

June 2020

Reference of the PR19 final determinations: Response to Anglian Water's 27 May submission to the CMA

Contents

1. Introduction	2
2. Our response to new cost issues	7
Base costs	8
Anglian Water's requested base cost increase	8
Growth.....	9
Capital maintenance.....	13
Smart metering cost adjustment claim.....	17
Enhancement costs	18
Smart metering enhancement programme	18
Supply-demand balance.....	19
Frontier shift and real price effects	20
Uplift to frontier shift from totex and outcomes framework.....	20
Application of frontier shift to enhancement costs	21
Real price effects.....	22
3. Our response to new outcomes issues	23
4. Our response to new issues around the overall stretch across costs and outcomes.....	25

1. Introduction

- 1.1 In this document we present a targeted reply to Anglian Water's 27 May submission to the Competition and Markets Authority (the '27 May submission'),¹ focused on **new materials** (evidence and/or arguments), together with short references to the **key mischaracterisations** that have been made. We also submit **additional evidence** in response to certain points made by the company. As explained in our letter of 17 June 2020, we consider it is important to provide this written reply in order to assist the CMA in its consideration of companies' submissions. In particular, having our perspective on the new materials will enable the CMA to work most effectively.
- 1.2 In the interests of brevity, we do not seek in this document to set out our answer to the very many points made with which we disagree. The CMA is already burdened with an extremely large volume of submissions and materials in this redetermination. If there are any particular respects in which we have not explained our position in sufficient detail, or where the CMA would be assisted by our response to points we have not addressed, we would be happy to provide further clarification.
- 1.3 In its 27 May submission, Anglian Water sets out its perspective on our response to its statement of case ('our 4 May response'). Anglian Water notes that we have described its plan as one where customers 'pay more and receive less'. On the contrary, the company claims, its plan enables customers to 'pay less in bills, whilst receiving more'.²
- 1.4 This is typical of a number of **mischaracterisations** of our response to the company's statement of case made by Anglian Water. In this example, our 'less for more' refers to our final determination when compared with the company business plan; the company's 'more for less' compares its PR19 business plan with its PR14 bills and service levels.
- 1.5 Another example is where Anglian Water suggests that we have portrayed the company as 'gaming the regulatory regime'.³ We interpret this as referring to where we have simply noted that the company has underspent its totex allowances in all four of the previous price controls, including by 9.2% in 2015-19. We have also noted, correctly, that Anglian Water has requested by far the biggest increase in routine, year-on-year base costs in the sector. **To make**

¹ Anglian Water, 'Reply to Ofwat's response', May 2020.

² Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 2, paragraphs 2-3.

³ Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 2, paragraph 2.

these observations is not to accuse the company of 'gaming', but to highlight the need for customers only to pay for efficient costs.

- 1.6 In a number of places, Anglian Water suggests that we have failed to engage with the company's arguments.⁴ We reject such allegation. In fact our 4 May response addressed all of the key points which the CMA will need to redetermine, in a proportionate manner. In the normal way, **the fact that a particular company argument is not expressly dealt with should not be taken to imply our agreement with the position stated by Anglian Water.** We are of course happy to assist if the CMA requires additional detail on any of the points raised by Anglian Water.
- 1.7 The CMA has published a number of **representations from third parties**, following an invitation for comments on the issues raised in the References from Ofwat and the company statements of case. These include representations from customers and representative groups, as well as from other water companies.
- 1.8 In its 27 May submission, Anglian Water claims that its position on several issues is supported by a number of third party representations.⁵ That is unsurprising, and uncontroversial. In considering how much weight to place on the different third party representations, we encourage the CMA to **note any links which exist between the disputing companies and those third parties.**⁶ We stress that we are in no sense alleging any kind of impropriety. Rather, that it is important for the CMA to be aware of the nature and membership of some of these bodies.
- 1.9 We note that the submissions from Citizens Advice and CCW **indicate strong support for our final determinations.**
- 1.10 A number of representations describe the extent of customer support for the Anglian Water business plan, including that from Anglian Water's customer challenge group (CCG), called the Anglian Water Customer Engagement Forum. We recognise the extent of challenge made by the Forum during the development of Anglian Water's business plan, and acknowledge the level of

⁴ For example, see Anglian Water, '[Reply to Ofwat's response: Executive summary](#)', May 2020, p. 16, paragraph 86.

⁵ For example, see Anglian Water, '[Reply to Ofwat's response: Executive summary](#)', May 2020, p. 3, paragraph 10, and p. 14, paragraph 73.

⁶ For example, Anglian Water sits on the Board of Directors of Water Resources East (WRE) and provides financial support to Waterwise and Green Alliance. Dr Nieswand and Prof. Saal state in their paper, submitted as part of Anglian Water's 27 May submission, that they 'acknowledge [their] professional relationship with Anglian Water'.

assurance provided to us on the quality of the company's customer engagement and how customer views influenced the shape of the business plan, in line with our expectations of the role of CCGs for PR19.

1.11 In recent weeks, we have met with the chairs and some members of the CCGs for each of the disputing companies, in order to explain our response to the respective company statement of case. In doing so, we explained where and why it was necessary for our final determinations to take account of, but vary from, customers' views, and that this was driven by our obligation to protect the interests of customers.

Meeting our duties in the round

1.12 At various points in its statement of case, Anglian Water presents its arguments using the language of statutory duties. In our 4 May response, we provided the CMA with a summary in one place of our position on the points related to statutory duties.⁷ We have considered carefully whether it would assist the CMA for this submission to provide a point-by-point rebuttal on duties. However, having analysed the company's 27 May submission, we have concluded that there is nothing which merits such treatment. Notwithstanding Anglian Water's protestations to the contrary, the principal arguments made collapse into substantive disagreement about judgements made when we reached our final determinations. In so far as necessary, these points are addressed substantively at the appropriate point. Anglian claims that duties and merits are "inextricably linked".⁸ However, the examples given by Anglian which follow this statement are unpersuasive, and the reasoning only serves to reinforce the extent to which what Anglian disputes is the substantive merits of our decision

1.13 There are several instances where Anglian Water more or less subtly mis-describes Ofwat's position, with the result that it can knock down the supposed position for rhetorical effect. This is unhelpful. We are sure that the CMA will look beyond these arguments, and do not address them point by point.

A note on information asymmetry

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', May 2020, pp. 18-45.

