recognise ODIs are impacted to a degree by exogenous risk, company management has material influence over ODI performance – this is a company-specific risk and is thus to a large extent diversifiable. We set out the evidence on past performance on ODIs in further detail in the 'risk and return – common issues' document.

6.13 In the PR19 methodology consultation, companies had full sight of our intention to remove cost sharing menus applied at PR14 and to introduce asymmetric **cost sharing rates**. Our aim in doing so was to simplify the regulatory approach compared with PR14, and to provide increased incentives on companies to deliver stretching cost forecasts in business plans in addition to providing ongoing incentives to deliver cost efficiency and protection in the event of overspend. It is not appropriate to consider the rationale for asymmetric cost sharing rates without broader consideration of the rationale for adopting the cost sharing mechanism.

6.14 Anglian Water had significant opportunity through the PR19 process to convince us of the need for the costs requested in its business plan (including those for resilience), which it failed to do. Our approach recognises there is an asymmetry of information between companies and us (and in the case of the redetermination, the CMA), and in the absence of appropriate incentives, companies are likely to bid up requested cost allowances. Our approach

[400] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 21, paragraph 114.
[401] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 37, paragraph 187.

ensures companies that have the most efficient business plans and subsequently deliver the most efficiencies retain the greatest share of outperformance; companies with the least stretching plans and that deliver the least efficiencies bear a greater proportion of the cost of underperformance.

6.15 But it is important to recognise any decisions the CMA takes that affect the totex cost sharing rates in our final determination could impact on the incentives for submission of efficient business plans in the future. We submit that the CMA should retain the cost sharing rates in our final determination for the disputing companies. We would welcome further engagement with the CMA on this issue.

6.16 Evidence presented in the 'Risk and return – common issues' document shows that Anglian Water outperformed the cost allowances we set in all of the last four control periods.[402] Anglian Water, if efficient, can continue to deliver its commitments and obligations to customers within the cost allowances we set, with strong incentives to outperform. We discuss these issues further in the 'Risk and return – common issues' document.[403]

Key issue - Calculation of the allowed return

6.17 Anglian Water claims that there are errors in the way we have calculated our allowed return. The company argues that:

- our use of the Bank of England's historical CPI series to derive estimates the **total market return** is problematic as the series contains some data that is not official, contains mistakes, and is upwardly biased, understating the total market return. The company argues that total market return should be estimated using historical RPI;[404]
- it is inappropriate to base our ex-post estimate of **total market return** on a single estimator, rather than a range of estimators, as featured in previous CMA redeterminations;[405]

[402] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', Table 2.1.
[403] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', chapter 2.
[404] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 27, paragraphs 137, 1102-1117.
[405] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 27, paragraphs 137, 1119-21.

- we should apply an upward volatility adjustment to our ex-ante estimates of **total market returns** from dividend growth models;[406]
- our forward-looking dividend discount model evidence to inform our estimate of **total market return** is selective and our consultants' figures suggest a higher value;[407]
- the point estimate for the **risk-free rate** should be set some way between current gilt rates and Bank of England's 2018 estimate of the forward-looking equilibrium rate;[408]
- our focus on 2 year daily beta estimates understates beta and 5 year monthly **betas** should be preferred;[409]
- the estimate of **beta** should include a Vasicek adjustment;[410]
- the application of an '**outperformance wedge**' to the iBoxx A/BBB when calculating the allowed **cost of debt** is miscalibrated, as no outperformance exists once tenor and credit rating is controlled for;[411]
- the trailing average used to set the allowed return on **embedded debt** using the iBoxx A/BBB should be 20 years rather than 15, as the company's debt issued in the 2000-05 period was efficiently incurred;[412]
- excluding the cost of swaps miscalibrates the cost of **embedded debt** allowance set by Ofwat for final determinations;[413] and
- the actual **cost of debt** should be accepted as long as it has been incurred efficiently.[414]

6.18 We respond to all of the above issues in the 'Risk and return – common issues' document.[415] We summarise our position below.

