May 2020

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

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Contents

1. Executive summary

Our response to Northumbrian Water's statement of case

1.1 In reaching our final determination for Northumbrian Water,[1] we considered the company's business plan in line with our statutory duties. We are satisfied that our final determination ensures that the company has adequate funding to carry out its regulated business, including meeting its statutory and regulatory obligations, to deliver the outcomes within its final determination and thereby provide for the long-term resilience of its systems in the interests of current and future customers.

1.2 Overall, our final determination for Northumbrian Water allowed a reasonable return to investors (based on market evidence at the time of our determinations); allowed efficient funding for all costs that were well evidenced (including for resilience proposals, for which Northumbrian Water was allocated the largest allowance of all water companies, relative to its size); and protected Northumbrian Water's customers from inefficient spending plans whilst delivering outcomes and service levels that they consider to be priorities.

1.3 On 2 April 2020 Northumbrian 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.[2]

1.4 In its statement of case, Northumbrian Water challenges a broad range of elements in our final determination. It alleges that we have failed to allow Northumbrian Water's efficient costs. It objects to the distribution of under- and over-performance penalties and rewards in its outcome delivery incentives (ODIs), claiming that these introduce 'perverse incentives'. It contends that we have – in particular, by disallowing funding for two schemes – failed to meet our statutory duty to further the resilience objective. It objects to our cost of capital. It also alleges that the final determination is not financeable.

1.5 We disagree with the company and consider that Northumbrian Water misinterprets how our statutory duties have framed the development of our final determination.[3] In this document, we explain our position on the key issues arising from Northumbrian Water's submission. Across the full suite of

[1] PR19 final determinations: Northumbrian Water final determination, December 2019
[2] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020
[3] See Ofwat, 'Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', Chapter 3

documents which constitute our response, we have endeavoured to respond to the company's statement of case in its entirety.

1.6 We note that in support of some of its arguments and proposals, Northumbrian Water has raised a number of **points that were not raised at prior stages of the price review process** or represent issues that have arisen since publication of our final determination, including requests for additional cost allowances. We make clear, in the following sections of this document, where a point raised by Northumbrian Water is new.

1.7 Some of the requests, though, relate to information that the company did not share with us during the price control determination process (for example, in relation to the business rates adjustment).

1.8 Northumbrian Water submitted new information to Ofwat, in relation to its statement of case, on 28 April 2020. We have not had opportunity to review this late information in preparing our response to the companies' statement of cases. If necessary, we will set out our thoughts on the new information in later submissions to the CMA.

1.9 We summarise below what was included in our final determination for Northumbrian Water, and outline the key issues that the company raises in its statement of case.

Our determination for Northumbrian Water

1.10 Our final determination for Northumbrian Water allowed **efficient wholesale and retail costs** of £2,933 million, which is 5% more than Northumbrian Water's historical expenditure for PR14.[4] [5] This includes the **highest amount of resilience expenditure** of all companies (£104 million) relative to company size.

1.11 Under the **performance commitments** that we have set, by the end of the 2020-25 price control period Northumbrian Water's customers will be benefitting from improved service levels such as a 22% reduction in pollution incidents; a 43% reduction in internal sewer flooding incidents; a 26% reduction in external sewer flooding incidents; and an average water supply interruption that is no longer than 5 minutes. The company will also deliver by 2024-25 an

[4] PR19 final determinations: Northumbrian Water final determination, December 2019
[5] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, March 2020, p.3

18.5% leakage reduction for Essex and Suffolk region, and 11% reduction for the Northumbrian region, on a three year average basis.

1.12 It should be noted that, as a leading company on two of the three performance commitments for which we set a common level across all water companies for 2020-25,[6] Northumbrian Water's own business plan from September 2018 forecasts performance that goes beyond the common levels we have set. If achieved, this performance will **enable it to receive outperformance payments** (£4 million on the pollution incident performance commitment and £7 million for water supply interruptions).[7] [8]

1.13 Over and above the costs allowed for day-to-day delivery, our final determination for Northumbrian Water allowed **funding for improvements to service, resilience and the environment**, including £152 million to improve the environment by efficiently delivering its obligations as set out in the whole Water Industry National Environmental Programme (WINEP) and £104 million to deliver improved resilience at critical areas of its infrastructure.

1.14 Our final determination allowed £3,371.1 million of revenue, across all price controls, that Northumbrian 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 at the time. Northumbrian Water's Regulatory Capital Value (RCV) growth in 2020-25 is 6.4%. We bring forward £25 million of revenue from future periods.

1.15 By 2024-25, Northumbrian Water's **average residential customer bill** will be 26% lower than during 2019-20, before allowing for inflation.[9] The majority of the increase in affordability of customers' bills is due to a reduction in the allowed cost of capital in our final determination and a change in the natural pay as you go rates, which means a larger proportion of costs are recovered from future customers (see chapter 2 of this document). Taking into account

[6] Namely, pollution incidents and water supply interruptions performance commitments.
[7] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, p.22, paragraphs 2.46 and 2.47
[8] In chapter 4, 'Delivering outcomes for customers', below, we explain that: if Northumbrian Water maintains its 2018-19 performance on pollution incidents it will receive outperformance payments of £15.9 million over the 2020-25 period, and; if the company achieved the performance it delivered in 2016-17 for water supply interruptions over the 2020-25 period it will receive outperformance payments of £20.0 million over the 2020-25 period.
[9] We note that in its statement of case Northumbrian Water has recalculated the overall bill reduction based on its own methodology (see NWL Statement of case – PR19 CMA redetermination - 2 April 2020, p.2, footnote 10). Our final determinations use a common methodology for calculating average bills across all companies to ensure comparability across companies.

inflation we would expect to see average bills decline in 2020-21, gradually increasing each year whilst remaining below 2019-20 levels.[10]

1.16 We consider that Northumbrian Water's final determination is financeable on the basis of the notional structure, based on a reasonable allowed return on capital and revenue advanced through pay as you go (PAYG) adjustments. The determination is sufficient to deliver its obligations and commitments to customers.

Our determination in context

1.17 Northumbrian Water is broadly delivering **average levels of performance** to its customers, in comparison with other companies. That having been said, its **relative performance has deteriorated recently**: in 2017-18, it met 76% of its performance commitments; in 2018-19, it met just over one half. It is a lower quartile performer on internal sewer flooding; however, it delivers upper quartile performance on pollution incidents and its leakage performance is improving.

1.18 Northumbrian Water is **underspending its PR14 allowance** for 2015-19 by 9%.[11] The company has chosen not to spend all of the money allocated by our PR14 final determination to improve services to customers and infrastructure.

1.19 Northumbrian Water had **gearing above the notional level** at 66.8% as at 31 March 2019 and forecast this to grow to 69.7% in its April 2019 revised business plan.[12] We have previously signaled that companies with high gearing may need to take steps to address financial resilience.[13] CCW identifies Northumbrian Water as one of two water companies that has reported cumulative dividends for 2015 to 2019 above its return on regulated equity.[14] The company has maintained high dividend payments since its acquisition by its current owners CKI in 2011 with a dividend yield averaging 15% since 2011.[15]

[10] PR19 final determinations: Northumbrian Water final determination, December 2019, section 6.1
[11] Ofwat, Service delivery report 2018-19, October 2019, p.7 Ofwat, Service delivery report 2018-19, October 2019, p.7
[12] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, March 2020, p.8, paragraph 1.33
[13] Ofwat, 'Putting the sector in balance: position statement on PR19 business plans', July 2018, p.37, chapter 6
[14] CCW, Water companies' financial performance report 2018-19: Potential implications for customers March 2020, p.22
[15] Ofwat calculation

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 chapter 2 of the 'Risk and return - common issues' document.

1.21 Our final determination set out that Northumbrian Water committed to meeting the expectations set out in our 'Putting the sector in balance position statement' with the exception of our expectations on dividend policy. [16] [17] At final determination our assessment of the company's proposed dividend policy showed that the company was falling well short in a number of areas with **too much focus on distributions to shareholders and insufficient weight given to customers' interests**. Our assessment is set out in the 'Risk and return – common issues' document.[18]

1.22 Northumbrian Water has an existing intercompany loan outstanding of £159 million to its parent company, Northumbrian Water Group Limited, for which it has not obtained formal consent from us.[19] We understand the company is committed to repay the loan, but we have not yet seen evidence the loan has been repaid.

Meeting our duties in the round

1.23 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 properly to carry out its regulated business, including meeting its statutory and regulatory obligations, and to deliver the outcomes within its final determination.

1.24 We set out the duties, and provide more detail on how we complied with them, in chapter 2 below and in chapter 3 of our 'Introduction and overall stretch' document.[20] In particular, we explain why the points made by Northumbrian 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 Northumbrian Water wrongly tries to present some of its arguments as breaches of duty in summary form in chapter 2 below, and further develop those points in the following chapters of this document.

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[16] PR19 final determinations: Northumbrian Water final determination, December 2019, p.7
[17] Putting the sector in balance: position statement on PR19 business plans, July 2018
[18] Ofwat, 'Reference of the PR19 final determinations: Risk and return - response to common issues in companies' statements of case', Chapter 5
[19] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, March 2020, p.9, paragraph 1.34
[20] 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.

Key issues for Northumbrian Water

1.25 We set out below the key issues raised by Northumbrian Water in its statement of case, and in its presentation to CMA on 17 April 2020, 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.

Stretch expectations on Northumbrian Water's costs and performance

1.26 Northumbrian Water alleges that the PR19 price control is one of the most challenging and there is **no case for a step change based on historical performance.** However, the evidence that it has provided is significantly flawed. Northumbrian Water provides little evidence that the overall stretch on the company itself is particularly challenging. We consider that, overall, our final determinations were stretching but achievable. We consider that **it is particularly achievable for Northumbrian Water.**

1.27 In setting an overall level of stretch for Northumbrian Water, and all other companies, we aimed to **strike a balance**. 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, investors may receive less than a fair return and customers may face poorer service. Our final determination considered the level of stretch on costs, outcomes, and costs and outcomes individually and in the round.

1.28 Northumbrian Water states that the overall level of stretch across costs, outcomes and the allowed return is not consistent with our duties as there has not been historical outperformance of price controls. Our proposal for a step change is not based on whether there has been historical outperformance. However historical performance is informative on how companies respond to the challenges that we set. Companies have outperformed (underspent) their totex allowances over the past four price controls. Northumbrian Water's average totex outperformance is 1.9%, and **in 2015-19 it outperformed by 9.0%.** Our PR19 final determination represents a 0.7% challenge on the company's historical base costs, and we note that Northumbrian Water accepts our base cost models. Overall, therefore **the level of stretch we impose on Northumbrian Water's base costs is low compared to many other companies**.

1.29 Northumbrian Water's statement of case sets out that we go further than the benchmarks set by our costs models in five areas. We summarise below our response to the company's arguments below. Each point is covered in more detail in chapter 3 of this document:

- **Catch-up challenge** – our level of catch-up challenge in percentage terms is less than at PR14. Our frontier shift of 1.1% per year is less than the 1.5% Northumbrian Water assumed in its business plan.
- **Abstraction charges and business rates** – we adjusted the cost sharing arrangement on abstraction charges and business rates so that customers pay 75% of any increase in charge (and benefits 75% of any decrease in charge). The leaves relatively small exposures to risk of variation in charges, while keeping companies incentivise to manage and negotiate their rates effectively.
- **Real Price Effects** – we do not consider that there is insufficient evidence that a real price effect for energy prices or chemicals is required and an adjustment will weaken company incentives to manage these costs.
- **WINEP** - we consider that frontier shift efficiency should be applied to WINEP enhancement costs. We do not accept the company's challenge to our phosphorus removal modelling approach.
- **Growth** - our models remain robust to the inclusion of growth costs. We complemented our modelling approach with a deep dive process to consider company specific adjustments. We also applied positive adjustments for companies with expected high growth and negative adjustments for companies with expected low growth to compensate for a lack of specific growth driver in the model.

1.30 In short, we consider that for Northumbrian Water, the overall level of stretch on costs set out in our final determination is achievable; the overall level of stretch on outcomes for customers is achievable; and the overall level of stretch across costs and outcomes **not only is achievable but gives the company scope to outperform** (see chapter 5 of this document).

Investment for resilience

1.31 In our final determination we allowed Northumbrian Water a total expenditure (totex) of £2,933 million for wholesale and retail price controls for the period 2020-25.[21] We allowed all costs proposed by the company that were well-evidenced and efficient, including one of the largest resilience allowances in the industry (£104 million). Nevertheless, Northumbrian Water claims that we have

[21] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, p.13, section 2

failed to discharge our resilience duty appropriately and prioritised short-term customer bill reduction over longer-term resilience investment.