⁸ Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 7, paragraph 22.

- 1.14 In its 27 May submission, Anglian Water makes new claims that, across a number of areas, we have used information asymmetry as an argument in an inconsistent manner, where it suits us, and in particular where we do not have evidence.⁹ We reject this. We have not used information asymmetry arguments unless appropriate. We have provided supporting information and explanation for each of our conclusions. In some cases, we have used information asymmetry as an additional supporting point. Our experience in PR14 and at previous price reviews suggests it is important not solely to rely on company evidence; for example, companies' PR14 risk analysis proved to be unduly pessimistic. Unavoidably, **information asymmetry will be a real issue for the CMA**, where it is hard to verify what the disputing companies argue.
- 1.15 To attempt to overcome information asymmetry, we make use of benchmarking. To protect customers, we also ask companies to justify where they might require additional expenditure or reduced performance commitments compared to other companies. Sometimes benchmarking provides us with additional information on companies or customers, for example on willingness to pay, and we have intervened in company plans to reflect this where appropriate.
- 1.16 In some places, **Anglian Water incorrectly suggests that we are relying on information asymmetry when we are not**. There is nothing inconsistent about the fact that we point to the difficulties posed by information asymmetry, whilst also referring to the (different) instances where we are better placed than the disputing companies to take an expert and independent view across the sector.
- 1.17 For example, Anglian Water suggests we have dismissed its argument that marginal costs increase as service levels improve by 'alleging information asymmetries'.¹⁰ This is untrue. As we explained in our response to the company's statement of case, we did not come to our conclusions around the marginal cost of improvements as a result of our concerns about information asymmetries.¹¹
- 1.18 On the contrary, where we set common performance commitment levels, we considered that significant improvements in performance could be achieved in the PR19 period **through changes in operational strategies and practices**, rather than changes requiring significant capital investment. We have

⁹ Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 9, paragraphs 35-6.

¹⁰ Anglian Water, 'Reply to Ofwat's response, Part B: Review of Cost Service disconnect arguments', May 2020, p. 2.

¹¹ Ofwat, 'Reference of the PR19 final determinations: Outcomes – response to common issues in companies' statements of case', May 2020, pp. 44-6.

repeatedly acknowledged that, in principle, marginal costs may increase for increases in service performance. However, we consider it is unlikely in practice that companies are at the point of diminishing marginal returns in the range of performance improvements required in PR19. **We have provided a significant body of evidence to substantiate our arguments around the relationship between costs and service.**¹²

Risk and return

1.19 We treat points raised in Anglian Water's 27 May submission on the allowed return and financeability as thematic issues and address each in our accompanying 'Risk and return' document. This includes our response to the company's view that we have 'knowingly misdescribed' its actual capital structure.

¹² Ofwat, 'Reference of the PR19 final determinations: Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', May 2020, pp. 46-113.

2. Our response to new cost issues

2.1 Anglian Water raises a number of new issues around cost assessment in its 27 May submission. Those that are **common to the other companies, are addressed in the accompanying cross-cutting issues document.**¹³ These include alternative base cost models, the application of frontier shift efficiency to WINEP and metering costs, and the impact of Covid-19 on our final determinations. We address Anglian Water's new issues in relation to the calculation of frontier shift efficiency and real price effects in a separate Europe Economics report.¹⁴

2.2 Anglian Water and Yorkshire Water claim that the cost drivers used in our wastewater econometric models do not fully capture sewage treatment complexity, in particular the requirements associated with **phosphorus consents.**¹⁵ We respond to these arguments in the accompanying company-specific document for Yorkshire Water.¹⁶

2.3 **We address new issues and evidence on cost matters that are specific to Anglian Water in this document below.** These issues relate to:

- its requested increase in base costs;
- capital maintenance;
- smart metering cost adjustment claim & enhancement programme ;
- supply-demand balance;
- the uplift to frontier shift from the totex and outcomes framework;
- the application of frontier shift to enhancement costs; and
- real price effects.

¹³ Ofwat, 'Reference of the PR19 final determinations: Response to companies' 27 May submissions - Cross cutting issues', June 2020, Chapter 2.

¹⁴ X001 - Europe Economics, 'Response to Some Key Points on Real Price Effects (RPEs) and Frontier Shift', June 2020.

¹⁵ We note that both Yorkshire Water and Anglian Water have, presumably independently, raised this argument in their 27 May submissions for the first time.

¹⁶ Ofwat, 'Reference of the PR19 final determinations: Response to Yorkshire Water's 27 May submission to the CMA', June 2020, chapter 3.

Base costs

Anglian Water's requested base cost increase

- 2.4 In its 27 May submission, Anglian Water argues that its proposed business plan base cost increase is 1.9%,¹⁷ rather than the much higher increase we identified (15.7%).¹⁸ It states that the comparison should not include enhancement operating expenditure (opex) in either the historical or forecast period, and the comparison should be made against the period 2015-2020 (ie using the forecast year 2019-20), rather than 2014-2019.
- 2.5 Our comparison of historical and forecast base expenditure includes enhancement opex because companies historically reported opex related to base activities and enhancement activities together, and thus we cannot definitively separate them. Anglian Water attempts to exclude enhancement opex by deducting the forecast enhancement opex identified in its business plan for the period 2020-25, and deducting an estimate of the historical enhancement opex for the period 2015-20 (£37 million).¹⁹ The company does not evidence how the £37 million estimate has been calculated, and we have not been able to verify it.
- 2.6 We compare companies' requested forecast base costs against the last five years of outturn data (2014-2019). Comparison with the period 2015-2020 would require the use of forecast costs for the 2019-20 year, as the 2019-20 data on actual spending will not be available until July 2020.²⁰ In the case of Anglian Water, **it is predicting for 2019-20 an exceptional level of spend**, higher than all years in our historical sample. Including this will underestimate the increase in base expenditure in the forecast period compared to historical levels.
- 2.7 We adopted a variety of approaches to calculating the increase in base expenditure, accounting for different base cost definitions and different time

¹⁷ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 3.

¹⁸ Ofwat, 'Reference of the PR19 final determinations: Response to Anglian Water's statement of case', May 2020, p. 5, paragraph 1.15.

¹⁹ Anglian Water, 'REP72: AMP6-AMP7 uplift', May 2020.