6.19 We consider that Anglian Water's argument that historical RPI is to be preferred to historical CPI when estimating **total market return** is based on a

[406] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 10, paragraph 138.
[407] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 10, paragraph 138.
[408] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 27, paragraph 134.
[409] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 283, paragraphs 1154-8.
[410] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 283, paragraph 1158.
[411] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 284-5, paragraphs 1172-6.
[412] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 285-6, paragraphs 1177-9.
[413] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 286-7, paragraphs 1180-3.
[414] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 287, paragraphs 1184-9.
[415] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', chapter 3.

misunderstanding of the historical evidence and a serious understatement of the drawbacks inherent to using RPI in this context. The company's unusual RPI-CPI 'wedge' calculations are based on a comparison using the flawed Cost of Living Index (COLI).We argue this highlights the inappropriateness of the COLI, not the historical CPI series we used. Our review of the ONS data revision in CPI between 1988-1996 cited by the company finds that it is small (an 0.01 percentage point change on average) and easily corrected for in these years; such a minor revision does not justify rejecting the series altogether. While it is true that for certain date ranges the historical CPI series we used to inform our estimate of was not an official statistic, this is also the case for RPI, which was de-designated as a national statistic in 2013, and is currently subject to a consultation proposing to effectively cease its calculation as early as 2025. We consider the use of RPI to estimate total market return would overcompensate investors, due to the structurally higher formula effect present in latter-day RPI which did not exist historically. This final consideration in our view outweighs any of the relatively minor objections to using the historical CPI series.

6.20 We do not accept the company's claim that any 'ex-post' estimate of **total market return** should be at least as high as the arithmetic average, noting various academic papers which conclude that an investment horizon-weighted average of geometric and arithmetic averages maximises various desirable traits in the estimator (e.g. unbiasedness, efficiency). We concluded in our own analysis that efficiency should be the main consideration, using an investment horizon-weighted estimator shown to maximise this. We recognise that any direct reliance on the arithmetic average may be distorted by exchange rate effects, and a more robust approach may be to make an adjustment directly from the geometric average to reflect the impact of serial correlation and holding periods. Our estimate reflects the contribution of both an estimator which maximises efficiency and making an adjustment to the geometric mean.

6.21 We do not agree that a 'bias adjustment' is required to the outputs of dividend growth models providing estimates of **total market return**, noting that the premise which originally justified making this adjustment (volatility in capital growth being higher than income yield growth) does not apply in recent UK data, and also that using GDP as a dividend growth proxy arguably captures the dynamics of capital growth. We also note the contradicting statements made on the necessity of the uplift by a co-author of the company's KPMG report in their previous academic output.

6.22 Since our 'early view' cost of capital in December 2017, we have been consistent in our use of dividend discount models to inform estimates of **total**

market return. Then, as now, we used 5 year averages of dividend discount model outputs, as the high degree of volatility makes spot estimates unsuitable to inform our estimate for total market return for a 5 year period. Europe Economics has found through statistical tests and academic research that 5-year rolling averages are a better predictor of future returns than spot values. These 5 year averages gave a total market return range for our final determinations of 6.1-6.9% in CPIH terms.

6.23 With respect to the **risk-free rate**, we find that there is no evidence that our preferred proxy (the 15 year RPI-linked gilt rate) has converged towards the 'equilibrium rate' proposed by the company in recent months. Indeed, our analysis for final determinations indicated a market-implied view that 15 year rates will stay negative in CPIH-deflated terms as far out as 2029. We consider caution should be exercised before assuming that the market is wrong.

6.24 Statistical analysis by Europe Economics has found no evidence of downwards bias in daily **equity beta** data, while we consider that a point estimate drawing on 2 year and 5 year data (as used in our final determination) strikes the right balance between data that is recent enough for a forward-looking estimate of beta, and an estimation window that is long enough to not be unduly influenced by transient events. We consider that the imprecision in 5 year monthly betas which requires a Vasicek adjustment to correct should be interpreted as a reason to focus on 2 year data, in preference to placing weight on the company's poorly-justified prior assumption that the water sector beta is the same as the market index. As referenced in the accompanying report we submit, from Europe Economics, an unlevered beta of 0.29 remains justified following the approach the CMA has adopted in its provisional findings for the determination of NATS En-route Limited. Indeed Europe Economics retains the view it could be 0.26. [416]