1.32 Based on our assessment of the company's business plan, we consider that **Northumbrian Water has a poor understanding of resilience**. In our final determination, we judged its business plan as falling short of demonstrating an integrated resilience framework.[22] We also note that, following the evolution of the statutory framework to include a resilience duty, Northumbrian Water requested far more resilience expenditure than any other company relative to company size.

1.33 Despite our view about the company's poor understanding of resilience, **we recognised the priority of this area of investment to the company and its customers and stakeholders** and considered the company's resilience proposals thoroughly, in line with our duties, rejecting proposals only where we considered the evidence was not sufficient or where we considered our cost-outcomes framework covered the investment.

1.34 Northumbrian Water specifically disputes our decision in the final determination to reject **two specific cost proposals** and has provided new, restated information for each.

1.35 The first specific proposal is **an investment to reduce sewer flooding risk in the north-east**. We considered at the final determination stage that the company had been allowed funding to address sewer flooding risk within its base cost allowance. Having considered Northumbrian Water's restated evidence and new information, we remain of the view that **our PR19 regulatory framework provides appropriate customer funding for the company to undertake the investment in the north-east** so no adjustment to our cost allowance is required.

1.36 The second specific proposal is **the Abberton-Hanningfield raw water transfer scheme proposal in Essex.** We explained in our final determination that we did not consider the need for this scheme to be justified.[23] **We retain our view that, despite additional evidence, the Abberton to Hanningfield transfer scheme is not justified**. We note that Northumbrian Water emphasised in its own water resources management plan that the supply network in Essex is highly integrated and flexible.[24] In our view, the transfer

[22] PR19 final determinations: Northumbrian Water final determination, December 2019, pp.29-30, section 2.3
[23] PR19 final determinations: Northumbrian Water final determination, December 2019, p.40, section 3.3
[24] Northumbrian Water, SOC 515, Essex and Suffolk Water Final WRMP August 2019, p.38

scheme is therefore not necessary to enhance resilience in the Essex water resource zones.

Allowed return

1.37 The final determination set an allowed return of 1.96% (in RPI terms). Northumbrian Water **requests a higher allowed return than was included in its business plan**. It argues that we have incorrectly calculated the allowed return and set it at a level that is demonstrably below what is in customers' long-term best interest.[25] It says that the overall range for the allowed return is 2.49% to 2.75% (RPI).[26] This is higher than the return included in its business plan (2.40% in real RPI terms).

1.38 **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.

1.39 **Our approach is balanced and consistent with previous price reviews.** For estimating the cost of equity we used the 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) we have been guided by more recent market data, on the grounds that evidence for mean reversion or convergence to equilibria is weak.

[25] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.146, section 8
[26] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.7, paragraph 31

Financeability

1.40 Northumbrian Water considers we have failed to satisfy our financing duty. The company states that the final determination results in an unacceptable level of downside risk.[27] It considers the determination includes a combination of unrealistically low cost allowances, challenging and stretching performance targets, an asymmetric and downwardly skewed package and an unprecedented low cost of capital.

1.41 Our **final determination provides Northumbrian Water with a reasonable return if it meets the cost allowances and performance commitments** set out in our determination. The 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.

1.42 Northumbrian 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 Northumbrian Water's determination and the £25 million **cash flow profiling adjustments we made more fairly balance customer interests** than increases to customer costs through uplifting the allowed returns to equity.[28]

1.43 In relation the company's assertion that its capacity to withstand plausible downside scenarios is reflected in the projected credit rating for the company (which it says is likely to deteriorate from Baa1 to Baa2),[29] statements made by the credit rating agencies that suggest it is by no means clear Northumbrian Water would be downgraded to Baa2 solely due to our determination.[30] Northumbrian Water's claims that relate to the financeability of the **actual capital structure are matters for the company and its investors**. We provide more detail on this in chapter 6 below and our 'Risk and return – common issues' document.

1.44 We also note that since its acquisition by CK Infrastructure Holdings Limited Northumbrian Water has maintained a gearing level above the notional level and has maintained high dividend payments that have outstripped reported

[27] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.7, paragraph 34
[28] PR19 final determinations: Aligning risk and return technical appendix, p.83-87, Section 6.3
[29] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.7
[30] Reference of the PR19 final determinations: Risk and return - response to common issues in companies' statements, section 2

company profit. **It is not appropriate that customers should incur increased costs to provide additional headroom under the actual capital structure or to continue to meet high dividend payments**.

Balance of risk and return

1.45 Northumbrian Water raises concerns with the overall balance of risk and return. It claims; potential ODI penalties exceed rewards;[31] our approach to setting cost sharing rates has the wrong incentive properties;[32] uncertainty mechanisms are asymmetric.[33] The company considers that the introduction of a gearing outperformance sharing mechanism was an error.[34]

1.46 **Asymmetric performance incentives** for the service measures are not new: they have been a feature of past determinations. PR19 provides more scope for upside than the PR14 determination as companies already performing at a level better than the performance commitment can achieve outperformance rewards from the performance commitment level, whereas at PR14, a deadband applied to historical performance. Furthermore, a forecast downward skew for ODIs does not mean Northumbrian Water will underperform its determination.

1.47 Asymmetric **cost sharing rates** were introduced to simplify the menu incentive applied at PR14. 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.[35]

1.48 Northumbrian 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. Our approach recognises that companies

[31] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.189-191, paragraphs 1061-1067
[32] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.103-109, paragraphs 499-528
[33] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 192 &200, paragraphs 1071 & 1128
[34] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.163-165 , paragraphs 892-910
[35] 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.

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.

1.49 Recent reviews of the sector highlight the need for regulators to explicitly account for information asymmetry.[36] Northumbrian Water had significant opportunity through the PR19 process to convince us of the need for all of 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.

1.50 Totex cost sharing rates provide Northumbrian Water with significant protection from downside risks, and the approach we have adopted at PR19 provides additional protection for business rates and Environment Agency abstraction charges.

1.51 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 incentives** on choosing financing structures without full consideration of the potential impacts on customers and wider stakeholders.

1.52 Northumbrian Water outperformed the cost allowances we set in three of the last four control periods. Northumbrian Water, if efficient, can continue to deliver its commitments and obligations to customers within the cost allowances we set, with incentives to outperform.

1.53 We set out our response to Northumbrian Water's arguments around the balance of risk and return in the 'Aligning risk and return' chapter below 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.

[36] 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

Conclusion

1.54 We consider that our **final determination strikes an appropriate balance**. There are respects in which one could argue that if anything, we have leaned in favour of Northumbrian Water – a company which is, as noted above, well-placed not only to achieve its targeted levels of performance commitment but to out-perform. That having been said, we have addressed inefficiencies in Northumbrian Water's plans (including on resilience-related and environmental expenditure) and removed areas of potential double funding, to protect its customers from poor performance, inefficiency and poorly-justified proposals.

1.55 Overall, our final determination for Northumbrian Water (which was based on the proposals and evidence submitted by the company and our analysis of the markets and sector-wide data and submissions) is **in accordance with our statutory duties**. It includes a **reasonable allowed return to reward investors for the risk they face**, in a sector that benefits from significant risk protections.[37]

1.56 In their statements of case, companies do not have an incentive to draw attention to aspects of our final determinations that are relatively favourable. This creates a risk that the overall balance that made a determination appropriate, in the round, is lost amidst the detail of the numerous issues raised by the company. We encourage the CMA to consider Northumbrian Water's redetermination in the round.

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

1.57 This executive summary is structured so as to address Northumbrian Water's points in the order in which the company has raised them. The remainder of this document has been structured broadly to group issues in the way that Ofwat has done 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 (5) and aligning risk and return (6).

1.58 We provide a summary table close to the beginning of chapters 3 – 6 listing Northumbrian Water's key issues, and indicate where these are responded to in this document and where relevant in other documents which form part of our response to the companies' statements of case. We hope that this will provide

[37] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, p.32, paragraph 2.92

the CMA with the most helpful way in which to navigate through and group the issues Northumbrian Water has raised. We also seek to provide the CMA with a consistent structure across our responses to the four disputing companies.

Additional comment

1.59 As we submit our response we continue to recognise the ongoing situation regarding Covid-19. We note that Northumbrian Water acknowledges its potential impacts on the redetermination process in its statement of case.[38] 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.[39]

1.60 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.

[38] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.8, paragraph 43
[39] For further details on our position on Covid-19, see 'Introduction, overall stretch on costs and outcomes – response to cross-cutting issues in companies' statements of case', Chapter 1

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:[40]

- 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.[41]

2.3 We must also determine price controls for Northumbrian Water in accordance with the statement of strategic priorities and objectives for Ofwat (**SPS**) from the UK Government.[42]

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, in our submission, we have approached fulfilment of our duties in PR19 (see chapter 3). We also address there the

[40] Water Industry Act 1991, Section 2(2A)
[41] Water Industry Act 1991, Section 2(3)
[42] 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

main common issues 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 Northumbrian Water argues we failed to act in accordance with the statutory duties as the final determination reflects an unduly narrow view of the consumer objective, bringing about a fundamental imbalance with respect to the other statutory duties, such as the resilience objective and the financeability duty. To support this assertion the company states that:

- **We have focused unduly on short term (bill reduction) over long term** – Northumbrian Water argues our final determination focused unduly on unprecedented short-term bill reductions that will put at risk the delivery of satisfactory service levels to customers. It claims that the final determination disregards other customer priorities, such as more resilience to climatic changes, and runs counter to customers' preference for flat bills to allow such investments. It also argues our final determination has taken a short term approach by increasing PAYG revenues, at the expense of future consumers in order to make companies financeable, promoting inter-generational unfairness.[43]
- Our **final determination does not support resilience schemes** that would address significant flooding, water scarcity, quality and other concerns for Northumbrian Water's current and future customers – the company considers we failed to give adequate weight and consideration to the objective merits of the resilience schemes it proposed (namely the scheme for sewer flooding risk reduction in the North East and the Abberton to Hanningfield transfer main), disregarding the clear support from customers (as expressed through robust and comprehensive engagement).[44]
- The cost of **capital is too low** – Northumbrian Water claims that Ofwat failed to set an appropriate return on capital.[45]

[43] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.33, section 3.3.1, and pp.38-9, section 4.2
[44] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.34-6, section 3.3.2
[45] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.36-7, section 3.3.3

- Our **final determination is not financeable** and provides insufficient financial headroom on the basis of the allowed return, an imbalance between risk and return and its view that revenue advancement is not appropriate to resolve a financeability constraint. It claims a company with a notional capital structure is unlikely to achieve the credit rating stated in our final determination and so claims an efficient company would not be able to raise debt at the rates assumed in the final determination.[46]

2.7 Several of the arguments above have also been put forward in more or less the same form by the other disputing companies. As we explain in more detail in chapter 3 of the 'Introduction and overall stretch' document , we consider the issues raised by the company are not in truth 'hard-edged' questions 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 regulatory discretion.

2.8 The CMA, too, will be exercising its discretion in a way it considers is best calculated to meet the duties, and which accords with the UK Government's SPS. 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.

2.9 In summary and in relation to the alleged undue focus on short term bill reduction, **affordability was indeed, and rightly, one of our key themes** for PR19. Water is an essential service, giving rise to unavoidable costs which constitute a significant element of household expenditure for many customers. However, affordability was only one of four themes we set ourselves for PR19, **the others being great customer service, long-term resilience in the round,**

[46] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.36-7, Section 3.3.3

and innovation.[47] It is also important to stress that changes to customers' bills generated by our final determinations are the consequence of application of our PR19 methodology. As explained in the section below in 'Setting bills for customers', reductions in bills for Northumbrian Water customers are mostly due to the mix of capital and operational expenditure during the 2020-25 period and a lower allowed cost of capital.

2.10 Regarding the claim that our cost allowance is too low and will put at risk the delivery of satisfactory service levels to customers, in our final determinations, we set a **cost-outcomes package aimed at providing a strong incentive for companies to invest and operate efficiently and at the same time deliver a marked improvement in their level of performance**, particularly on outcomes that matter to customers and the environment. Northumbrian Water's proposed costs were less efficient than our view of efficient costs, and for this reason we challenged the company because customers both now and in future are entitled to expect that they should fund only expenditure that is efficiently incurred and in their interests.

2.11 We allowed all costs proposed by the company that were well-evidenced and efficient. In particular, relative to company size our final determination for Northumbrian Water included **the highest amount of investment for resilience proposals of all water companies**. We recognised the priority of this area of investment to the company, its customers and stakeholders.

2.12 As noted in chapter 3 of the 'Introduction and overall stretch' document the resilience objective, though part of our suite of statutory duties, is in practice directed as strongly at the companies themselves. Furthermore, nothing in the resilience objective relieves the companies of the requirement to demonstrate the need and efficiency of the proposed investments, or offers a blank cheque for future expenditure.