²⁰ Companies' 2019-20 outturn expenditure will be submitted as part of their Annual Performance Reports in July 2020.

periods.²¹ **In all cases, Anglian Water emerges as the company with the highest, or one of the highest, increases in base costs.**

- 2.8 Anglian Water suggests its base cost increase is effectively nil (0.2%) 'once the cost of transferred private sewers and pumping stations are treated equally within Botex', showing that there is '[i]n effect no material change between AMP6 and AMP7 Botex, contrary to Ofwat's presentation of the issues'.²²
- 2.9 Anglian Water's treatment of the cost related to transferred private sewers and pumping stations is irrelevant for our figures – these costs have always been accounted for correctly in our comparisons. Anglian Water is correcting an error relating to its own calculations (the company did not include the relevant cost in the historical period while including it in the forecast period).

Growth

- 2.10 In its 27 May submission, Anglian Water has responded extensively in relation to growth, including providing new information. We address the new information provided below to assist the CMA with its assessment.

There is no need for special protection for Anglian Water in the form of an additional uncertainty mechanism for costs related to enhancements to sewage treatment works

- 2.11 Anglian Water has changed the emphasis of its position in relation to growth and **uses the uncertainty related to Covid-19 to downplay the importance of accurate forecasts.** It proposes that the focus of the redetermination should be on risk-sharing and not forecasts.²³ In practical terms, this means that Anglian Water suggests that the CMA accepts its business plan in relation to growth related expenditure and uncertainty should be accounted for through a true-up mechanism.
- 2.12 While the change in emphasis is clear, Anglian Water's proposed way forward in relation to growth is in line with its response to our draft determination; albeit with a £33 million downwards adjustment to its view of growth costs to reflect

²¹ Ofwat, 'Reference of the PR19 final determinations: Response to Anglian Water's statement of case', May 2020, pp. 37-38, paragraph 3.3, Table 3.3.

²² Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 10, paragraph 50.

²³ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 29.

the revision to its new connected property forecasts that was made in its statement of case.²⁴

- 2.13 We therefore maintain the view that an integrated approach of modelling base and growth-related costs, together with a growth unit cost adjustment and deep-dive assessments is the best option given the information available, as detailed in our 4 May response.²⁵
- 2.14 In direct response to Anglian Water's proposition to the CMA, we consider it would be **inappropriate to accept its business plan proposal in relation to growth related expenditure**. By accepting Anglian Water's business plan, we would implicitly be accepting its forecast unit costs in relation to growth expenditure and would ignore the outcome of our comparative analysis. As highlighted by United Utilities in its third-party response,²⁶ benchmarking analysis enables us to derive an independent view of efficient costs, which is of utmost importance given information asymmetry between companies and us.
- 2.15 We also maintain the view that there is **no need for special protection for Anglian Water** in the form of an additional uncertainty mechanism for costs related to enhancements to sewage treatment works for the reasons set out in our 4 May response and because Anglian Water has not presented any new arguments or evidence.²⁷ No other wastewater companies requested an additional uncertainty mechanism for growth at sewage treatment works.

Modelling growth with base costs avoids significant cost allocation issues

- 2.16 We note that our decision to model growth with base costs is supported by Northumbrian Water and Yorkshire Water in their individual 27 May submissions, **who both consider that modelling growth with base costs is appropriate** as it avoids cost allocation issues.^{28 29} This position is also shared by Severn Trent Water in its third-party submission to the CMA.³⁰

²⁴ Anglian Water, '[Reply to Ofwat's response, Part G: Reply on Cost arguments](#)', May 2020, pp. 36, paragraph 3.122.

²⁵ Anglian Water, '[Reply to Ofwat's response, Part A: Review of Cost arguments](#)', May 2020, pp. 32-34, paragraphs 4.20-4.32.

²⁶ United Utilities, '[CMA Price Determinations – Comments from United Utilities Water Limited](#)', May 2020, p. 4, paragraph 1.1.2.

²⁷ Ofwat, '[Cost efficiency – response to common issues in companies' statements of case](#)', May 2020, pp. 49-50, paragraphs 4.77-4.83.

²⁸ Northumbrian Water, '[PR19 CMA Redetermination](#)', May 2020, p. 49, paragraphs 202-4.

²⁹ Yorkshire Water, '[Response to Ofwat Reply](#)', May 2020, pp. 91-2, paragraph 3.56.1.

³⁰ Severn Trent Water, '[CMA submission](#)', May 2020, p. 5.

2.17 It is surprising that Anglian Water's advisors, Vivid Economics, do not accept the significance of these cost allocation issues when other companies accept that **these issues are likely to distort model results** if growth is modelled separately from opex and capital maintenance.³¹

2.18 For clarity, the cost allocation issues are caused by two significant factors:

- **Some companies reported zero costs under historical new connections capex** because they reported the costs as opex instead. Growth opex is not identified in the historical data (before 2017-18). It is therefore not possible to develop standalone historical growth totex models with existing data.
- **Companies can apply a level of discretion when proportioning costs between growth related expenditure and capital maintenance** according to Regulatory Accounting Guidelines (RAGs). For both wholesale water and wastewater, the RAG guidelines for capital maintenance state: 'Where projects have drivers both of enhancement and capital maintenance, companies should apply a method of proportional allocation to allocate costs between enhancement and capital maintenance'.³² We therefore disagree with Anglian Water's assertion that the only notable area of discretion in accounting for growth costs relates to spending on sewage treatment works.³³

2.19 The cost allocation issues between growth and base costs also mean **it is not possible to derive the 'true' growth implied allowance** from the base cost models. We therefore do not consider it is appropriate to place substantial weight on any growth implicit allowance analysis. Our position is supported by Northumbrian Water, who also considers that the base cost models are designed to provide an estimate of efficient costs in aggregate and any derived implicit allowance for individual cost lines could be over or underestimated.^{34 35}

2.20 We therefore maintain the position that it is inappropriate to consider base and growth separately to allocate costs between capex and opex and **cast doubt**

³¹ Anglian Water, 'REP12: Vivid Technical Note on Growth Modelling Issues', May 2020, pp. 6-8, paragraphs 16-22.

³² Ofwat, 'RAG 4.08 – Guideline for the table definitions in the annual performance report', January 2019, pp. 16, 41, 44.

³³ Anglian Water, 'REP12_Vivid Technical Note on Growth Modelling Issues', May 2020, p. 6, paragraph 19.