6.25 While in principle controlling for tenor and credit rating would be appropriate if our aim was to isolate the debt pricing benefit of being a regulated water utility (we refer to this as the 'halo effect'), this is not relevant to our exercise of setting an allowed return. Our approach, in line with our statutory duties, is to set an allowance for the cost of debt which is reflective of efficient borrowing costs and which does not materially overcompensate companies for these costs. Our analysis of nominal debt of at least 10 years to maturity at issuance indicates material and sustained outperformance over the period 2000-2018. We therefore consider it appropriate to calibrate the level of the index for the

[416] Europe Economics, 'Further Advice on the Allowed Return on Capital for the Water Sector at PR19 – Betas and Gearing', provided as R033, May 2020, pp. 3-4.

observed '**outperformance wedge'** to make it a better fit for the debt costs the sector is observed to actually achieve.

6.26 Consistent with our approach at previous price reviews and that of other regulators, we do not agree with the company's proposal that its allowed **cost of debt** should be based on its actual characteristics, such as swap costs, or the timing of its debt issuance. These proposals undermine our notional approach to setting the allowed cost of debt, which has demonstrated important benefits in terms of incentivising efficient issuance and protecting customers from the risks of actual financing decisions. We consider that in the specific case of Anglian Water, debt raised in the period 2000-05 coincided with a step change in gearing and atypically high shareholder distributions. It would therefore be particularly unjustified to raise its customers' charges for this non-operational use of finance. We do not consider the inclusion of swaps is liable to increase the accuracy of any estimate of the efficient cost of debt. Whereas they may have debt-like characteristics (e.g. a coupon, and notional principal), swaps have many purposes, and may give a misleading impression of the cost of raising debt finance.

Key issue - Financeability

6.27 Anglian Water claims that its final determination is not financeable on the basis of the notional structure. The company argues our conclusion rests on unjustified assumptions and adjustments in the financial assessment and in the balance of risk and return.[417]

6.28 Anglian Water claims its final determination falls well short of meeting the thresholds to maintain a Baa1 credit rating under the key metrics of adjustment interest cover and funds from operations to net debt on the basis of the notional structure, setting out that:

- the £80 million revenue advanced applies **a short-term solution** to a long-term financeability issue and is **discounted by credit rating agencies**;
- the final determination overstated the available revenue as it **misallocated £157 million of operating expenditure as capital**; and
- we have **underestimated the cost of embedded debt** leaving the company underfunded for its debt interest.[418]

[417] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 293.
[418] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 294-5.

6.29 Anglian Water also claims that there is **insufficient headroom** in relation to the key credit metrics due to:

- our calculation of adjusted interest cover being at the lowest end of the range required for a Baa1 rating and funds from operations to net debt below this; and
- the significant increase in the totex efficiency challenge and the asymmetric skew in regulatory incentives and cost-sharing ratios meaning there is a significant risk of underperformance which would trigger a downgrade.[419]

6.30 The key issues raised by Anglian Water in relation to financeability are broadly common with some of the issues raised by the other disputing companies. Our determination provides Anglian Water with a reasonable return if it meets the cost allowances and performance commitments set out in our determination on the basis of the notional structure. We discuss these issues further in the 'Risk and return – common issues' document. And, as noted in chapter 2 above , 'General issues', the issues raised by the company are not in truth 'hard-edged' questions about whether we have failed to meet our statutory duties, but rather disagreements as to the merits of decisions we made in the final determination.

6.31 Since we made our final determinations, we have seen evidence that companies with gearing levels close to the notional capital structure are able to maintain a credit rating two notches above the minimum investment grade (Baa1/BBB+); we set this evidence out in the 'Risk and return – common issues' document.

6.32 Anglian Water is currently rated Baa1 by Moody's and its senior debt is rated A- by Fitch and Standard & Poors under its actual structure. Fitch recently downgraded this rating from A, whilst Moody's rating has a negative outlook and Standard & Poors rating is on watch negative. In recent credit opinions, each rating agency has suggested that the ratings will continue to be under pressure even with a more favourable settlement from the CMA suggesting there are factors outside of the final determination contributing to the ratings.[420] Even if senior debt is downgraded by one notch by Fitch and S&P, Anglian

[419] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 295.
[420] Moody's, February 2020 – sets out that the rating will continue to be under pressure even if the CMA fully allow Anglian Water's investment plan; Fitch Ratings – Fitch downgrades Anglian Water and Osprey, March 2020 – states that it does not expect a favourable outcome from the CMA process to be sufficient to maintain Anglian Water's credit quality; S&P – Four UK-based water utilities downgraded on tougher regulations; two put on negative watch; four outlooks negative, February 2020 – sets out that S&P will lower ratings on Anglian Water's debt absent a significant improvement in operating conditions over the next regulatory period.