2.13 The cost allowance set for Northumbrian Water in our final determination covered almost the full scope of the work that the company had proposed in its business plan after consulting with its customers. We rejected proposals where we considered the evidence was not sufficient, or where we considered our cost-outcomes framework covered the investment. We explain in more detail in chapter 3 below, the reasons for not having provided the additional allowances for the resilience schemes Northumbrian Water identifies in its statement of case (investment to reduce sewer flooding risk in the North East and the Abberton-Hanningfield raw water transfer scheme).

[47] Ofwat, PR19 final determinations: Policy summary, pp18-20, section 1.5.2

2.14 We explain in the section below entitled 'Engaging customers' **how we considered the results from customer engagement**. This issue is also addressed in chapter 3 of the 'Introduction and overall stretch' document, in the section on customer engagement.

2.15 Chapter 6 below sets out **how our financing duty guided our decision-making regarding financeability issues**, and also provides our detailed response to Northumbrian Water's arguments. Our overarching objective in setting the allowed return at final determinations was to provide a reasonable base level of return reflective of the sector's risks, and which is sufficient to cover efficient debt and equity financing costs over 2020-25 for a company adopting our notional financial structure.

2.16 Finally, Northumbrian comments that 'Ofwat may have been unduly influenced by external and historical factors'.[48] The company aims to refute what it states is our 'hypothesis that there has been systematic outperformance in the water sector'.[49] It argues that the statutory duties that apply to Ofwat and CMA in this redetermination require us to consider what would be the most suitable settlement for the 2020-25 asset management period, having regard to the interests of current and future customers.

2.17 Northumbrian Water alludes to the potential generosity of prior price review settlements, and suggests that PR19 should not be 'seeking a claw-back in respect of historic settlements', as such an approach would run 'counter to the Consumer Objective, the principles of regulatory practice and the independence of Ofwat from Government.'[50]

2.18 Northumbrian Water's assertion is a misinterpretation of the purpose of our references to external reviews of previous settlements. We consider these assessments provide valuable context to understand the sector, and they were presented as such in the teach-in session from which the quotes relied on were taken.[51] The National Audit Office, the Environment, Food and Rural Affairs Committee, the National Infrastructure Commission and the Citizens Advice Bureau all provide valid different perspectives. Being an independent regulator also means considering other perspectives that complement and balance the companies' views. We have, however, made our own independent assessment

[48] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.34, paragraph 138 and p.62, paragraph 282
[49] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.34, paragraph 138 and pp.57-59, paragraphs 259-263
[50] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.34, paragraph 138 and p.62, paragraph 282
[51] Northumbrian Water, SOC415, 'Notes of a hearing with Ofwat - 4 February 2020, pp.8-9

of past performance, and used this information as one factor when reaching our overall view as to how far companies should be challenged for the 2020-25 period. PR19 allowances and performance levels were set to make sure companies are funded to deliver stretching but achievable outcomes with efficient costs, rather than retrospectively seeking to claw back any previous outperformance gains. To suggest otherwise is plainly wrong.

2.19 We should also note that Northumbrian Water's argument is not supported by evidence. On the contrary, the revenues allowed in the final determinations were based on transparent building blocks reflecting a number of assessment criteria, extensively explained and detailed in our methodology and final determination documentation. Assessing all of those materials on an objective basis, it is clear that previous outperformance gains were not somehow "clawed back" through the PR19 final determinations.

Engaging customers

2.20 Our methodology for the PR19 price review challenged companies more than ever before to **deliver great customer service**.[52] We expected companies to engage with their customers to build an **in-depth understanding of customers' preferences and priorities**, including where these vary.

2.21 We expected **customer challenge groups** 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.[53] As we explained in our Reference of the PR19 final determinations overview,[54] **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**. 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 Northumbrian Water's business plan and subsequent submissions provided evidence of the company's approach to customer engagement and the results of that engagement. In our initial assessment of the company's business plan we explained: [55]

[52] PR19 final determinations: Overview of final determinations, p.12
[53] PR19 final determinations: Northumbrian Water final determination, p.19
[54] Reference of the PR19 final determinations: Overview, p. 33
[55] PR19 initial assessment of plans: Northumbrian Water company categorisation. p.4

'The company's plan demonstrates high-quality engagement with customers. It uses a wide range of engagement techniques, including face-to-face interviews, surveys and co-creation events and a three-phase approach to customer engagement. It maintains ongoing engagement with customers, including through its engagement vehicle ("Flo") at community events. It invites customers to attend the senior team conference. It uses a high quality and innovative approach to support customer participation, including running an annual innovation festival and a 'water rangers' scheme.

However, the plan falls short in one area in particular. The company calculates the marginal benefit values for its outcome delivery incentive rates from one source and the company does not provide convincing evidence that this single piece of research is high quality or that it has triangulated with other customer valuation research.'

2.23 Northumbrian Water's customer challenge group (called "The Water Forums") provided an assurance report alongside each company submission to Ofwat and a representation on our draft determination. In its representation, The Water Forums state that it would like to see the plans remain balanced in relation to the return to investors and customers in our final determination.[56]

2.24 In its statement of case, Northumbrian Water repeatedly states that its business plan was accepted by 91% of its customers.[57] It comments that 'Ofwat did not undertake any of its own customer research' and saw 'fit to overwrite consumer engagement evidence'.[58]

2.25 Whilst we note the level of customer support for its plan demonstrated by Northumbrian Water, and comments from The Water Forums, we are satisfied that our final determination reached an appropriate and in the round balance between the proposals submitted by Northumbrian Water in its submissions during the price review, which were shaped by customers' views, and the need to protect customers from the **risk of inefficient costs**, the possibility of **duplicated costs** and **excessive returns to investors**.

[56] N001, Northumbrian Water and Essex & Suffolk Water - Water Forums' Draft Determination response, 29 August 2019, p.2
[57] For example, "Overall, 91% of our customers accepted the plan we put forward, one of the highest levels of acceptability across the sector.", Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.2
[58] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.53, paragraph 240

2.26 We explain in our 'Outcomes – common issues' document (chapter 5) our view that broad indications of customer preference obtained as part of an engagement process should serve to shape company business plans, but they do not relieve the companies of the need to evidence either the need for or efficiency of their proposed expenditure. Nor does broad customer support immunise company business cases from appropriate regulatory scrutiny and challenge.

2.27 Chapter 3 of this document provides an explanation of our view of Northumbrian Water's cost proposals, including two resilience schemes for which it claims it has received strong customer support. The fact is that, after considering all evidence provided, including new and updated information in its statement of case, we continue to conclude that one of the schemes is funded through base costs and the company has not adequately demonstrated the existence of a significant resilience risk to justify the other scheme.

2.28 Our 'Outcomes – common issues' document (chapter 5) explains that our interventions in business plans help deliver outcomes that are in customers' interests. Our interventions are targeted and proportionate based on the wider set of information available to Ofwat that was not available to customers.

2.29 We note that recent research by CCW revealed that 90% of Northumbrian Water's customers found our draft determination plan and bill reductions acceptable, comparable to the results of the company's research findings on overall plan acceptability.[59]

Setting bills for customers

2.30 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.

2.31 In our 'overview of company categorisations' document published after our initial assessment of plans we explained: [60]

> '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

[59] CCW PR19 – Draft Determination Research Phase 2 – Summary Reports, February 2020, p.1
[60] PR19 initial assessment of plans: Overview of company categorisation, p.17

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.'

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

2.33 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 £50 before inflation.[61]

2.34 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 (chapter 4) 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.'

2.35 Our final determination for Northumbrian Water will cut average customer bills by 25.6% in real terms in the 2020-25 period compared to the company's proposed 21.3% reduction.[62] In its statement of case Northumbrian Water claims that:[63]

'redetermination which implemented all the remedies we seek in the SoC would still allow us to achieve a reduction in annual average customer bills equivalent to at least the 15% reduction proposed in BP19 (ed. 04.19).'

2.36 Taking into account inflation we would expect to see average bills decline in 2020-21, gradually increasing each year whilst remaining below 2019-20 levels. Our final determination explains how our average bill profile for Northumbrian

[61] PR19 final determinations: Overview of final determinations, p.3
[62] PR19 final determinations: Northumbrian Water final determination, December 2019, p.4
[63] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.8, paragraph 41

Water's customers takes account of customer preferences for consistent and predictable bills.[64]

2.37 We explain in Figure 2.1 how different parts of the Northumbrian Water's business plan and our final determination decisions have an impact on the average bills that its customers are paying in 2019-20 (year five of AMP 6) compared with the proposed bill in 2024-25 (year 5 of AMP 7). We show that some aspects of our determination increase bills from 2019-20 levels and other aspects of our determination reduce what customers pay.

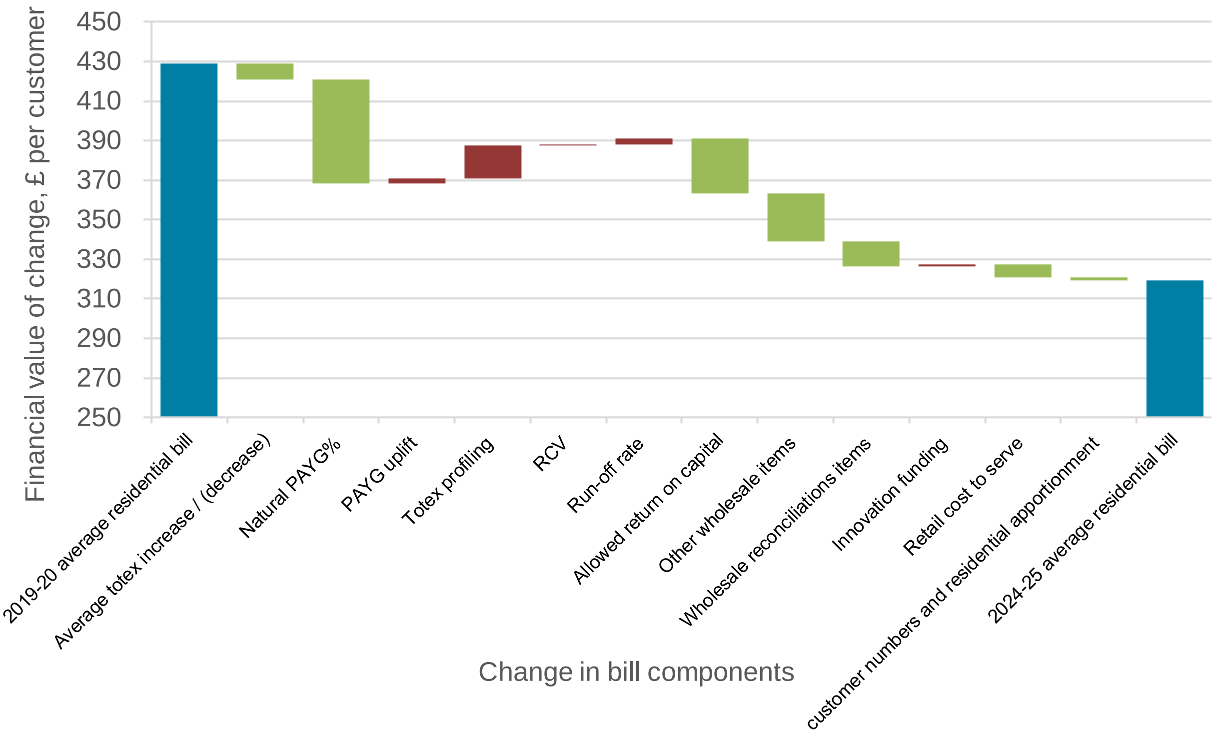
2.38 Increases in bills are primarily due to a change in the expenditure profile with a greater allowance in the latter years of the AMP.

2.39 For Northumbrian Water customers, reductions in bills are mostly due to:

- A decrease in the natural PAYG rate as a result of higher capital expenditure and lower operational expenditure during the AMP;
- A lower allowed cost of capital (shown as 'WACC' in Figure 2.1);
- A reduction in tax the company expects to pay between 2019-20 and 2024-25 (included in 'Other wholesale items' in Figure 2.1).[65]

[64] PR19 final determinations: Northumbrian Water final determination, December 2019, p.80
[65] We note that Northumbrian Water invites CMA to consider an adjustment to the corporation tax rate that will apply for its redetermination. At the end of the 2020-25 price review period we will be applying a corporation tax reconciliation model to all company outturns.

Figure 2.1: Bill movement between PR14 and PR19[66]



2.40 As such, we refute Northumbrian Water's claim that our final determination 'has disallowed funding for resilience investments that our customers supported and were willing to pay for and focussed instead on reducing the bills through a much sharper reduction in the WACC.'[67]

2.41 Chapter 6 of our 'Introduction and overall stretch' document explains that 'the change in bills compared to company business plans in PR19 was similar to that from PR04 to PR14 for 12 out of 16 companies, including Northumbrian Water'.

[66] 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 one percent higher than the allowed return on capital expressed in real RPI terms.