³⁴ Northumbrian Water, 'NWL Statement of Case', April 2020, p.129, paragraph 638.

³⁵ Northumbrian Water, 'REP066: Appendix_Base_Cost_Appendix', May 2020, paragraph 74.

over Anglian Water's estimated £157 million misallocation of opex as capex.³⁶

We disagree that our growth deep dive was inadequate

- 2.21 We presented the findings of our growth deep dive assessment in our final determination documentation.³⁷
- 2.22 We provided more information on Anglian Water's growth deep dive assessment than we did on many other expenditure claims, and we can provide the CMA with additional evidence as part of its process if requested.
- 2.23 We also maintain our position that **our approach to assessing growth-related expenditure takes into account growth intensity and remoteness** for the reasons set out in our 4 May response.³⁸ The new evidence presented by Anglian Water's advisors, Vivid Economics, is not convincing. It does not test its remoteness and growth intensity explanatory variables in our base cost models to assess whether these factors are already captured by the other explanatory variables.³⁹
- 2.24 We also note that Vivid Economics' remoteness and growth intensity explanatory variables **perform poorly in a number of its own standalone growth forecast cost models.**⁴⁰ We have also been unable to verify the underlying input data behind these variables. To use these variables in cost assessment it would therefore be necessary to ensure that: (i) the data behind these variables is of sufficient quality; and (ii) the model results are not sensitive to the underlying assumptions made.

WRMP14 forecasts have over-estimated household growth

- 2.25 Anglian Water provides new evidence to show that '[h]istorical WRMP forecasts have over- and under-estimated growth' and '[w]hile at WRMP09 growth did not

³⁶ Anglian Water, 'PR19 CMA Redetermination – Statement of Case', April 2020, pp. 209-17.

³⁷ Ofwat, 'Anglian Water – Cost efficiency additional information appendix', December 2019, pp. 19-26.

³⁸ Ofwat, 'Cost efficiency – response to common issues in companies' statements of case', May 2020, pp. 36-37, paragraphs 4.39-4.40.

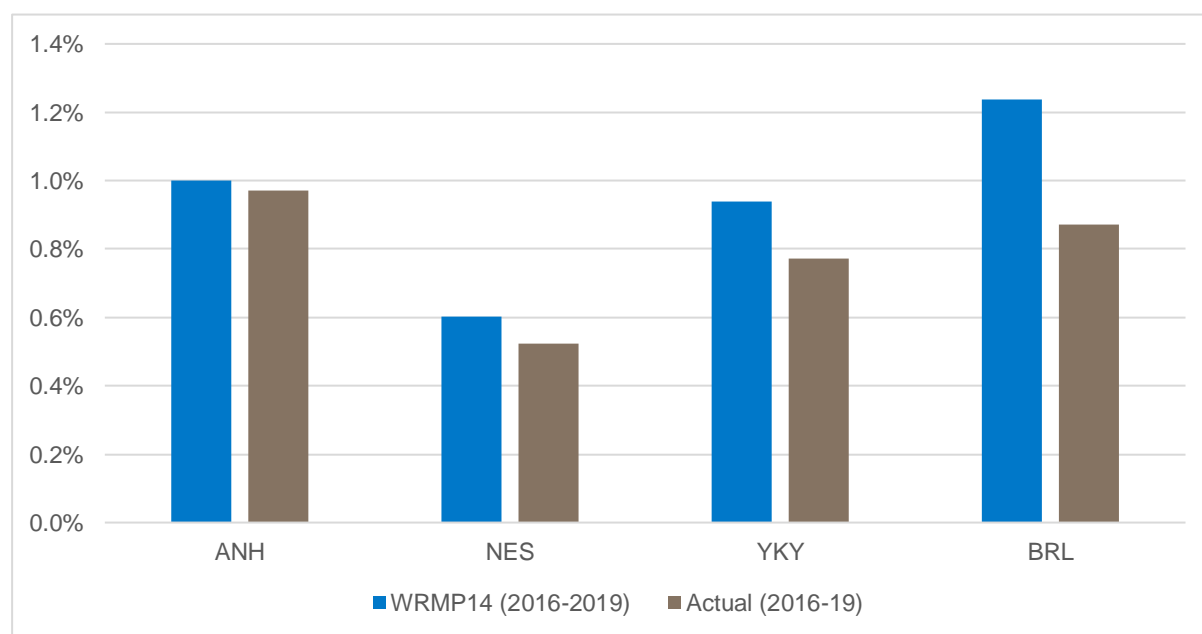
³⁹ Anglian Water, 'REP12: Vivid Technical Note on Growth Modelling Issues', May 2020, pp. 11-15, Figures 5-15.

⁴⁰ Anglian Water, 'SOC369: Vivid Economics Growth Report (March 2020)', March 2020.

materialise in line with Anglian's forecast, [...] at WRMP14 and in AMP6 it has'.⁴¹

2.26 The disputing companies' 2014 Water Resource Management Plans (WRMP14) **have generally over-estimated household growth** (see Figure 2.1 below), in line with our findings on WRMP09. We also consider comparison with WRMP09 to be more accurate due to the higher number of outturn data points available (eight, from 2011-12 to 2018-19), compared to the lower number of outturn figures available for comparison with WRMP14 (four, from 2015-16 to 2018-19).

Figure 2.1: Comparison of forecast (WRMP14) and actual household growth rates



Source: Environment Agency, Ofwat analysis.⁴²

Capital maintenance

2.27 In its 27 May submission, Anglian Water has responded extensively in relation to capital maintenance, including providing new information. We address the new information provided below to assist the CMA with its assessment.

⁴¹ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 31.

⁴² WRMP14 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](#).