Water's debt would be rated two notches above the minimum investment grade.

Assessing financeability

6.33 Anglian Water does not dispute the use of the notional company structure to assess financeability.[421] Anglian Water characterises our financeability assessment by three important assumptions:

- that companies should **target a Baa1** rating and be able to raise financing at this level;
- that **credit ratios need to be assessed in the round**; and
- that **PAYG adjustments are an appropriate response** to financeability constraints.[422]

6.34 We did not set **target credit ratings** for our determinations at PR19. It was the responsibility of the companies to propose target credit ratings for the notional and actual company structures appropriate to their investment needs. All companies targeted two notches above the minimum grade in their April 2019 revised business plans. We considered this to be a reasonable basis for the financeability assessment in our final determination.

6.35 As set out in chapter 2 above, 'General issues', and in the 'Introduction and overall stretch' document, we disagree that our financing duty requires us to exactly replicate rating agencies' methodologies in making our financeability assessment.[423] For example, the credit rating agencies make adjustments to financial ratios in assessments to take account of factors for actual company structures that are not relevant to the notional capital structure.

6.36 Our financeability assessment considers whether, when all of the individual components of our determination are taken together (including totex, allowed return and retail margin, pay-as-you-go (PAYG) and RCV run-off levers), an efficient company with the notional capital structure will be able to generate cashflows sufficient to meet its financing needs.

[421] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 307, paragraphs 1292-3. Anglian Water discusses the factors it requests the CMA to adjust to ensure Anglian Water is financeable on the basis of a notional basis.
[422] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 296-7, paragraphs 1224-6.
[423] Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', chapter 3.

6.37 Anglian Water acknowledges that the extent to which financial ratios impact on the final rating is dependent on a range of considerations, including the quality of the regulatory regime and the company's business profile.[424] We recognise that certain rating agencies place more focus on certain factors and ratios than others. We set out evidence in the 'Risk and return – common issues' document that rating agencies also make an in the round assessment of financial ratios whereby a strong metric for one ratio such as gearing can offset a weak interest cover metric.[425]

6.38 Each water company has credit ratings from up to three rating agencies, Fitch, Moody's and Standard and Poor's. Each rating agency has different rating methodologies and apply variations to these depending on the specific circumstances of each company. The different focus across rating factors as well as the focus on different financial ratios, along with differences in the way these are calculated leads to variations in the level of credit ratings for water companies across the rating agencies.

6.39 We also note that the guidance provided by credit rating agencies varies over time. **Strict adherence to rating agency methodologies would result in the cost to customers being influenced by the opinions of credit rating agencies**. We provide further explanation of this issue in the 'Risk and return – common issues' document.

6.40 Anglian Water claims that the final determination does not deliver **financial metrics compatible with a credit rating of Baa1** or higher for the notional company.[426] Anglian Water submitted analysis which it updated as part of its representations to the draft determinations which it claims demonstrates that the notional company was not financeable at the allowed return on capital.[427]

[424] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 297, paragraph 1230.
[425] For example, in Moody's recent credit opinion for Portsmouth Water, Portsmouth Water Limited, Update following rating confirmation at Baa1, negative, March 2020, p. 2, Factors that could lead to a downgrade, Moody's state 'In addition, the rating could be downgraded if Portsmouth Water was likely to exhibit gearing, measured by net debt to regulatory capital value (RCV), above 80%, and an Adjusted Interest Coverage Ratio (AICR) persistently below 1.5x. We note, however, that significant gearing headroom may allow the company to sustain an AICR slightly below this level.'
[426] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 300, paragraphs 1246-8.
[427] Anglian Water, SOC134, 'Notional company financeability (April 2019)'; SOC199, 'Notional company financeability (August 2019 update)'.