[67] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, section 4.1, p.38

3. Securing cost efficiency

Summary

3.1 In September 2018 Northumbrian Water submitted a business plan requesting £3,240 million for 2020-25 which was 16% higher than its costs in the 5-year period 2014-15 to 2018-19.[68] To ensure customers pay only for efficient costs, we challenged the company's proposed costs and investment programme where appropriate.

3.2 As a result of our challenges, the company reduced its requested totex by £128 million since its September 2018 business plan. In response to further evidence, we also increased our final totex allowance by £109 million. The remaining gap at final determination between our view and the company's view of overall totex is £180 million (or 6%). This compares to a 13% gap in September 2018.[69]

3.3 At final determination, we allowed Northumbrian Water a total expenditure of £2,933 million for wholesale and retail price controls for the period 2020-25.[70] We allowed all costs proposed by the company that were well-evidenced and efficient, including one of the largest resilience allowances in the industry. Our package, in the round, funded almost all of the scope of work proposed by the company. We explained our reasons for not fully funding requested expenditure for some base and enhancement proposals in our explanation of our final determination.[71]

3.4 In its statement of case, Northumbrian Water highlights only areas where its cost allowance could be increased (with the exception of business rates charges where the company was remiss in not providing the revised lower amount earlier in the price review process).[72] It does not draw attention to aspects of our cost allowances that were made in the round and could be considered to be generous (such as our negative adjustment for growth, which we discounted by fifty per cent – see 'Key issue - Growth modelling adjustment'

[68] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, March 2020, p.12, section 2
[69] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, March 2020, p.13, section 2
[70] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, March 2020, p.13, section 2
[71] Reference of the PR19 final determinations – Explanation of our final determination for Northumbrian Water, March 2020, pp.12-21, section 2, Securing cost efficiency
[72] See table 3.4 and 'Business rates overstatement' section below

section below). The company does not challenge our approach to base cost modelling and states that our approach to the base models strikes a reasonable balance in meeting the balance of engineering / economic rationale, confidence in coefficients and model robustness.[73]

3.5 Table 3.1 highlights the key issues made by Northumbrian Water in its statement of case in relation to costs and a summary of our response to each of those issues. We explain where we discuss these issues later in this document and elsewhere.

Table 3.1: Key issues on costs raised by Northumbrian Water in its submission[74]

Key issues in Northumbrian Water's submission	Summary of our response
Catch-up efficiency challenge - Northumbrian Water considers the challenge of our changed approach to setting the catch-up efficiency challenge to be unachievable. (statement of case, pp.65-73, paragraphs 293-337)	We have set the benchmark at a comfortably achievable 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 are still forecasting more efficient costs than our efficient benchmark, which indicates there is significant scope for outperformance of our cost allowance. We outline our more detailed response 'Key Issue - Wholesale base modelling catch-up efficiency benchmark' section below.
Frontier shift - Northumbrian Water states that our frontier shift is unachievable, is inconsistent with other regulator's previous decisions, conflates catch-up and frontier efficiency evidence from other sectors and is incorrectly applied to WINEP and unmodelled costs. (statement of case, p.71, paragraph 326; pp.92-93, paragraphs 443-452; p.94, paragraph 455; p.97, paragraph 477 and 480)	Our frontier shift of 1.1% is less than the 1.5% Northumbrian Water assumed in their business plan. 1.1% is within the range of frontier shifts applied by other UK regulators in recent years. Our frontier shift estimate is based on performance of competitive sectors and so takes into account the potential impact of catch-up. Our frontier shift estimate is also based on productivity growth of all costs in comparator competitive sectors. We therefore consider that it should be applied to enhancement costs (consistent with the approach used by other regulators) and all base costs. See 'Key issue – Frontier shift' section below.
Real Price Effects - Northumbrian Water states that our real price effects assessment framework is novel and complicated, particularly relating to the relevance of input price volatility, the appropriate use of management control criteria, and our consideration of energy and chemicals costs.	Water companies benefit from indexation of price controls to CPIH inflation. We consider that allowances for real price effects should only be made where there is sufficient evidence, given the risk of a negative impact on customers if overestimated and the unreliability of previous forecasts. There is insufficient evidence that a real price effect for energy prices or chemicals is

[73] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 288-289
[74] See also Reference of the PR19 final determinations: Cost efficiency – response to common issues in companies' statements of case.

Key issues in Northumbrian Water's submission	Summary of our response
(statement of case, pp.73-82, paragraphs 338-391)	required and an adjustment will weaken company incentives to manage these costs. See 'Key issue – Input price - real price effects' section below.
Growth – Northumbrian Water does not agree with the negative adjustment to growth costs we made at final determination, arguing there is no evidence that the base models overfund companies with lower growth. (statement of case, p.83-86, paragraphs 392-411)	Our growth adjustment has a clear rationale and intuition. Because our wholesale models lack a cost driver to capture growth intensity, they may fund the historical average growth rate across the industry, overfunding companies with expected growth rates that are lower than historical and underfunding companies with expected growth rates that are higher than historical. We consider Northumbrian Water has benefitted from our conservative approach of discounting the negative adjustment by 50%. We outline our more detailed response in 'Key issue - Growth modelling adjustment' section below.
Water Industry National Environment Programme (WINEP) – Northumbrian Water states that there has been a failure to allow efficient costs to deliver the statutorily required WINEP schemes and it disagrees with our application of a programme-wide efficiency challenge on the modelled WINEP proposals. The company also disputes our modelling approach to determining a phosphorus removal allowance. (statement of case, pp.87-93, paragraphs 412-452)	We allowed funding for all WINEP schemes in our final determination, challenging options or efficiency where necessary. We consider that applying frontier shift efficiency to WINEP enhancement costs is correct because the potential gains from productivity improvements are likely to be more significant for large, relatively homogenous programmes of work. Previous regulatory decisions have applied frontier shift to enhancement costs. We discuss this in more detail in 'Key Issue - WINEP Efficiency challenge' section below. We do not accept the company's challenge to our phosphorus removal modelling approach. We discuss this in more detail in 'Key Issues – WINEP Phosphorus removal cost modelling' section below.
Resilience – Northumbrian Water states that we have failed to discharge our resilience duty appropriately and prioritised short-term customer bill reduction over longer-term resilience investment. It specifically disputes two decisions made at final determination: 1. Rejection of an additional adjustment of £86 million for its proposed investment to reduce sewer flooding risk in the north-east. 2. Rejection of the Abberton-Hanningfield raw water transfer scheme proposal in Essex (£20.4 million). (statement of case, pp.33-37, paragraphs 134-154; chapter 7)	We took a balanced view of our duties as a whole and of our four PR19 themes. We provide a detailed response on our duties in our 'Introduction and overall stretch' document (see chapter 3). We retain our view that our PR19 regulatory framework provides appropriate customer funding for sewer flooding investment and that the company did not provide evidence that warrants making an exception for it. We retain our view that the Abberton to Hanningfield transfer scheme is not justified and that the company has not adequately demonstrated the existence of a significant drawdown risk to Hanningfield reservoir, or risk to potable supplies in the Essex supply area. Our detailed responses to the two resilience schemes are provided in the key issues sections

Key issues in Northumbrian Water's submission	Summary of our response
	below (see 'Key issue – Resilience', 'Key issue – Resilience: sewer flooding in the North East' and 'Key issue – Resilience: Abberton to Hanningfield raw water transfer scheme')

Considerations for the CMA

3.6 It is important to recognise that the price review is a process affected by asymmetry of information 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.

3.7 During the price review process we received numerous representations and cost adjustment claims from companies for additional costs. We would expect there to be numerous cases where a negative adjustment is warranted, however, we have not received any such representations from companies. A clear example of this is our cost adjustment claims process: during the price review process we received cost adjustment claims for a total of around £4 billion, but no company submitted a claim for a negative adjustment to its allowance.

3.8 Similarly, the issues raised in companies' references to the CMA will be focused on areas where companies are arguing for a higher allowance. There is therefore a significant risk that aspects of our final determination which were generous for the company and make the determination appropriate in the round (e.g. our conservative approach to the downward adjustment to our models due to low growth forecast for the company),[75] will lose the prominence they need amidst the detail of the many issues raised.

3.9 We suggest that the CMA should approach the final determination for Northumbrian Water in-the-round, weighing up the company's arguments as part of the broader final determination package. Overall we consider that the final determination package is funding efficient costs and is stretching but achievable.

[75] 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, chapter 4

Our response to key issues raised by Northumbrian Water

3.10 Below we address in turn the key issues raised by Northumbrian Water, as listed in table 3.1. These key issues are presented as cost challenges to base and to enhancement.

Base costs

3.11 Northumbrian Water is supportive of our wholesale base cost models:

> 'Based on our assessment we are supportive of Ofwat's base costs models and we do not currently see any rationale for the CMA to revisit the models in its redetermination of our price control. Ofwat has followed an extensive process in its development, there is a strong rationale behind the estimated models in terms of engineering and economics, and the models have robust statistical performance.'[76]

> 'The approach which Ofwat has used for base costs also reflects some of the CMA's past findings and concerns about the PR14 models. The PR19 models have been simplified to ensure that the key drivers are modelled effectively. As part of this simplification the models no longer use the 'translog' specification which resulted in some counterintuitive results.'[77]

3.12 While the company does not question the validity of our base cost models, it challenges some of our post-modelling adjustments, such as the catch-up efficiency challenge applied, our choice of frontier shift and real price effects, and the growth adjustment. We discuss each in turn.

Key Issue - Wholesale base modelling catch-up efficiency benchmark

3.13 At final determination, we set the catch-up efficiency challenge at the fourth ranked company in water and third ranked company in wastewater. Northumbrian Water argues that our choice of catch-up efficiency challenge is

[76] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.64, paragraph 291
[77] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.63, paragraph 286

too demanding and not supported by a robust rationale. It requests that the CMA reverts to using the upper quartile efficiency challenge.[78]

3.14 The company makes several arguments in support of its view. It claims that we used companies that operate in unique circumstances to set the efficient benchmark, and that large and small companies should not be compared due to the fundamental differences in their cost base.[79] It also considers that the rationale for the change was not robust, [80] and that econometric models should not be relied on for setting tighter challenges due to the risk of omitted variables or unexplained differences between companies.[81] It also considers that previous regulatory decisions taken by Ofwat, Ofgem and the CMA do not support a challenge more demanding than the upper quartile.[82]

3.15 As the regulator, we must ensure that wholesale water and wastewater companies, which operate as natural monopolies, are incentivised to become more efficient over time and to reveal their efficient level of costs. Without this incentive, there is a risk given the monopolistic nature of the sector that companies will simply pass on inefficiencies to customers.

3.16 **Our PR19 methodology stated that we would consider strengthening the efficiency challenge at PR19** to ensure that our baselines are sufficiently stretching and ensure that customers do not pay more than necessary for the services they receive. At draft determination, we considered that the upper quartile efficiency challenge was delivering a strong challenge to the sector.

3.17 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% 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.

[78] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.65-73, paragraphs 293-337
[79] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.68, paragraph 310
[80] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.69, paragraphs 315-317
[81] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.70, paragraph 320
[82] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.71, paragraph 327

3.18 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.

3.19 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 determinatio**n. 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.

3.20 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.

3.21 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 3.2:

Table 3.2: 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	4.8%	3.7%
PR19 draft determinations	4.2%	1.4%
PR19 final determinations	**3.9%**	**1.2%**

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

3.23 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** (Table 3.2).

3.24 Overall, our choice of catch-up efficiency challenge for final determination is set at a **comfortably achievable level.** The catch-up challenge was strengthened by only 0.7 percentage points in water compared to the upper quartile level (from 3.9% to 4.6%) and by 0.8 percentage points in wastewater (from 1.2% to 2.0%). As a result, **8 out of 17 companies are still forecasting more efficient costs than our efficient benchmark**. This suggests that our choice is likely to be conservative.

3.25 **Our choice was motivated by a sound rationale.** The company suggests that econometric models should not be relied on to set a tighter challenge, due to modelling inaccuracies. We acknowledge that econometric models are subject to a risk of error and bias, which is one of the reasons we do not set the efficiency benchmark at the frontier company. However, our analysis suggests that the range of efficiency scores between companies narrowed between draft and final determinations, indicating a better performance of our base models.[83] Therefore, model performance supports our decision.

3.26 However, **we strongly 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.

3.27 In addition, it is important to recognise that the measures and provisions of our wider framework reduce the impact of statistical errors on our final cost allowances. During the price review process, we made adjustments to companies in the light of cost adjustment claims, representations, and alternative modelling. These adjustments are one-sided in most cases, increasing allowances for companies.

[83] We provide full details of this analysis in 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', chapter 6

3.28 Northumbrian Water argues that previous decisions by other regulators do not support the choice of a benchmark beyond the upper quartile.