Our approach to assessing capital maintenance requirements is more advanced than those applied in historical price reviews

- 2.28 Our approach used at PR19 to assess capital maintenance requirements is a combination of a totex allowance and an outcomes framework. This is a **significantly more developed approach than those applied at PR99 and PR09.**⁴³
- 2.29 We do not consider the references Anglian Water makes to these price reviews, and the application of the Capital Maintenance Planning Common Framework (CMPCF) to be particularly relevant. We mentioned this historical approach only to highlight that we do not believe that Anglian Water has presented its capital maintenance claim in accordance with CMPCF principles and that our approach does allow for circumstances where needs change in the future.
- 2.30 Anglian Water also makes a new reference to our 'future Asset Health Project' in its 27 May submission.⁴⁴ Our work in this area aims to build a common understanding of asset health across the sector and to understand whether companies are delivering long-term resilience within the outcomes based regulatory framework.
- 2.31 The company's reference to the Bristol Water redetermination at PR14 is also not directly relevant to considering our allowance for Anglian Water. Bristol Water is a water-only company and its asset base is significantly smaller than that of Anglian Water. We have developed our approach since PR14. We reiterate, for PR19 we have based our econometric models on 8 years of historical data and use forecast cost drivers. **We expect that companies with a large, diverse asset base should be able to balance peaks and troughs and atypical lumps in particular cohorts of assets within a long-term allowance.** We allow well-evidenced cost adjustment claims when this is not the case. We do not dispute that capital maintenance can be 'lumpy'.
- 2.32 Anglian Water highlights that cycles of capital maintenance investment follow the price control cycle. We take this as evidence that companies do manage risks arising from the underlying asset base within their allowance, balancing

⁴³ Anglian Water, 'Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues', May 2020, pp. 14-15.

⁴⁴ Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, pp. 13-14, paragraph 70.

meeting budgetary and performance targets and the quality of any case to invest.

We considered that capital maintenance smoothing was not required

2.33 Anglian Water presents new evidence to suggest that capital maintenance expenditure should be smoothed on a five-year average basis ahead of modelling as this mitigates cost peaks and troughs and improves model performance.^{45 46}

2.34 We acknowledge that capital maintenance in any given year may not directly correspond to the underlying cost drivers in that year, and smoothing is a potential approach to mitigate this. However, **there are also disadvantages to smoothing capital maintenance**, as noted in Bristol Water's PR14 final determination by the CMA.⁴⁷ This led to the CMA adopting econometric models with unsmoothed cost data after weighing up the pros and cons of using smoothed data.⁴⁸

2.35 We decided to use unsmoothed capital maintenance expenditure data to develop our PR19 base econometric models because of the **increased substitutability between opex and capital maintenance** as a result of:

- The transition to the totex regulatory framework in PR14.
- A change in accounting reporting guidelines in 2015-16, which means that infrastructure renewals expenditure (IRE) can now be all or partly recorded as opex instead of capital maintenance.⁴⁹

2.36 Given the increased substitutability between opex and capital maintenance from 2015-16 onwards, we therefore consider it would be inappropriate to only smooth capital maintenance when developing the base cost econometric models. In addition, **most companies did not propose to smooth capital maintenance in our econometric modelling consultation.**⁵⁰ And those

⁴⁵ Anglian Water, '[Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues](#)', May 2020, pp. 19.

⁴⁶ Oxera, '[Rebuttal of Ofwat's response on cost assessment issues](#)', May 2020, pp. 2.

⁴⁷ Competition and Markets Authority, '[Bristol Water plc: A reference under section 12\(3\)\(a\) of the Water Industry Act 1992. Appendices 1.1 – 4.3](#)', March 2015, A4(2)-7, para. 27.

⁴⁸ Competition and Markets Authority, '[Bristol Water plc: A reference under section 12\(3\)\(a\) of the Water Industry Act 1992. Appendices 1.1 – 4.3](#)', March 2015, A4(2)-7, para. 29.

⁴⁹ Ofwat, '[RAG 1.08 – Principles and guidelines for regulatory reporting under the 'new UK GAAP' regime](#)', November 2017, pp. 11.

⁵⁰ Ofwat, '[Cost Assessment for PR19 – a consultation on econometric cost modelling](#)', March 2018.

companies that did submit both smoothed and unsmoothed models did not highlight any preference for either set of modelling results given that the two approaches produced similar results.

2.37 We also note that no company made a representation on capital maintenance smoothing during the price review. As we note in the accompanying cross-cutting document, at different points in time a company may be able to find a model specification that is more favourable for itself.⁵¹ However, these alternative models have not been subject to the same scrutiny as our set of models, companies did not represent on them and we did not consider further adjustments to them. It is important that these alternative models are treated with caution and their results are not considered in isolation.

2.38 We note that **we smoothed the efficiency scores over 5 years** to ensure that the catch-up efficiency challenge is not based on a single low-cost year by any one company.

We do not consider that Anglian Water is uniquely exposed to technological changes

2.39 Anglian Water argues that capital maintenance trends are a function of the service lives of assets and that, since privatisation, the balance of its asset base has shifted towards shorter life assets.⁵² The company provides new data analysis alongside this argument in its 27 May submission.⁵³

2.40 We recognise that over the last thirty years, more stringent drinking water and environmental standards have often led to technology choices with a higher proportion of mechanical and electrical assets. However, **technology choices are within management control** and the shift to shorter life assets is also driven by other factors including reducing the footprint of sites.

2.41 **Anglian Water is not uniquely exposed to this long-term technology trend compared to its peers.** Our comparative approach, based on historical industry data and forecast cost drivers, accounts for such effects.

⁵¹ Ofwat, 'Reference of the PR19 final determinations: Response to companies' 27 May submissions - Cross cutting issues', June 2020, Chapter 2.

⁵² Anglian Water, 'Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues', May 2020, p. 21, paragraph 91.

⁵³ Anglian Water, 'Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues', May 2020, p. 23-26,

We have engaged with evidence provided in relation to Anglian Water's capital maintenance requirements

- 2.42 The company's statement in its 27 May submission that we failed to engage with its evidence on the impact of capital maintenance on operational resilience, and on the derivation of its future maintenance requirements, is incorrect.⁵⁴
- 2.43 We reviewed the report produced by the company's consultants and we considered that **its conclusions on the impact of the final determinations are not well founded**.⁵⁵ We present an example below to demonstrate this.
- 2.44 One area of the maturity assessment falling under operational resilience is 'continuity of service to customers'. In this area, Arup has judged that Anglian Water will regress from a level 5 (of 5) to level 2. Arup considers that this is due to our final determinations setting lower levels of botex than the company requested and our challenge on enhancement investment in resilience. Arup further states that water supply interruptions performance commitments are much tougher than in AMP6. However, the only specific detail given to justify this drastic down-grading of the company's capability is that 'real time information and digital twin aspirations will be reduced'.
- 2.45 We have set out throughout our submissions that our final determination provides an efficient allowance for Anglian Water to fully meet its obligations. Our outcomes framework incentivises the company to improve its water supply interruption performance, not to reduce it. Further, it is for the company to decide whether particular investments in digital innovations will yield benefits for itself and its customers. We understand the need for innovation and are in the process of establishing our innovation fund to foster this.