6.41 Anglian Water goes on to argue that **the use of PAYG adjustments to ensure financeability is not appropriate**.[428] Anglian Water sets out that it did not seek an adjustment at PR19. It claims this raises three problems:

- it is not justified because PAYG adjustments should not be used to address long-term problems;
- it is not a workable solution because the rating agencies look through such adjustments; and
- it is contrary to customers' preferences to maintain natural rates for financial levers.

6.42 We carried out similar analysis to that of Anglian Water based on the allowed return at the final determination, noting that the adjusted interest cover ratio for the notional company is consistent with the level at PR14. We set out the results of our analysis in the 'Risk and return – common issues' document'.[429]

6.43 We explain the financeability challenge inherent in PR19 in our final determinations, which we summarised in our 'introduction to the CMA'[430] and repeat in the 'Risk and return – common issues' document[431]. In summary: as the real allowed cost of debt is lower than the equivalent nominal cost of debt, for a company whose RCV growth is financed mainly by debt, a mismatch can arise in allowed cash flows because the real return is insufficient to cover nominal interest costs. This issue is exacerbated at PR19 because the real return, as a proportion of the notional return is low in comparison with past determinations for the RPI-indexed part of the RCV.

6.44 The transition to inflate part of the RCV by CPIH mitigates the financeability challenge to some extent. Revenue advancement is equivalent in effect to a faster transition to CPIH, which is recognised to improve cashflow headroom for the notional company in 2020-25,[432] and was requested by, and adopted, for

[428] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 300-1, paragraphs 1249-53.
[429] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', chapter 4, Table 4.4 shows the blended adjusted interest cover ratio to be 1.32x, compared to 1.29x calculated by Anglian Water in SOC134, 'Notional company financeability (April 2019)', April 2019, p. 10.
[430] Ofwat, 'Reference of the PR19 final determinations: Cross-cutting issues', March 2019, p. 66.
[431] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', chapter 3.
[432] Moody's Investor Services, 'Ofwat tightens the screws further', July 2019, pp. 3-5. Moody's recognises the impact of partial transition to CPIH on the adjusted interest cover ratio. However, Moody's states there is a difference between the switch to CPIH which it views as a permanent change while PAYG and RCV run-off rates are partly within companies' control and can change between periods.

two companies – United Utilities and Severn Trent Water – in our final determinations.

6.45 **We disagree therefore that the use of financial levers (PAYG and RCV run-off rates) to advance revenue is not appropriate. On the contrary, it is the most appropriate way to resolve the financeability constraint taking account of all of our duties.** Were the CMA to disagree with the use of financial levers as an appropriate way to resolve the financeability constraint, it could adopt alternative mechanisms, such as changes to the assumptions for gearing and/or index-linked debt for the notional company, or a faster transition to CPIH. These mechanisms will alleviate the financeability constraint in a net-present-value neutral way and maintain allowed revenues at or below our determination, all else being equal.

6.46 Applying a higher return on capital on the basis of financeability to target higher financial ratios would **provide equity investors with a return on their investment in excess of the market return**. Aiming up the allowed return at a time when cash returns are low would require a reduction in returns to below market rates in future periods; otherwise adjustments would be asymmetric and would result in customers paying more over the economic cycle. It would likely also to undermine regulatory predictability and the transparency of the determination of the allowed return on capital.

6.47 **We disagree that the financeability constraint at PR19 is a long-term issue**. The financeability constraint is particularly acute at PR19 due to the low real return on equity which is forward looking versus the allowed cost of debt which is substantially historic and includes higher interest rates before and around the time of the credit crunch.

6.48 We will reset the allowed return at PR24 based on market data at that time. At this time we expect that older more expensive debt will continue to have been refinanced for cheaper debt at lower current interest rates. This will ease pressure on interest cover ratios. Further transition to CPIH may also have a positive effect on the real return on equity at PR24. We set out in the 'risk and return – common issues' document how the evolution of the allowed return may be expected to improve financial ratios. This is supported by analysis undertaken by PwC on our behalf provided with this submission.[433]

6.49 Anglian Water also argues that it did not propose PAYG adjustments in its business plan. This was driven by certain rating agencies looking through such

[433] PwC, 'Long term financeability trends in the UK water sector', May 2020, provided as R030

adjustments and customer preferences to use the 'natural rate' to maintain intergenerational fairness.[434] Anglian Water claims we did not require the same evidence that customers support the resulting bill profiles as was required of companies.