3.29 We acknowledge that Ofwat and Ofgem both adopted an upper-quartile efficiency challenge at PR14 and RIIO-1. But we do not consider this is sufficient evidence to suggest that a more stringent catch-up efficiency challenge could not be applied in the future. Other UK regulators have used more stretching benchmarks than the upper quartile. 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.[84] More 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).[85] In contrast, the upper quartile benchmark would have been between the fourth and fifth placed company.

3.30 In addition, the PR14 upper quartile efficiency challenge was significantly higher than our PR19 efficiency benchmark (Table 3.2 above).

3.31 We also consider **it would not be appropriate, or in the best interest of customers, to be constrained by what other regulators have done or what we have done in the past as a reason not to apply a more stretching challenge,** if the other evidence suggests that a more stretching challenge is required and achievable.

3.32 Northumbrian Water claims that Ofwat included both small and large companies in the calculation of the catch-up challenge, which creates an unrealistic view of efficiency levels. It argues that smaller companies may be able to reduce costs to levels unachievable by larger companies.[86]

3.33 We fundamentally disagree. Our econometric models account for factors related to company size and complexity, for example through drivers such as company scale, treatment complexity and network complexity. This is demonstrated by the fact that some small companies are considered to be relatively efficient (e.g. South Staffs Water and South East Water) whilst others are considered to be relatively inefficient (e.g. SES Water and Bristol Water).

[84] Ofcom, Econometric benchmarking in the UK postal sector - Final report, May 2016
[85] Utility Regulator, NIE Networks T&D 6th price control final determination (RP6), June 2017
[86] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.68, paragraphs 310-311

We also compare all companies against the efficient delivery of specific common services.

3.34 Our choice of benchmarks retains a credible set of smaller and larger companies to determine the catch-up efficiency challenge for the rest of the sector. For wholesale water, the set of companies include Portsmouth Water, Yorkshire Water, South West Water and South Staffs Water. These companies all represent a mix of outcomes performance, and also represent a mix of investment cycle positions. These companies were also identified as being relatively efficient in PR14.

3.35 Overall, 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.

3.36 We provide a more detailed response to this issue in the 'Cost efficiency - common issues' document (see chapter 6).

Key issue – Frontier shift

3.37 Frontier shift represents the ability of efficient firms to become more efficient over time through ongoing productivity growth, for example through new ways of working.

3.38 Northumbrian Water states that our frontier shift assumption, when combined with our catch-up challenge, is unachievable.[87] We do not consider that this is credible. The overall challenge on Northumbrian Water's historical base cost is only 0.7%. We note that our frontier shift assumption of 1.1% per year is lower than the 1.5% used by Northumbrian Water in its business plan.

3.39 Northumbrian Water raises four concerns with our frontier shift assessment which we reject.

3.40 **Our frontier shift takes account of the potential for catch-up efficiency in productivity growth estimates.** Northumbrian Water states that we wrongly reflect total factor productivity estimates from other sectors as frontier shift only,

[87] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 326

rather than a combination of frontier shift and catch-up efficiency.[88] Our frontier shift range is based on productivity in competitive sectors only. This limits effect of catch-up on total factor productivity estimates.[89] We do not consider that we need to adjust productivity estimates for competitive sectors for three reasons:

- In a reasonably competitive industry, inefficient firms will not survive in the long run, meaning that surviving firms may only have small efficiency differentials.
- Alternatively, in a reasonably competitive industry, even if efficiency levels of individual producers vary, on average, they might tend to cancel out across the sector and over time. For example if a firm makes a step forward in terms of frontier shift efficiency and other firms catch up over time, the average efficiency across the sector will reflect the frontier shift improvement that is made across the sector.
- Even if there were variations in efficiency across companies, there is no reason for expecting the degree of dispersion to change over time.

3.41 We therefore do not consider we have wrongly reflected total factor productivity from other sectors, as we have only considered competitive comparator sectors in our frontier efficiency assessment. We consider our frontier shift of 1.1%, which is within Europe Economics range of 0.6% to 1.2% (based on comparator competitive sectors) and includes an uplift from the totex and outcomes framework, represents frontier efficiency only.

3.42 **Our frontier shift number is consistent with previous regulatory decisions**.[90] Our frontier shift of 1.1% is within the range of frontier shifts applied by other UK regulators in recent years which tend to be around 1% per year and can be as high as 1.2% per year,[91] and takes into account the additional benefit from the totex and outcomes framework. Our decision to apply the frontier shift from one year before the price control begins (i.e. from 2019-20) is also supported by evidence from a number of other recent regulatory decisions.[92]

[88] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 326
[89] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, pp. 62, 122.
[90] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 327-335
[91] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 7, Table 7.5
[92] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 7, Table 7.5

3.43 **Frontier shift can apply to enhancement as well as base costs.** Northumbrian Water states that our application of frontier shift to enhancement is inappropriate.[93] As outlined in our final determination, 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.[94] In addition, we found that water company frontier shift assumptions on enhancement expenditure tended to be limited and were often offset by real price effect adjustments (where these are explicit). Other regulators have also applied frontier shift to enhancement costs.[95]

3.44 Northumbrian Water states that Severn Trent Water and South West Water are the upper quartile companies for WINEP costs, and that as they have applied frontier shift to the WINEP estimates, we are double counting the scope for productivity improvements.[96] However, contrary to the company's assumption, the efficient cost baseline for WINEP is actually defined by United Utilities and Dŵr Cymru (the third and fourth companies). As explained in further detail in chapter 7 of our 'Cost efficiency – common issues' document, 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 that applying a frontier shift and real price effect adjustment to these costs is appropriate and does not double count efficiency improvements assumed by companies.[97]

3.45 **Frontier shift should apply to all base costs.** Northumbrian Water states that our application of frontier shift to unmodelled costs is unjustified.[98] Unmodelled costs are business rates, Traffic Management Act charges and abstraction charges. Given that the frontier shift estimate was based on all costs in comparator industries (including costs that might be regarded as 'fixed'), we

[93] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 443 to 449
[94] Ofwat, PR19 final determinations – Securing cost efficiency technical appendix Dec 2019 p.122
[95] Ofwat, PR19 final determinations – Securing cost efficiency technical appendix Dec 2019 p.188; and Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 7, Table 7.5
[96] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 92-93, paragraphs 443-449
[97] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 7, pp.101-104
[98] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 480

applied the frontier shift to all wholesale base expenditure. We consider that there is some scope for companies to reduce these costs, particularly 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 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.

3.46 We note that our frontier shift estimate of 1.1% per year is lower than the 1.5% per year used by Northumbrian Water. The impact of reducing frontier shift from 1.5% to 1.1% far outweighs the increase in scope of the application of frontier shift to WINEP and unmodelled costs in our final determination. We provide a more detailed response to these issues in Chapter 7 of our 'Cost efficiency - common issues' document.

Key issue – Input price - real price effects

3.47 Northumbrian Water raises a number of concerns over our real price effect assessment and proposes that a real price adjustment is applied to energy and chemical costs. Each of the issues raised were considered during the PR19 process and we discuss them below.

Our overall assessment framework is valid

3.48 Northumbrian Water states that we have adopted a novel and complicated approach to assessing real price effects.[99]

3.49 Our independent consultants, Europe Economics, developed their framework for assessing the case for including real price effects in a transparent, consistent and robust manner. The framework received feedback at both the initial assessment and draft determinations stages and was updated as a result. The framework is designed so that a real price effect allowance is only recommended if there is a sufficient and convincing case for including such an allowance. The approach is not particularly new, as we have used a similar structured approach when considering whether to introduce uncertainty mechanisms for other risks to companies' costs.[100] Given the problems identified with real price effect forecasts in the past (see discussion on Ofgem

[99] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 347.
[100] Ofwat, Final price control determination notice: policy chapter A7 – risk and reward Dec 2014 section A7.3.2.1 p.19

RIIO1 controls below) we consider it is critical that there is appropriate evidence for any adjustments. We therefore made some improvements to the approach which was used by Ofgem in the RIIO1 controls. We did not make any real price effect adjustments (or frontier shift changes) in PR14.

3.50 Overestimating real price effects can have potentially significant negative impacts on customers, for example as has been the case in the RIIO-1 price controls. 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.[101] Separately, CEPA repeated Ofgem's methodology with outturn values for the indices used by Ofgem and found that the energy regulator had over-forecast real price effects to the effect of an additional 40 to 80 basis points of Return on Regulatory Equity (RoRE) over the first four years of the RIIO-1 price control.[102] Office of Budget Responsibility wage forecasts and Department for Business Energy and Industrial Strategy energy price forecasts have also proved to be very different to outturns.[103] This illustrates the difficulty in accurately forecasting real price effects and the potential significant impact on customers: it emphases the importance of caution before making real-term adjustments.

Input price volatility can indicate a need for a real price effect

3.51 Northumbrian Water states that input price volatility is irrelevant if input prices increase at a different rate to CPIH and have a material impact.[104]

3.52 The purpose of undertaking volatility analysis is to understand whether the past history of the wedge between the relevant index and CPIH suggests that volatility is of sufficient materiality that there could be a material ex-post impact on totex over a five-year period as a result of unexpected movements in the input price. 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

[101] Citizens Advice, 'Energy Consumers' Missing Billions', July 2017, p.0
[102] Ofgem, 'Review of the RIIO Framework and RIIO-1 Performance – Prepared by CEPA', March 2018, p. 27, Figure 2.4
[103] See 'Cost efficiency – common issues', Chapter 6; and Europe Economics, 'Frontier Shift and Real Price Effects – Final Assessment and Response to Company Representations', December 2019, pp.29 and 36
[104] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 348

- 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.

3.53 The real price effect assessment takes into account both circumstances.

Management control is an important mitigant of real price effects

3.54 Northumbrian Water states that Europe Economics' criteria on management control is not appropriate.[105]

3.55 Management control is an important way to mitigate the impact of real input price inflation which is used in competitive markets, and can help to render a real price effect allowance (or at least a full real price effect allowance) as unnecessary.[106] Europe Economics outlines a clear typology of ways in which companies may be able to limit their exposure to increases in input prices, for example: [107]

- reducing input prices by leveraging buyer power;
- reducing input prices through negotiation to a competitive market price;
- reducing input price volatility through long-term contracts with fixed input prices;
- reducing the volume of inputs used through greater input use efficiency; and
- reducing the volume of inputs used through input substitution.

3.56 Europe Economics provides a structured framework for the assessment of management control, recognizing that there may be instances of partial scope for management control. In its assessment of each input price, Europe Economics sets out how it would expect companies to be able to, not able to, exert management control. We note that a real price effect adjustment effectively transfers that risk on to customers, who have no ability to control that risk. If a real price effect adjustment is not made then the risk is shared between companies and their customers through cost sharing, and so companies are not fully bearing that risk.

[105] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 348
[106] Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix
', December 2019, pp. 195-196
[107] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, pp.22-23

A real price adjustment for energy is not appropriate

Consistency with previous regulatory decisions and Department for Business, Energy and Industrial Strategy (BEIS) energy price forecasts

3.57 Northumbrian Water states we have ignored Europe Economics' advice[108] and 'historical precedent'[109] by failing to account for energy costs.[110]

3.58 We consider that we have adequately assessed the potential need for an energy real price effect allowance and find insufficient evidence to make such an allowance. Europe Economics did not recommend that we include an energy price real price effect, but rather noted that 'whether energy qualifies for an RPE mechanism depends on whether reliance is placed on BEIS forecasts for industrial electricity prices and on the weight that Ofwat attaches to the high wedge between growth in industrial electricity prices and CPIH prior to 2010.'[111] Europe Economics also states that reliance should not be placed on BEIS forecasts.[112] In discussing the historical wedge, Europe Economics states that, 'The lack of sufficient and convincing evidence is echoed by the submissions on energy RPEs in company business plans, with some companies proposing zero or negative RPEs while others propose positive RPEs.'

3.59 The comparison table Northumbrian Water presents shows regulatory decisions from at least 5 years ago (2009, 2012 and 2014). BEIS historical data indicates that prior to 2010 there was a material wedge between industrial electricity prices and CPIH.[113] Evidence from more recent years is mixed and depends on the time period chosen.