Smart metering cost adjustment claim

- 2.46 Anglian Water made a cost adjustment claim for the adjustment of its base allowance by £42.4 million in respect of its smart metering programme.⁵⁶ In its 27 May submission, Anglian Water adds a new point to its claim by appearing

⁵⁴ Anglian Water, 'Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues', May 2020, p. 28, paragraph 114.

⁵⁵ Anglian Water, 'SOC285: Arup Resilience Assessment', April 2020.

⁵⁶ Ofwat, 'Reference of the PR19 final determinations: Response to Anglian Water's statement of case', pp. 83-6, paragraphs 3.158-3.163.

to associate the cost adjustment claim with its high levels of meter penetration.⁵⁷

2.47 **We do not consider that the impact of meter penetration has any relevance to the early replacement of meters.** The company's programme does not involve the creation of a new metering point, but the upgrading of the existing installation.⁵⁸

2.48 Anglian Water's 27 May submission states that companies make technology choices based on functionality and business benefits by highlighting that Northumbrian Water is rolling out a less advanced smart metering programme that enables Northumbrian Water to finance the programme with base expenditure.⁵⁹ This statement highlights the point that companies make choices based on the functionality of different technology and their costs and benefits. Continuing this logic, we expect Anglian Water has opted for a more advanced technology and **this choice should be supported by a similarly robust business case** for implementing more advanced technology, clearly justifying the benefit and any additional up-front cost increase and why customers should pay the difference.

Enhancement costs

Smart metering enhancement programme

2.49 Anglian Water states in its May 27 submission that we incorrectly used a unit cost of £44.30 in setting our enhancement expenditure allowance for the replacement of existing meters with smart meters, and that this cost does not represent the full costs of the installation.⁶⁰

2.50 This is not an error. Our enhancement allowance only includes the cost difference between a basic and a smart meter. An allowance for activities associated with replacing existing basic meters is implicit within our base cost

⁵⁷ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 49, paragraph 3.5.

⁵⁸ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, pp. 21-2, paragraph 7.5.

⁵⁹ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 21, paragraph 7.3.

⁶⁰ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 54, paragraph 5.2.

allowance. **It is only the uplift in technology cost that we consider to be enhancement.**⁶¹

2.51 Some third party representations have raised the concern that Anglian Water will install fewer smart meters as a result of our final determinations. We have provided sufficient funding for the company to deliver its smart metering programme. Further, we have protected customers from the non-delivery of this programme through an outcome delivery incentive and the cost sharing mechanism. The company will incur underperformance payments if it fails to deliver the smart meter numbers specified in its business plan.⁶² This, in combination with the cost sharing mechanism, will recover costs resulting from non-delivery for customers.

Supply-demand balance

2.52 In its 27 May submission, Anglian Water states that:

- the interconnector solution is the only feasible option as the lead time for other supply options shortlisted for development in AMP7 was at least 9 years,⁶³ and
- our decision to reject its interconnector proposals is in direct conflict with the Water Resources National Framework and draft WRMP24 guidance.⁶⁴

2.53 In deriving its best value plan, Anglian Water states that the only available option is the transfer of water, because other solutions could not be implemented before 2029 as they have lead-in times greater than 9 years.⁶⁵ **However, the supporting documentation for its WRMP contradicts this.**⁶⁶ It identifies supply options with implementation periods that are significantly shorter. For example, raw water transfer, water reuse for potable and non-

⁶¹ 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.

⁶² Ofwat, 'PR19 final determinations: Anglian Water – Outcomes performance commitment appendix', December 2019, pp. 92-94, 'smart metering delivery'.

⁶³ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 47, paragraph 2.1.

⁶⁴ Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 14, paragraph 74.

⁶⁵ Anglian Water, 'Reply to Ofwat's response, Part A: Review of Cost arguments', May 2020, p. 47, paragraph 2.1.

⁶⁶ Anglian Water, 'SOC207: Revised draft WRMP Supply Side Option Development, August 2019, p. 27, Table 5.13.

potable use and aquifer recharge all have implementation periods less than 9 years. This demonstrates our concern that **the company's decision-making process inappropriately constrained the options available**, leading to potentially sub-optimal outcomes.

2.54 We consider that the company has mischaracterised our position in stating that it directly conflicts with the Water Resources National Framework and draft WRMP24 guidance.⁶⁷ The Environment Agency's National Framework and draft WRMP24 guidance both include the need to provide resilience for a 1-in-500 year drought event, no later than 2039. However, the WRMP24 guidance is still in draft form and will not be finalised and published until January 2021. The draft guidance is clear that flexibility is required and costs and benefits should be considered.⁶⁸

2.55 The 1-in-500 drought scenario is only one of a number of scenarios that Anglian Water includes in the stress testing and least worst regrets analysis it considers justifies its best value plan. If the 1-in-500 scenario was the key driver of the company's WRMP, we would have expected the company to clearly present this in its planning tables and highlight this in its consultations. **The adoption of this drought scenario does not remove the necessity for the company to provide appropriate supporting evidence.**

Frontier shift and real price effects

Uplift to frontier shift from totex and outcomes framework

2.56 Anglian Water has previously challenged our 1.1% frontier shift, particularly the uplift to the frontier shift to reflect efficiency gains made possible due to the totex and outcomes framework introduced at PR14.⁶⁹ However, we note that **it now recognises the lower costs (ie efficiency gains) made possible through use of the framework.** In particular, Anglian Water notes that 'The first change between AMP6 and AMP7 is that in its Business Plan, Anglian

⁶⁷ Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 14, paragraph 74.

⁶⁸ 'Some flexibility in achieving a resilience of '1 in 500' is possible, where costs are exceptionally high locally in comparison to benefits, for example, at a resource zone level.' Draft WRMP24 guidance v4.2, April 2020, p. 19, section 4.5.