6.50 We set out our response to the rating agencies approach to the use of financial levers in the final determinations.[435] As the challenge to financial ratios is driven by the profile of cash returns to shareholders in the short term, compared with the nominal return that is received over the long term, we consider NPV neutral cash flow profiling adjustments more fairly balance customer interests than uplifting the allowed returns to equity. As set out above, we disagree that there are fundamental differences between advancing revenue through the use of financial levers and the higher real returns achieved using CPIH as the inflationary index.

6.51 We also disagree that the use of financial levers affects intergenerational fairness between existing and future customers. The acceleration of revenue at PR19 increases real bills (excluding the effect of inflation) for the current price review period but will reduce bills for future price reviews. This more closely aligns to the bills that customers would face had the methodology allowed for full transition to CPIH, and is net present value neutral for all customers over the long term. We consider the solution is in the best interests of customers as an increase to the allowed return on capital would result in current customers paying more without a subsequent reduction in future bills.

6.52 The RCV run-off rates in Anglian Water's final determination are the same as those in its business plan. In its plan, Anglian Water claimed these were lower than its long term 'natural rates'. Anglian Water explained this was to transition to natural rates at PR24 to assist affordability and limit the impact on customers.[436] However, this benefits current customers at the expense of future customers. Our PAYG adjustment reverses this deferral of revenue to some extent whilst bills remain below the level presented to customers in Anglian Water's customer research for acceptability of its business plan.

6.53 Anglian Water claims the final determination overstates key credit metrics on a notional basis.[437] After taking account of adjustments for revenue advanced,

[434] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 299, paragraphs 1239-41.
[435] Ofwat, 'PR19 final determinations: Aligning risk and return technical appendix', December 2019, pp. 83-87.
[436] Anglian Water, 'Our plan 2020-25', September 2018, pp. 264-265
[207] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 304-5, paragraphs 1273-7.

unfunded operating expenses and unfunded debt interest costs, Anglian Water claims its adjusted interest cover is approximately 1.06x and its funds from operations to net debt approximately 8.0% on a notional basis. We do not accept that the cash flow benefit of advanced revenue should be removed from an assessment of headroom in cash flow financial metrics; we also disagree with Anglian Water's view there are unfunded costs for an efficient company.

6.54 Anglian Water claims the final determination has no headroom to allow for any underperformance whilst maintaining the credit metrics for a notional company at Baa1. Anglian Water argues an adjusted interest cover at the very bottom of what is permitted would not allow for any unforeseen shocks, or for the realisation of any of the asymmetrical risks created by the final determination. It also sets out that the funds from operations to net debt ratio is already below the level needed to maintain a Baa1 or equivalent ratio.[438]

6.55 The financial ratios on the basis of the notional structure in our final determination are higher than the financial ratios set out in Anglian Water's September 2018 business plan, and upon which it provided Board assurance of financeability.[439]

6.56 Our financeability assessment is based on an efficient company that delivers its commitments to customers within its cost allowances. Taking account of all of our duties, it is not appropriate to target higher financial ratios to increase headroom, because:

- higher financial ratios will increase costs for companies and will compensate companies for poor performance. It may dis-incentivise companies to deliver for their customers;
- the company remains strongly incentivised to outperform our determination; in a downside scenario, it has scope to manage costs and can be expected to focus on minimising ODI underperformance adjustments; and
- credit rating agencies typically consider a persistent reduction to financial ratios as grounds to review credit ratings. A one-off unforeseen shock is unlikely to lead to a rating downgrade if management can show it has plans to mitigate the issue.

[438] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 307, paragraph 1294.
[439] Ofwat, 'PR19 final determinations: Anglian Water final determination', December 2019, p. 82, Table 5.2.