3.60 Northumbrian Water[114] state that the historical data and forecasts indicate a wedge between CPIH and energy prices over most periods, citing data published by BEIS. While we acknowledge the latest BEIS electricity forecast a

[108] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 349-352
[109] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 354
[110] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 353
[111] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 41
[112] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p.40
[113] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 8, Figure 8.2
[114] Northumbrian Water, 'Statement of Case', April 2020, p. 73, paragraph 349

wedge of 0.7% per year between 2020 and 2024,[115] there is significant uncertainty about forecasts of energy price, particularly as BEIS forecasts have repeatedly failed to provide accurate forecasts of energy costs in the past. This reflects the volatility of energy prices and interactions with global markets and draws into question the reliability of the forecasts.[116]

Overall impact of energy costs

3.61 Northumbrian Water states that energy costs make up approximately 6% of the company's totex and are a material component of totex.[117] Northumbrian Water states that the impact of BEIS forecast energy price forecasts if they are put forward in full would be between £1.3m (low fossil fuel scenario) and £11.4m (high fossil fuel scenario) increased expenditure. This compares to a total Northumbrian Water wholesale expenditure allowance of £2,683.3 million.[118] The impact of the energy price rise would therefore be between 0.05% and 0.4% of total expenditure if the BEIS forecasts were accurate. We note that more than half of this would be covered by changes in CPIH given Northumbrian Water's low share of energy in total expenditure. We continue to consider there should not be a real price effect adjustment for energy prices.

Management control

3.62 Northumbrian Water states that we have overestimated the ability for management to achieve efficiencies across their energy cost base.[119] Energy costs are partially within management control, particularly the option to sign up to fixed energy tariffs to minimise exposure to price fluctuations. In the final determinations we noted that these contracts were usually for one to two years however we note that household and business contracts are currently available for up to five years. Other mechanisms such as payment arrangements, increased energy generation by the companies themselves, timing of energy

[115] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 8, Table 8.3
[116] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p. 37
[117] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 76-77, paragraphs 364-368
[118] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 10.
[119] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 353

use and improved energy efficiency can assist companies to reduce costs through reduced consumption and minimising exposure to price fluctuations.[120]

Overall assessment

3.63 We outlined the key reasons we did not include a real price effect allowance for energy in our final determination and in our 'Cost efficiency – common issues' document (see chapter 8).[121] Overall we consider that an energy price adjustment is not appropriate as it would weaken company incentives to minimise energy costs. In particular there is mixed evidence of a historical wedge which depends on the period of analysis; significant uncertainty about forecasts of energy prices; no clear theoretical link between energy costs and productivity growth; energy costs are partially within management control; some water companies do not assume a real price effect adjustment or assume that any adjustment would be very small; companies are introducing a number of energy efficiency measures in their move towards net zero carbon emissions and energy costs are partially captured by CPIH.[122] We noted that the case for not including a real price adjustment for energy had if anything grown stronger since the final determinations.

3.64 We note that uncertainty over energy prices has increased with Covid-19, with recent falls in oil prices putting significant downward pressure on energy prices. While the expected impacts for the 2020-25 period are still unclear, this may result in falling real energy costs over the period and further reduce the case for a positive real price adjustment for energy.

A real price adjustment for chemicals is not appropriate

3.65 Northumbrian Water states that we have failed to account for chemicals costs.[123]

3.66 In our final determination we stated that there was insufficient evidence for a real price effect adjustment for chemical costs.[124] Based on advice from Europe

[120] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, pp. 37-38.
[121] Ofwat, PR19 final determinations: Securing cost efficiency technical appendix, December 2019, pp.196-198
[122] Water UK, 'Public Interest Commitment', April 2019
[123] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, section 5.5.4
[124] Ofwat, PR19 final determinations: Securing cost efficiency technical appendix, December 2019, pp.199-200

Economics, there was no historical statistical significant wedge, a wide variation in company forecasts, and a lack of appropriate independent forecasts.[125]

3.67 Northumbrian Water states that, based on an extrapolation of its own calculated composite index, a real price adjustment should be made for chemicals. This evidence was considered by Europe Economics as part of the development of its report. Europe Economics states that Northumbrian Water's own consultants acknowledge that a key drawback of this approach could be a significant rise in crude oil prices in 2017/18 which it identifies as one of the key drivers of chemical costs.[126] Given these concerns, the lack of independence of these forecasts, the lack of robust independent forecasts and the lack of a material wedge on the ONS indices used by a number of the water company consultants (including Oxera and NERA),[127] we continue to consider that we should not allow for a real price effect for chemicals. We note that oil prices have declined significantly since our final determinations. We note that oil prices have declined significantly since our final determinations.[128]

3.68 We provide a more detailed response to this issue in our 'Cost efficiency – common issues' document.[129]

Key issue - Growth modelling adjustment

3.69 Northumbrian Water considers that it was inappropriate to apply a negative adjustment to its base allowance, because the models correctly estimate the efficient allowance for its forecast growth requirements. It claims that there is no evidence that the models currently overfund companies with slower growth, and suggests that the adjustment is removed.[130]

3.70 We disagree. Our growth adjustment is appropriate to refine our modelling approach to assessing growth expenditure, and has a clear rationale for its application.

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[125] Ofwat, PR19 final determinations: Securing cost efficiency technical appendix, December 2019, p. 192
[126] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p.18
[127] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p.131
[128] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 8, Figures 8.3 and 8.4
[129] Ofwat, 'Reference of the PR19 final determinations: Cost efficiency - response to common issues in companies' statements of case', May 2020, Chapter 8
[130] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, section 5.6, paragraph 405.

3.71 Our econometric models do not include a driver to capture growth intensity (due to data quality issues), which may mean that the models only fund the historical average growth rate. This, in turn, may overfund companies with expected growth rates that are lower than historical sector average and underfund companies with expected growth rates that are higher than historical. It was therefore appropriate to carry out an adjustment to reallocate growth expenditure from companies with expected lower growth to companies with expected higher growth.

3.72 We took a conservative approach in applying the negative adjustment, which we halved. Had we applied the adjustment in full, an additional £26 million would have been deducted from Northumbrian Water's base allowance.

3.73 We further note that, while Northumbrian Water is arguing that the growth adjustment should be removed, the other disputing companies argued that the adjustment should have been higher and uses a unit cost and volume of new connections that are too low. We suggest that the CMA considers the opposite arguments companies are presenting and forms a consistent view on the issue.

3.74 We provide a more detailed response to this issue in 'Cost efficiency - common issues' (see chapter 4).

Enhancement costs

Key Issue - WINEP Efficiency challenge

3.75 Northumbrian Water states there were flaws in our approach of applying a programme-wide forward looking efficiency challenge to enhancement costs that comprises a catch-up challenge and a step-change in efficiency for AMP7. The company considers that we treated costs for WINEP differently to other areas of enhancement expenditure and that there is no valid basis for this approach.[131] Our overall efficiency challenge reduced the company's modelled cost allowance by £36 million (our overall challenge being 21% of the company's proposed WINEP investments in its August 2019 business plan).[132]

3.76 Because we had comparative data and appropriate cost drivers, we were able to assess the majority of the wastewater WINEP costs using benchmark

[131] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 421
[132] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 412 - 432

models. We accept that there are limitations to the data we had available to us which meant we had a low number of data points for modelling, but we ensured the models we used were statistically robust.

3.77 Where we did not have robust models we carefully reviewed the evidence the companies provided and made an allowance based on the evidence of the robustness of cost estimates. Where appropriate, we applied a catch-up challenge. However, for Northumbrian Water we only applied a challenge to one element of its programme, its wastewater investigations programme (which was only £8.2 million of its £174 million requested WINEP wastewater programme).[133] We applied a 20% cost challenge here because Northumbrian Water did not present evidence supporting the scope of the investigations it proposed to undertake. We made clear in our published feeder model[134] that this was not an efficiency challenge. We said, 'The unit costs are based on expert judgement but evidence has not been clearly provided that shows these costs are efficient. WINEP programme level efficiency is applied at later stage.' Accordingly, the 6.9% programme level efficiency applied to Northumbrian Water's wastewater WINEP costs is not a "further catch-up challenge" as the company suggests, but in fact the only catch-up challenge we applied.

3.78 Northumbrian Water states that the upper quartile benchmark for WINEP is driven by two companies: Severn Trent Water and South West Water, and excluding one or both of these two companies from the analysis would change the 6.9% catch-up challenge to 4.4% or -1.3%.[135] It is self-evident that if the two lowest cost companies are removed from a group then the upper quartile efficiency challenge calculated from the remaining companies will change, but Northumbrian Water provides no evidence why we should do so.

3.79 The suggestion that the upper quartile value is particularly sensitive to the inclusion of these two companies is, in our view, not a valid reason to exclude them. Nor is the alleged reason that the programme allowances for Severn Trent Water and South West Water are mostly driven by our model for phosphorus removal. As a proportion of its overall wastewater WINEP costs, at 62%, Severn Trent Water ranks 3rd behind Yorkshire Water at 73% and United Utilities at 63%, while at just 19% South West Water has, proportionately, the smallest phosphorus removal programme of any of the ten modelled companies. We therefore consider that the 6.9% catch-up efficiency challenge

[133] Cost Assessment models for PR19 – Feeder model: Enhancement aggregator.xlsx, tab 'WINEP in-the-round'.
[134] Cost Assessment models for PR19 - Wholesale wastewater enhancement feeder model: Investigations.xlsx, tab 'Deep dive_NES'.
[135] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 423

is appropriate and considers a wider range of models and not just our phosphorus removal model.

Key Issues – WINEP Phosphorus removal cost modelling

3.80 Phosphorus is a nutrient essential for plant growth. However, when present in excess quantities in freshwaters, in a process known as eutrophication, it can accelerate the growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.

3.81 The Environment Agency states that the single largest source of phosphorus in our rivers is treated sewage effluent with discharges from sewage treatment works accounting for between 60-80% of the total load, agriculture being responsible for the bulk of the remainder.[136] Since the mid-1990's a range of environmental legislation has sought to combat eutrophication, including the Water Framework Directive, the Urban Waste Water Treatment Directive and the Habitats Directive. This has resulted in the Environment Agency placing limits on the concentrations of phosphorus in effluents discharged from a growing number of sewage treatment works, with new programmes of work to improve or prevent deterioration in river water quality identified at each price review.

3.82 Our cost allowance provides Northumbrian Water with the efficient costs of meeting the Environment Agency's requirements for first time or additional phosphorus removal in the 2020-25 period as specified in the March 2019 release of the Water Industry National Environment Programme (WINEP). This programme comprised schemes at 27 sewage treatment works as follows:

- 18 sewage treatment works where the aim is to meet improved river water quality under the Water Framework Directive,
- 1 sewage treatment works where the Water Framework Directive requirement is to prevent deterioration in water quality, and
- 8 sewage treatment works where both the Water Framework Directive 'No deterioration' and 'Improvement' drivers apply.

3.83 Northumbrian Water criticises us for inconsistency in that our approach to determining an efficient allowance for one company (Yorkshire Water) differed

[136] Environment Agency – Phosphorus and Freshwater Eutrophication Pressure Narrative, October 2019, p.14, Figure 6

to that for every other company.[137] Furthermore, it asserts that the characteristics of its phosphorus removal programme are very similar to Yorkshire Water's inasmuch as the Water Framework Directive 'No deterioration' requirement drives the proposed consent limit that a scheme has to meet at only one of the 27 sites in its programme. (This compares with none at all in Yorkshire Water's programme.)

3.84 The single Northumbrian Water sewage treatment works in question is very small, serving just 0.7% of the total population equivalent forecast to benefit from the programme. However, Northumbrian Water did not make the point about its atypical programme in its representation to the draft determination, so this is a new issue it is raising.

3.85 In considering Northumbrian Water's case it is important to set out the reasons for why we introduced a third model for Yorkshire Water which took account of the extent to which costs were driven by the Water Framework Directive 'No deterioration' driver and triangulated the result from this model with those from the other two models which we used to make allowances for all companies.

3.86 The rationale for using an additional model for Yorkshire Water was because our analysis showed that the Water Framework Directive 'No deterioration' driver tended to be associated with the least onerous requirements of the three main drivers for phosphorus removal, with consent limits averaging 2.5mg/l. This compares to Urban Waste Water Treatment Directive-driven schemes with consents averaging 1.8mg/l and Water Framework Directive 'Improvement' scheme consents averaging 0.7mg/l. We expect that to meet the Water Framework Direct 'No deterioration' could require very little or even no expenditure if it is for a site with an existing phosphorus consent.

3.87 Secondly, while a number of companies had low proportions of their phosphorus removal programmes driven by the Water Framework Directive 'No deterioration' requirement, only in Yorkshire Water were there no schemes at all.

3.88 Lastly, only Yorkshire Water made the case in its representation on the draft determination that it was uniquely affected by the legislative driver and that a high proportion of Urban Waste Water Treatment Directive schemes caused its efficient costs to be higher.

[137] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 433-442

3.89 We have revisited the evidence on the Water Framework Directive 'No deterioration' schemes that are more likely to involve low or no cost solutions, and have found none, thus casting significant doubt on the premise for the perceived need for the third model.