⁶⁹ For example, in paragraph 88 of its [Statement of Case to the CMA](#), Anglian Water notes that Ofwat applies a 'poorly justified 0.1% "special component" to the 'standard component' of 1% to reflect assumed greater productivity gains from the PR19 totex and outcomes regime.'

anticipated making more use of “totex solutions”, i.e. using opex solutions rather than traditional capex solutions, if these incur lower whole-life costs’.⁷⁰

Application of frontier shift to enhancement costs

2.57 Anglian Water states that, by applying our 1.1% frontier shift challenge to its enhancement costs, it is subject to a total future productivity shift of 5% per annum.⁷¹ **This statement is fundamentally incorrect**, and the total future productivity shift imposed on Anglian Water's wastewater WINEP enhancement costs is in fact 0.6%-0.7% per annum (1.1% frontier shift p.a. less 0.4%-0.5% real price effects allowance p.a.). Anglian Water provides no evidence or calculations to support its claim that our challenge results in a 5% per annum future productivity shift challenge.

2.58 As we outlined in our 4 May response and cover in the accompanying cross-cutting document, there is no evidence that any of the WINEP upper quartile companies or disputing companies have applied a net frontier shift challenge (ie a frontier shift challenge that is not offset by real price effects allowance) to their wastewater WINEP enhancement costs.⁷² In relation to metering enhancement costs, as also outlined in the accompanying cross-cutting document, only £17 million of Anglian Water's £126.3 million metering enhancement allowance has been subject to frontier shift challenge.⁷³ The £17 million component of its metering enhancement allowance is subject to a 0.6%-0.7% per annum frontier shift.

2.59 Additionally, Anglian Water has assumed a net positive frontier shift (ie 0.2%-0.4% increase in costs) due to real price effects allowance assumptions that exceed their frontier shift assumptions.⁷⁴ **The CMA may wish to remove the**

⁷⁰ Anglian Water, ‘[Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues](#)’, May 2020, p. 17, paragraph 68.

⁷¹ Anglian Water, ‘[Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues](#)’, May 2020, p. 42, paragraph 152.

⁷² See Ofwat, ‘[Reference of the PR19 final determinations: Cost efficiency – response to common issues in companies' statements of case](#)’, May 2020, pp. 101-4, paragraphs 7.64-7.74, and Ofwat, ‘Reference of the PR19 final determinations: Response to companies' 27 May submissions - Cross cutting issues’, June 2020, Chapter 2.

⁷³ Ofwat, ‘Reference of the PR19 final determinations: Response to companies' 27 May submissions - Cross cutting issues’, June 2020, Chapter 2.

⁷⁴ Ofwat, ‘Reference of the PR19 final determinations: Response to companies' 27 May submissions - Cross cutting issues’, June 2020, Table 2.1.

net positive frontier shift from Anglian Water's WINEP and metering costs as part of a redetermination.

Real price effects

2.60 Anglian Water states it has proposed a negative real price effect allowance for energy.⁷⁵ **This statement is misleading.** Anglian Water has proposed negative real price effects for wholesale water resources operating expenditure in 2020-23 but positive real price effects for the remaining years and price controls. While Anglian Water has assumed an energy real price effect of -0.2% for 2021-22, the average energy real price effect it has applied to its business plan over the PR19 period is +1.64%.

⁷⁵ Anglian Water, 'Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues', May 2020, p. 59, paragraph 216.

3. Our response to new outcomes issues

3.1 In its 27 May submission, Anglian Water provides new arguments on which we provide brief comments below.

Ofwat's reasons for intervention are fully applicable to Anglian Water

3.2 Anglian Water claims that none of the following of Ofwat's reasons for intervening in companies' ODI packages apply to Anglian Water:

- the company business plan did not reflect its own customer research;
- the company research was not of high quality; and
- differences in research results could not be explained.

3.3 The company claims that none of these factors apply to Anglian Water, which was awarded an 'A' rating for the quality of its customer engagement at the initial assessment of business plans, and that Ofwat 'fails to demonstrate any specific credible shortcomings in the Anglian evidence used to build its investment proposals and the ODI package'.⁷⁶

3.4 We disagree with these statements. While the overall quality of Anglian Water's customer engagement was found to be high quality at our initial assessment of plans, **we did identify shortcomings in some specific aspects of the company's customer research:**

- For example, the company proposed a large number of deadbands around its performance commitment levels without evidence of customer support for them being applied at specific levels.
- Similarly, we do not consider the company's proposed leakage ODI package is supported by high quality customer engagement.⁷⁷

3.5 Secondly, contrary to Anglian Water's claim, **it is very much the case that differences in research results submitted by Anglian Water compared to the rest of the industry could not be explained.** For example, the company's proposed ODI outperformance rate for its water supply interruptions performance commitment was more than twice the industry average. Further, the company's proposed ODI underperformance rate for per capita consumption was less than half the industry average. Despite Anglian Water

⁷⁶ Anglian Water, 'Reply to Ofwat's response: Executive summary', May 2020, p. 12, paragraph 63.

⁷⁷ We set this out in Ofwat, 'Reference of the PR19 final determinations: Response to Anglian Water's statement of case', May 2020, pp. 143-9.

having multiple opportunities to do so, it did not provide any information to help explain this apparent variation in customer preference (as we discuss in further detail in the section below).

The onus is on companies to validate the results of their customer engagement

- 3.6 In its 27 May submission, Anglian Water argues that it is not the role of an individual company to demonstrate or justify why its customers' valuation of service varies from other companies'.⁷⁸ We disagree with this statement.
- 3.7 Ofwat made available information on all companies' proposed ODI rates at its initial assessment of plans as a source of data for companies to cross-check the results of their own research.⁷⁹ We consider that good customer research would have seen companies challenging the results of their own customer engagement against this additional source of information and, where they identified that they were an outlier, seeking to understand why this was the case. **Anglian Water was provided with multiple opportunities to explain this variation but instead chose to submit no new information.**

⁷⁸ Anglian Water, 'Reply to Ofwat's response, Part D: Review of ODIs arguments', May 2020, p. 2.

⁷⁹ Ofwat, 'Initial assessment of plans, Technical appendix 1: Delivering outcomes for customers', pp. 28-36.

4. Our response to new issues around the overall stretch across costs and outcomes

4.1 Anglian Water's 27 May submission repeats several arguments concerning the overall stretch across costs and outcomes that it had previously made in its statement of case. We addressed these in our 4 May response, and so do not repeat them here. The company raises some new points in this area in common with those of other companies, and so we address them in our accompanying cross-cutting document.⁸⁰ We respond to a small number of company-specific issues below.