6.57 Anglian Water claims that a lower credit rating would result in a higher cost of capital and have other negative consequences.[440] The company argues that it is likely to be downgraded to Baa2, which would have consequences in that the metrics for the notional company are incompatible with the iBoxx indices used as a basis for the allowed return on capital and will restrict access and increase the cost at which it can raise debt. It further argues that underfunding the cost of new debt will narrow the pool of investors and may require Anglian Water to hold additional liquidity reserves at additional cost.

6.58 We set out above and in the 'Risk and return – common issues' document that rating actions taken by credit rating agencies since our determination support that efficient companies with gearing around our notional level can maintain a credit rating two notches above the minimum investment grade. This supports our view that the final determinations are financeable on the basis of the notional structure.

6.59 Anglian Water is a company with a high level of gearing, and must remain responsible for taking steps to maintain its long term financial resilience. Even so, prior to the submission of Anglian Water's statement of case, Moody's has commented:

> 'Today's rating action reflects Moody's expectation that, although the company will not have certainty over its revenues and investment programme for a further 6-12 months, the eventual determination is likely to support credit metrics that are weakly positioned but consistent with Anglian Water's assigned ratings. Confirmation of the ratings also incorporates Moody's expectation that management will seek to defend credit quality as may be necessary. The negative outlook reflects the risk that Anglian Water may be unable to perform in line with regulatory targets for AMP7, as they may be revised by the CMA.'[441]

6.60 In the final determination we disregarded Anglian Water's use of prior period reconciliation adjustments to improve financial ratios. Our approach is consistent with the PR19 methodology and across companies, to assess financeability before taking account of reconciliation adjustments. However, Anglian Water sets out that it would not seek to fund this reward through an increase in bills.[442]

[440] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 305-7, paragraphs 1281-91.
[441] R002 - Moody's Investor Service, 'Moody's confirms ratings of Anglian Water with negative outlook and downgrades Osprey', February 2020, p. 1.
[442] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 307-8, paragraph 1294.

Key issue - Misallocation of opex and capex

6.61 Anglian Water claims we did not account for a misallocation of opex as capex when calculating the financial ratios for the financeability assessment. Anglian Water states it would actually incur an additional c. £157 million of opex and consequently have less revenue than the final determination states.[443]

6.62 Companies proposed PAYG rates based on their assessment of expenditure in their business plans. Companies typically proposed their PAYG rates to allow recovery of operating expenses, and in many cases, including Bristol Water and Yorkshire Water, to also recover infrastructure renewal expenses. Capital expenditure typically is added to RCV and recovered over a longer period through RCV run-off.

6.63 We made adjustments to PAYG rates applied in the final determinations to maintain each company's approach.[444] We amended the approach to how we made this adjustment after the draft determinations and shared the revised approach with companies ahead of the final determinations.

6.64 Anglian Water sets out that the recalculated PAYG rates result in £157 million of operating expenditure not being recovered in period. This results in the final determination overstating the adjusted interest cover and funds from operations to net debt ratios.

6.65 We set out the change to the allocation of costs between operating and capital expenditure that we made between the draft and final determinations in 'our introduction to the CMA:[445]

> 'We revised our approach to the allocation of allowed costs between those recovered in 2020-25 and those allocated to the RCV in the final determinations. For our final determination, this approach better reflected our cost challenge, separately calculating companies' proportions of operating and capital expenditure on base and enhancement costs. We shared our revised approach with companies ahead of the final determinations. Overall companies were generally supportive of our revised approach and several companies stated that this addressed the concerns they had raised previously.

[443] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 301, paragraphs 1254-7.
[444] We set out how we calculated PAYG rates for the final determinations in 'PR19 final determinations: Aligning risk and return technical appendix', December 2019, pp. 51-3.
[445] Ofwat, 'Reference of the PR19 final determinations: Cross-cutting issues', March 2020, p. 64, paragraphs 6.32-6.33.

> Anglian Water proposed that we either calculate the split of operating and capital expenditure on base, growth and enhancement separately or make an adjustment from capital to operating expenditure to account for the challenge on growth costs which it considers to be primarily capital in nature. We model base and growth costs together as both types of expenditure have similar cost drivers and to minimise cost allocation inconsistencies between them. As we do not set separate allowances for base and growth expenditure we did not consider it to be appropriate or feasible to calculate the split of operating and capital expenditure separately for base and growth.'