3.90 According to its own information, there are three low/no cost schemes in Northumbrian Water's phosphorus removal programme (at Esh Winning, Bowburn and Browney sewage treatment works) but all of these have the Water Framework Directive 'Improvement' driver. These sites appear to have zero costs as each already has a phosphorus removal process in place, either funded at a previous price review to meet environmental requirements or as part of a trial of new technology.[138]More generally, while we have relatively little scheme-specific cost data for the Water Framework Directive 'No deterioration' driver, we have not found any instance of where no or unusually low costs have been submitted by a company for a site where the proposed phosphorus consent is linked to this driver.

3.91 There is also the consideration that, as mentioned above, the Water Framework Directive 'No deterioration' driver tends to have less stringent consent limits associated with it. In deriving a third cost model which reflects the finding that companies with more Water Framework Directive 'No deterioration' schemes tend to have lower costs, we may simply be acknowledging the fact that tighter consents drive higher costs. One of the two models we used in making our allowance for every company controls for this fact already by using as its driver the number of sites with a consent <=0.5mg/l as a variable.

3.92 To gain further insight into Northumbrian Water's costings for phosphorus removal schemes we have compared the efficiency of its AMP6 and AMP7 programmes using the cost models developed at PR19. To ensure fairness we have only considered the subset of its AMP7 schemes where the proposed consent is >=0.6mg/l and also discounted atypical, zero cost schemes, because that is similar to its AMP6 programme. We present the results in Table 3.3 and they indicate that Northumbrian Water's AMP7 costs are significantly higher than the company submitted for its equivalent programme at PR14.

3.93 Furthermore, we have found no evidence that Northumbrian Water's AMP6 forecast costs were understated. The Environment Agency has reported that by

[138] N002, Atkins, 'PR14 Investigations and trials to determine the feasibility of treating phosphorus at sewage treatment works down to or approaching 0.1mg/l within the UK – Trials Programme Final Report', June 2013 **(Confidential, for CMA only)**

31 March 2019 (the end of year 4 of AMP6), the company had completed all the schemes in its National Environment Programme that were due to have been delivered.[139] Even so, the cumulative capital expenditure reported by Northumbrian Water to this point (in 2017-18 prices) is £12.5m compared to the £21.0m four year forecast in its PR14 business plan. If we add in Northumbrian Water's forecast capital expenditure of £4.7m for 2019-20, as set out in its April 2019 business plan, then the company looks to be on course for delivering its phosphorus removal obligations for 18% less than it estimated at PR14.

Table 3.3: Comparison of Northumbrian Water's AMP6 and AMP7 costings for phosphorus removal

	AMP6 programme	Subset of AMP7 programme
Range of consent limits	0.6mg/l – 2mg/l	0.6mg/l – 2mg/l
Range of scheme p.e.s	1,217 – 51,152	319 – 20,806
Total p.e.	113,061	50,230
No. of STWs	10	11
No. of sites with tight consent limits (<=0.5mg/l)	0	0
Requested totex (2017-18 prices)	£23.249m140	£31.075m
Modelled totex (PR19 model)	£38.853m	£33.100m
Efficiency score (from PR19 model)	0.60	0.94

3.94 For the reasons set out above, we consider our 2020-25 phosphorus removal allowance for Northumbrian Water is sufficient for it to meet its WINEP requirements.

[139] Environment Agency – Environmental Performance of the Water and Sewerage Companies in 2016, 2017 and 2018
[140] This figure includes a 10.6% allowance for opex based on information provided by Northumbrian Water in a query response at PR14.

Key issue - Resilience

Introduction

3.95 We consider that Northumbrian Water has a poor understanding of resilience, and at final determination we judged its business plan as falling short of demonstrating an integrated resilience framework.[141] Following the introduction of the resilience duty, Northumbrian Water requested far more resilience expenditure than any other company relative to company size.

3.96 We considered the company's resilience proposals thoroughly in line with our duties and allowed it more funding than any other company relative to its totex, despite our view of its poor understanding of resilience. We rejected proposals where we considered the evidence was not sufficient or where we considered our cost-outcomes framework covered the investment.

Key issue – Resilience: sewer flooding in the North East

3.97 Northumbrian Water claims that increasing pressures from climate change and urban creep will increase the risk of sewer flooding in its region over the next investment period. It uses hydraulic modelling to identify the properties newly at risk of and requests £86 million to proactively mitigate this at the 7,400 highest risk properties (£11,650 per property).

3.98 Climate change is expected to bring drier summers and wetter winters with increased precipitation intensity on wet days.[142] As a consequence, more frequent and intense rainfall is predicted to fall in catchments in the future, increasing the amount of runoff entering urban sewers (e.g. through gullies and roof gutters) and the flows that these have to convey away from urban areas. Urban creep is also expected to increase in the future as permeable surface is lost to impermeable surface in urban areas. [143] [144]

3.99 The combined effect of increased rainfall intensity and duration falling over a larger impermeable area will consequently increase the volume of runoff and flows that urban sewers will need to manage in the future. Both factors will add to the impact that population growth could have (in the form of new

[141] Ofwat, PR19 final determinations - Northumbrian Water Final determination, pp 29-30, section 2.3
[142] Met Office (2019) UKCP18 Science Overview Report p.3-4
[143] N003, UKWIR, 'Impact of urban creep on sewerage systems', 2010
[144] N004, Miller, J.D., Scholefield, P. and Rowland, C. - The impacts of urbanisation and climate change on urban flooding and urban water quality: A review of the evidence concerning the United Kingdom. Journal of Hydrology: Regional studies, 2017

development, redevelopment of existing sites or increased numbers of people living in existing properties) in reducing sewer capacity through the addition of more domestic wastewater.

3.100 These changes and their direct effect on sewer capacity could potentially overload sewer networks causing additional sewer flooding, which may in turn have an impact on properties and customers. In 2011, a study commissioned by Ofwat[145] estimated that there could be a 51% median increase in sewer flooding due to the combined effect of urban creep, climate change and population growth by 2040.[146] However, these factors are not new. The sector has been mitigating the effects of climate change in previous investment periods and our models therefore account for the associated costs of such mitigation measures.

Our rationale for rejecting the claim at final determination

3.101 We welcomed the company's proactive approach to reduce sewer flooding risk, in particular given its poor track record in this area. However, we did not make an additional allowance at final determination against this investment proposal.

3.102 We require companies to annually report expenditure to "reduce flooding risk for properties". This expenditure is included in our econometric base models. Our base cost allowance therefore includes an allowance to address the risk of sewer flooding for all companies. We consider that our allowance should enable an efficient company to achieve the common "upper quartile" performance commitment we have set for the sector.[147]

3.103 If a company makes an investment to go beyond that level, it will receive outperformance payments under our outcomes framework. There are a number of common and comparable bespoke performance commitments related to sewer flooding, notably for internal and external sewer flooding.

3.104 Our economic framework to funding sewer flooding investment incentivises companies to achieve a stretching level of performance and to prioritise for investment those properties that are most at risk.

3.105 There is a high bar for making a cost adjustment under this framework. Such an adjustment could be justified if either (i) the company demonstrates that the

[145] Ofwat - Future Impacts on Sewer Systems in England and Wales, June 2011.
[146] Note that the impact on flooded properties was not assessed
[147] Reference of the PR19 final determinations: Cross-cutting issues March 2020, pp.7-23, section 3

past is not a good predictor of the expenditure required in the future to maintain the level of sewer flooding risk, or (ii) the company demonstrates that it has unique circumstances that are not captured in our benchmarking analysis and therefore necessitates a company specific adjustment.

3.106 Northumbrian Water did not make a compelling case in support of an adjustment. The company did not provide evidence that it was facing exceptional pressures relative to the industry and there was no industry-wide push for similar cost adjustments.

3.107 We estimated our 'implicit' allowance for sewer flooding risk reduction across the sector and found that, for most companies, our allowance provides more than what companies requested. While we acknowledge that implicit allowance calculations are only indicative, the consistent results suggests that our allowance is sufficient to address investment needs in 2020-25. We noted that the sector has been mitigating the effects of climate change and urban creep in previous investment periods, so our base allowances would provide an allowance in line with the historical rates of change. On this basis we considered that there is no systematic issue with the use of historical expenditure data to forecast future expenditure requirements.

3.108 For Northumbrian Water, our estimated range of implicit allowance to "reduce flooding risk for properties" was £63-115 million, using three separate approaches. We considered that this provided useful evidence that its £86 million investment was sufficiently provided for within our base allowance.

3.109 We also noted that the company has not provided evidence that the proposed cost of this investment was efficient.

New evidence provided in the company's statement of case

3.110 In its statement of case, Northumbrian Water makes a distinction between reactive investment, which relates to properties with a flooding history, and proactive investment, which relates to properties that have never flooded before. It argues that the reactive investment is required to achieve the performance commitment levels, whereas the proactive investment provides additional resilience to sewer flooding. The company claims its £86 million investment belongs to the latter.[148]

[148] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 622

3.111 In its statement of case, the company argues that we have overlooked £82 million in reactive sewer flooding expenditure, which it implicitly included in its base cost forecasts in the business plan. The company therefore argues that our estimation of implicit allowance would cover the £82 million of reactive expenditure, but not the £86 million of proactive expenditure.

3.112 The company explains that its decision not to report the £82 million as enhancement costs to reduce sewer flooding risk followed our definition in the PR19 methodology for enhancement costs: 'expenditure for the purpose of enhancing the capacity or quality of service beyond current levels'[149], and our further clarification at the initial assessment of plans that we expect expenditure to meet common performance commitments to be funded from base allowance.[150]

3.113 The company argues Ofwat has erroneously retained the bespoke performance commitment associated with the £86 million enhancement claim. We provide a response in the 'Delivering outcomes for customers' chapter, below, in the 'Key issue – Sewer flooding risk reduction performance commitment' section.

3.114 The company also commissioned Aqua Consultants in early 2020 to benchmark the proposed costs of the £86 million scheme.[151] It is unclear why this benchmarking was not undertaken earlier in the price review process and made available as evidence for the company's business case.

Further details on our final determination decision and consideration of the new evidence

3.115 Northumbrian Water's distinction between reactive and proactive investment is not relevant: our outcomes framework incentivises companies to prioritise those properties which are most at risk of flooding in the future. The company does not know which properties will flood and so should prevent flooding starting with those it considers at most risk whether these have flooded before or not.

3.116 If indeed Northumbrian Water included £82 million of expenditure in base costs, instead of reporting it as part of the expenditure line to "reduce flooding risk for properties", then it could well be the case that our implicit allowance does not cover this investment. However, our broader approach still covers this

[149] Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review, p 145
[150] Ofwat, IAP Technical appendix 2: Securing cost efficiency, p 18
[151] KPMG and Aqua Consultants, SOC282, 'Reducing Property Flood Rick Cost Assurance Benchmarking Report', March 2020.

investment; if this investment addresses properties most at risk, after those that have been addressed by the £82 million to reach the performance commitment, then the company should be rewarded under the outcomes framework.

3.117 It is also possible that this investment is needed, over and above the £82 million for "business as usual" investment, to catch up with industry best performance (i.e. to catch up with the common performance commitment) to compensate for the company's deteriorating performance on sewer flooding. However, we have been very clear that customers should not pay twice for companies whose performance falls short of expectations, to catch up with the stretching level of performance that we expect an efficient company to achieve or outperform.[152] Northumbrian Water has been among the poorest performers in sewer flooding across the industry historically, sometimes even an outlier.

3.118 We therefore retain our view that our PR19 regulatory framework provides appropriate customer funding for reducing the risk of sewer flooding.

3.119 The company did not submit evidence to demonstrate it is facing exceptional pressures relative to the industry in either its original enhancement claim nor in its statement of case. In fact, the company has stated in its business case that the need to reduce flooding risk to properties 'is not driven by the north east being different to any other part of the UK'.[153] A recent Met Office report comparing hydrological overload flooding across the industry reinforces that Northumbrian Water's north east region is not considered to be among the top three wettest water company regions in England and Wales.[154] We also consider its region will face lower than average rates of population growth.

3.120 Northumbrian Water argues that we have systematically rejected other cost claims driven by climate change and urban creep.[155] However, other than Dŵr Cymru's claim, all other cost claims highlighted by Northumbrian Water in its statement of case were driven primarily by exceptional regional operating circumstances (e.g. chalk geology, rainfall levels, proportion of cellared properties).

[152] Ofwat - Delivering Water 2020: Our final methodology for the 2019 price review, p.136
[153] Northumbrian Water, SOC444, 'NWL – PR19 BSG – Reduce Flooding Risk to Properties Business Board paper 24th June 2019', p.4, paragraph 8.3
[154] N005, 'Executive Summary of the report on Hydrological Overload Flooding,' July 2019, p. 6
[155] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraph 674

Consultant's report on cost benchmarking

3.121 The consultants identified a number of errors in the company's cost calculations that, when corrected, resulted in a significantly lower cost per property figure of £7,900 compared to the original estimate of £11,650. The report claims, however, that this is an underestimation due to site-specific factors. Some of the site-specific drivers identified in the report, such as density, are included as a driver in our base econometric models for wholesale wastewater.[156]

3.122 The consultants use a variety of approaches to calculate a range of £8,200-£11,900 cost per property. They argue that the higher end of the range is more likely under an assumption that lower cost properties have already been mitigated. The company's argument, however, that the scheme represents activities that have not been undertaken before, conflicts with the assumption of lower cost properties having already been addressed.