Anglian Water makes unconvincing new arguments regarding our reconciliation and uncertainty mechanisms 'eroding core regulatory incentives'

4.2 Anglian Water provides a new paper in its 27 May submission. It alleges we have 'eroded core regulatory incentives' and makes a number of unevidenced claims regarding our approach.⁸¹ The company repeats several previous arguments which we have addressed in our previous submissions to the CMA. We respond here only where the company makes a new argument.^{82 83 84}

4.3 First, **reconciliations and other uncertainty mechanisms are an established part of the regulatory settlement**, which do not weaken incentives, and are not 'unnecessary complexity'. Customers and companies benefit through being financially protected from certain risks beyond their control. In numerous places Anglian Water itself proposes additional mechanisms, for example true-ups for productivity growth,⁸⁵ growth,⁸⁶ and real

⁸⁰ Ofwat, 'Reference of the PR19 final determinations: Response to companies' 27 May submissions - Cross cutting issues', June 2020, Chapter 3.

⁸¹ Anglian Water, 'REP18: Challenges to incentive based regulation from PR19 – a discussion paper', May 2020.

⁸² We address the company's arguments (which it restates in its 27 May submission) regarding bill reduction in Ofwat, '[Reference of the PR19 final determinations: Response to Anglian Water's statement of case](#)', pp. 25-6, paragraphs 2.9-2.11.

⁸³ We address the company's arguments (which it restates in its 27 May submission) regarding our application of customer engagement evidence in Ofwat, '[Reference of the PR19 final determinations: Outcomes - response to common issues in companies' statements of case](#)', May 2020, chapter 5.

⁸⁴ We address the company's arguments (which it restates in its 27 May submission) regarding penalising or incentivising strong performance in Ofwat, 'The cost of the base level of service', June 2020.

⁸⁵ Anglian Water, '[Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues](#)', May 2020, p.61, paragraph 225.

⁸⁶ Anglian Water, '[Reply to Ofwat's response, Part G: Reply to Ofwat's Response on Cost issues](#)', May 2020, p.61, paragraph 143.

price effects⁸⁷. Indeed, in its paper, Anglian Water both praises our debt indexation approach as solving the problem of interest rate forecasting,⁸⁸ and claims it weakens incentives⁸⁹.

- 4.4 Second, **it is not the case that 'Ofwat assumes that service improvements are costless'**. As we set out elsewhere, there can be a trade-off between service quality and costs, and improvements in service quality can come at a higher cost.⁹⁰ However, simply uncritically providing additional funding because we expect companies to improve beyond PR14 belies a misunderstanding of the cost-outcomes relationship in the sector. We discuss this further below.

Anglian Water erroneously claims we ignore the relationship between costs and outcomes

- 4.5 Anglian Water's 27 May submission claims that we ignore the relationship between costs and outcomes, based on our company level analysis of the relationship between costs and service quality (which Anglian Water refers to as 'scatter plots').⁹¹ As we have previously stated, this framing by the company mischaracterises our view.⁹² We agree that high quality outcomes can be more costly than low quality outcomes. However, this does not imply that companies are underfunded to deliver better outcomes at PR19 than at PR14. **We have used a wide range of detailed arguments grounded in economic and engineering logic and well-evidenced data to justify our approach.**⁹³
- 4.6 Our detailed econometric work does not show a clear relationship between actual costs incurred and performance achieved. Similarly, our company level analysis of the relationship between cost and outcome performance shows that companies can perform well in both costs and outcomes, and there is no

⁸⁷ Anglian Water, 'PR19 CMA Redetermination – Statement of Case', April 2020, p. 16, paragraph 90.

⁸⁸ Anglian Water, 'REP18: Challenges to incentive based regulation from PR19 – a discussion paper', May 2020, p. 6.

⁸⁹ Anglian Water, 'REP18: Challenges to incentive based regulation from PR19 – a discussion paper', May 2020, p. 7.

⁹⁰ Ofwat, 'Reference of the PR19 final determinations: Introduction and overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', May 2020, p. 104, paragraph 7.49.

⁹¹ Anglian Water, 'Reply to Ofwat's response, Part B: Review of Cost Service disconnect arguments', and 'Reply to Ofwat's response, Part H: Reply on Cost service disconnect', May 2020.

⁹² Ofwat, 'Reference of the PR19 final determinations: Response to Anglian Water's statement of case', May 2020, p. 158, paragraphs 5.20-5.21.

⁹³ These are summarised in Ofwat, 'The costs of the base level of service', June 2020. Our detailed approach to setting individual performance commitment levels is set out in Ofwat, 'PR19 final determinations: Delivering outcomes for customers policy appendix', December 2020.

evidence of an inverse relationship at a company level in the industry.⁹⁴ Many better outcomes can lower costs. Northumbrian Water notes that '[f]or instance, poor customer service will require additional resource for dealing with complaints. High levels of leakage will require additional asset interventions'.⁹⁵ The level of stretch at PR19 is similar to that at PR14, and our PR19 base expenditure econometric models and therefore our PR19 cost baselines incorporate the historical costs incurred by the companies to improve performance to upper quartile, providing funding for similar improvement in the future.⁹⁶ We also provide enhancement funding for specific performance improvements where necessary.

⁹⁴ The company level analysis, including the single data correction identified, shows there is no inverse relationship between base costs and aggregate outcomes in retail, water and wastewater. Whilst we agree there are other ways to present and analyse overall outcomes, this is a simple and clear way to show total performance in a single metric. Each chart is a useful additional piece of information to an existing wide range of data and arguments, rather than the entirety of our evidence base.

⁹⁵ Northumbrian Water, 'REP066: Appendix 2: Base Costs Appendix', May 2020, chapter 3.

⁹⁶ See Ofwat, '[Reference of the PR19 final determinations: Outcomes - response to common issues in companies' statements of case](#)', May 2020, pp. 34-43, paragraphs 9.1-9.22.

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

Ofwat
Centre City Tower
7 Hill Street
Birmingham B5 4UA

Phone: 0121 644 7500
Fax: 0121 644 7533
Website: www.ofwat.gov.uk
Email: mailbox@ofwat.gov.uk

June 2020

© Crown copyright 2020

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3.

Where we have identified any third party copyright information, you will need to obtain permission from the copyright holders concerned.

This document is also available from our website at www.ofwat.gov.uk.

Any enquiries regarding this publication should be sent to us at mailbox@ofwat.gov.uk.