6.66 Anglian Water argues that while we separated the assessment of enhancement costs from base costs, noting that enhancement had a greater proportion of capex, we did not adequately account for the fact that the same logic applies to botex plus costs. The company sets out that 'the growth expenditure included in the Botex Plus model had a significantly higher proportion of capex (c.98%) than the base costs (c.33%). For companies where Ofwat's cost challenge on growth expenditure was higher than its challenge on base expenditure, this approach inevitably led to a misallocation of opex as capex.'[446]

6.67 Anglian Water argues that the disallowance of circa £318 million of its proposed circa £720 million of growth expenditure constitutes a significant proportion of the challenge on network botex plus expenditure, resulting in an understatement of operating expenditure when recalculating PAYG rates.

6.68 We set out the rationale for our revised approach in the final determinations.[447] We do not agree that we should consider base and growth separately for the purpose of calculating the split of opex and capex. We model base and growth costs together as both types of expenditure have similar cost drivers and to minimise cost allocation inconsistencies between them. We do not separately challenge base and growth costs, rather we have a single challenge for both costs. We have changed aspects of our approach to modelling base and growth costs, such as making an additional allowance for high growth companies. This may narrow the challenge on growth costs from the draft determinations. But as we do not set separate allowances we do not consider it to be appropriate or feasible to attempt to split the allowance for base and growth costs to separately calculate the split of opex and capex. Anglian Water itself acknowledges that 'the 'allowance' for growth is not directly visible'.[448]

[446] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 212, paragraph 867.
[447] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, pp. 152-3.
[448] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 13, paragraph 74.

Key issue – Gearing outperformance sharing mechanism

6.69 Anglian Water claims the gearing outperformance sharing mechanism is unjustified and incompatible with the regulatory regime.[449] Anglian Water claims:

- the mechanism is unjustifiable in principle as high gearing per se does not inherently impact the financial resilience of the company, because companies with covenanted structures generate significant customer benefits and high gearing does not generate financial benefit for shareholders;[450]
- its highly geared structure allows it to maintain a strong investment grade credit rating and has driven operational performance;[451] and
- the introduction of the mechanism breaches the principle of maintaining a stable regulatory regime.[452]

6.70 We set out the reasons why we proposed to adopt the mechanism and the reasons why we consider the application of it is consistent with accepted economic and corporate finance theory in the 'Risk and return – common issues' document.[453] The gearing outperformance mechanism aims to address a long held concern that companies and their investors enjoy all the benefits of adopting financial structures where gearing levels are well in excess of the notional level, with little evidence of benefits to customers. We considered that in the absence of benefit sharing, the regulatory arrangements could distort company incentives on choosing financing structures without full consideration of the potential impacts on customers and wider stakeholders.

6.71 Our regulatory approach has always recognised that there is no one-size-fits-all level of gearing that applies for an efficient company and companies remain able to choose a level of gearing that is suitable for their circumstances following the introduction of the gearing outperformance mechanism.

6.72 We disagree with the benefit claimed by Anglian Water that highly covenanted structures have brought benefits that have been mirrored in the ring fencing

[449] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 29, paragraph 146.
[450] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, pp. 29-30, paragraphs 151-7.
[451] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 31, paragraphs 158-60.
[452] Anglian Water, 'PR19 CMA Redetermination - Statement of Case', April 2020, p. 31, paragraph 161.
[453] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case', chapter 5.

licence conditions for water companies. The covenants adopted by companies with highly geared companies are designed to protect lenders, suggesting bond holders perceive risks associated with these structures. While recognising that our interests are different to that of bond holders and debt providers, we note that it is precisely because some companies could choose more risky structures (including high levels of debt and associated interest payments which reduce the ability of the company to manage the effect of cost shocks) that the regulatory ring fence has been strengthened over time, and our ongoing work in this area recognises the arrangements are not perfect. Although licence conditions such as the cash lock up licence conditions (where companies must restrict dividends or transfers out the regulated business where an investment grade credit rating is at risk) are important protections, they broadly cover actions we would expect prudent companies to take if their financial resilience was under threat. We are not convinced that the existence of similar mechanisms in lenders' covenants could be presented as a benefit when they are really mitigations to risks associated with different structures.

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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