Conclusion

3.123 The company had multiple opportunities to bring the £82 million figure to our attention. Our definition for reducing the risk of sewer flooding costs have remained the same between our Annual Performance Report and our PR19 business plan data tables and other companies did not raise the issue of this cost line being reported differently for AMP6 and AMP7. [157] Together with the aforementioned wider concerns around the company's poor understanding of resilience, particularly for wastewater, as well as it having revised data more than other companies during the PR19 process, this undermines our confidence in Northumbrian Water's cost information on work on sewer flooding.

3.124 We maintain our view that an adjustment for the sewer flooding investment is not appropriate. Our framework provides appropriate customer funding for sewer flooding investment and Northumbrian Water did not provide evidence that warrants making an exception for it. We welcome the proactive investment given the company's need to improve on its track record and customers' support for the scheme.

[156] Northumbrian Water, SOC282, 'Reducing Property Flood Risk Cost Assurance Benchmarking Report by Aqua Consultants'

[157] See line 28 in Table 4M on page 71 of our March 2019 Regulatory Accounting Guidelines (RAG 4.08) and Business plan data tables (updated January 2019), Table WWS2 line 30

Key issue – Resilience: Abberton to Hanningfield raw water transfer scheme

Our rationale for rejecting the claim at final determination

3.125 Northumbrian Water requested £20.4 million to provide a raw water transfer between Abberton and Hanningfield reservoirs. The proposed 'transfer scheme' was designed to tackle supposed potable water demand issues in Essex.

3.126 During our initial assessment of business plans, we considered the proposed transfer scheme within our supply-demand balance assessment and rejected the proposal because the company provided insufficient evidence that the interconnection was necessary or provided any benefit to customers. We expected this risk to be addressed through the water resources management plan process, with a quantified assessment of potential impact on deployable output of water,[158] and a full evaluation of alternative options. We considered that preventing an imbalance between Hanningfield and Abberton raw water reservoirs in dry years was not in itself sufficient justification for the investment if such imbalance did not impact the system's deployable output.[159]

3.127 For its draft determination, Northumbrian Water asked us to assess the transfer scheme as a resilience enhancement proposal. We did this and carried out a resilience deep dive. We again rejected the proposal on the grounds that we considered it mitigated the same principal risks as the Layer water treatment works dissolved air flotation treatment proposal, for which we made an allowance of £22 million for as investment to accommodate deteriorating raw water quality.[160] The company also provided insufficient evidence to demonstrate that other secondary risks associated with outages or asset failures were significant enough to justify the need for the transfer scheme.

3.128 In its representation to the draft determination, the company stated that the dissolved air flotation treatment at Layer water treatment works, for which we made an allowance in the raw water deterioration enhancement line, "seeks to restore a level of lost resilience but not increase resilience".[161] We considered that the drawing down risk at Hanningfield reservoir described by the company

[158] Deployable output is a building block in determining water supplied available for use by a company and is defined as the output for specified conditions and demands of a water resources system constrained by a number of factors, including environmental, transfer and treatment constraints.
[159] Ofwat, Wholesale Water Supply-demand balance enhancement – feeder model, Deep dive_NES
[160] Ofwat, Wholesale Water Raw water deterioration – feeder model, Deep dive_NES (cell F34)
[161] Northumbrian Water, SOC141, 3.3.7 Layer Business Case August 2019, p 2

was closely linked to algal and turbidity outages at Layer treatment works, which the treatment proposal aimed to address.

3.129 At final determination we retained our view that the need for investment was still not justified, and that the remaining water quality and supply issues were not significant enough to justify the additional expenditure, given our acceptance of the treatment solution at Layer water treatment works.

New evidence provided in the company's statement of case

3.130 In its statement of case, Northumbrian Water puts forward the transfer scheme for the CMA's redetermination.[162] The company re-states that the transfer scheme (to pump raw water from Abberton reservoir to Hanningfield reservoir via Langford water treatment works) addresses a number of challenges in its Essex region, the main risk being the limited inter-connectivity between water resource zones. The company also states that it will 'enhance a wide range of benefits to improve the resilience of our water network which would not arise or be accounted for as part of base costs'.[163]

3.131 The company states that we have incorrectly concluded that the transfer scheme seeks to mitigate the same risks as, and therefore duplicates, the Layer water treatment works scheme. It also states that we have incorrectly categorized the risks this scheme addresses as being outside the scope of resilience enhancements.[164]

3.132 Northumbrian Water considers that the drivers of the costs associated with this scheme are explicitly linked to climate change trends, which are not covered by our cost models,[165] and that the likelihood and severity of droughts is expected to increase as climate change progresses.[166]

3.133 The company also states that the Essex water resource zone supply surplus is less than that presented in its PR14 water resources management plan because of the recent (2015) trading of raw water with Thames Water, but that

[162] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.135-140, section 7.6
[163] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.36, paragraph 147
[164] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.138-139, paragraph 704
[165] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.140, paragraph 711
[166] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.139-140, paragraph 708

the amount available for trading can be increased again from 2035 when, we presume, the Thames Water bulk transfer agreement ends.[167]

Further details on our final determination decision and consideration of new evidence

3.134 The company's enhancement business case[168] and water resources management plan[169] note that the proposed Abberton to Hanningfield transfer scheme is a 'discretionary investment', rather than mandatory, i.e. it is not required to reduce demand or increase water resources. A supply-demand deficit is not forecast over the 25-year planning horizon. Indeed, the water resources management plan states that:

> 'all four of our water resource zones have a **supply surplus** across the full planning period to 2060. Consequently, no new water resource schemes are required in this period'.[170]

and that

> 'all four of our water resource zones are **resilient** as a supply surplus would still be maintained during such an extreme drought" (1 in 200 year)'.[171]

3.135 The company also claims that:

> 'The Essex rivers and their associated intakes, the pumped storage reservoirs near Abberton and Hanningfield, and associated raw water transfer pipes, pumping stations and treatment works are collectively known as the 'Essex System'. **This reflects the nature of the supply network in Essex which is a highly integrated one, with a large degree of flexibility for moving raw and potable water around the zone to where it is required**'.[172]

3.136 While we acknowledge that the Layer water treatment works scheme may not address the full extent of the issues that the transfer scheme aims to address, we consider that it is a major factor in reducing the residual risk to the reliability of water supply across the Essex supply zones.

[167] Northumbrian Water, SOC515, Essex and Suffolk Water Final WRMP August 2019, pp.15-17
[168] Northumbrian Water, SOC276, Essex Resilience Enhancement Business case, paragraphs 55-56
[169] Northumbrian Water, SOC515, Essex and Suffolk Water Final WRMP August 2019, p.33
[170] Northumbrian Water, SOC515, Essex and Suffolk Water Final WRMP August 2019, p.14
[171] Northumbrian Water, SOC515, Essex and Suffolk Water Final WRMP August 2019, p.18
[172] Northumbrian Water, SOC515, Essex and Suffolk Water Final WRMP August 2019, p.38

3.137 We remain unconvinced that there is a need to further enhance resilience in the Essex water resource zones, or that climate change will pose a problem for water resources in the region, particularly as the company is currently able to trade supplies with a neighbouring company and will have a greater surplus from 2035 when the Thames Water trade agreement comes to an end.

3.138 The sector has been mitigating the effects of climate change in previous investment periods, so we consider that climate change is inherently captured in our base model allowances.

3.139 The company accepts that it had not sufficiently explained the difference between the Essex Resilience and Layer water treatment works treatment business cases in its business plan submissions.[173] Northumbrian Water does not set out the extent to which the baseline risk for the proposed transfer scheme is addressed by the Layer treatment scheme. Without doing so, the company appears to be requesting two schemes to mitigate the same or substantially the same risk.

3.140 In terms of the quality of evidence submitted throughout the price review process, the company provides inconsistent values for the number of properties benefitting from the transfer scheme and Layer treatment scheme in its March 2019 and July 2019 submissions, and in its final WRMP.[174] [175] [176] [177] We therefore remain unconvinced that the additional resilience delivered by the transfer scheme is not addressing all or part of the same risk as the Layer treatment scheme.

3.141 To support this view we note that the company's water resources management plan also states that it will:

> 'Improve treatment capability at Layer water treatment works to manage annual fluctuations in water quality which we have experienced since the expansion of Abberton reservoir. This will directly benefit over 100,000 properties, while also providing a more

[173] Northumbrian Water, SOC276, Essex Resilience Enhancement Business case, section 2.2, paragraph 28
[174] Northumbrian Water, SOC080 Appendix 3.2 Enhancement Business Cases, March 2019 – Water resilience business case, Annex A, table 10, p.40
[175] Northumbrian Water, SOC080 Appendix 3.2 Enhancement Business Cases, March 2019 – Water resilience business case, Annex B, p.63
[176] Northumbrian Water, SOC134, Appendix 3.3.2 Essex resilience – Abberton to Hanningfield transfer main, p.19
[177] Northumbrian Water, SOC515, Essex & Suffolk Water Final WRMP August 2019 p.33

reliable secondary source of supply to some of the 300,000 properties supplied from our water treatment plant at Hanningfield.'[178]

3.142 We consider that these reporting inconsistencies support our view of an overlap of the benefits delivered by both the Layer treatment works and Abberton-Hanningfield transfer scheme, and hence reinforces the reason for not allowing funding for both. Further, we consider that any other residual risks allegedly impacting supplies in the Essex region (e.g. those associated with algal blooms at Chigwell and Langham water treatment works) are not sufficiently evidenced to demonstrate the need for the transfer scheme.

3.143 We consider that the recent outages experienced at Layer water treatment works (a 2016 algal bloom event, and the late-2018 emergency repairs and maintenance issues following a dry period[179]) were the most important factors that caused the knock-on drawdown and storage issues in Hanningfield reservoir, which this transfer scheme seeks to avoid happening again. Therefore, we expect the Layer treatment solution to mitigate a large proportion of the evidenced risk that puts pressure on Hanningfield WTW and its reservoir.

3.144 It is relevant to note that, under such combination of circumstances during the events of 2016 and 2018, there was no recorded adverse impact, such as low pressure or supply interruptions, to customers across the Essex supply area, which suggests an existing level of resilience even under unprecedented conditions.

3.145 One factor that seemed to have compounded the 2016 outage event was the operational failure of the Environment Agency's Ely Ouse to Essex Transfer System, which had issues with power supplies and pumping following major refurbishment.[180] The Ely Ouse to Essex transfer is operated by the Environment Agency and it transfers available water to the rivers that support Abberton and Hanningfield reservoirs. In a dry year this supplies up to 35% of the Essex water resource zone.[181]

[178] Northumbrian Water, SOC515, Essex & Suffolk Water Final WRMP August 2019 p.33
[179] Northumbrian Water, SOC134, Appendix 3.3.2 Essex Resilience - Abberton to Hanningfield Transfer Main, July 2019, pp.8-11
[180] Northumbrian Water, SOC134, Appendix 3.3.2 Essex Resilience - Abberton to Hanningfield Transfer Main, July 2019, p.8
[181] Northumbrian Water, SOC276, Essex Resilience Enhancement Business case, section 2, paragraph 13

3.146 Northumbrian Water indicates that asking the Environment Agency to move water has, in the past, proved unreliable.[182] The company discounted the option of formally adopting the scheme and its associated assets from the Environment Agency, which could have provided it with greater control over the movement of available raw water in the Essex area, in preference for this transfer scheme.[183] We found no evidence of ongoing reliability issues with the Ely Ouse to Essex transfer system. It may be prudent for the company to demonstrate (and the CMA to understand) if, with closer working with the Environment Agency and better control of the system, the Ely Ouse to Essex transfer could play an important and more cost-effective role in addressing any inter-connectivity risks.

3.147 We consider that the company has not provided sufficient evidence that other factors, such as failures with the Ely Ouse to Essex transfer or the impact of algal blooms on Chigwell and Langham water treatment works, are material enough to pose a significant drawdown risk to Hanningfield reservoir or to the Essex supply area when the new treatment process at Layer water treatment works comes on line. However, the company does state that algal events could cause 'outages at more than one WTW at a time, which puts more pressure on Hanningfield WTW to make up missing DI.'[184],[185] We find limited consideration of failure probability, consequence to customers, or management control measures already in place that could demonstrate the levels of risk exposure.

3.148 In addition, the company does not adequately account for existing, built-in resilience already available in the Essex system, which it uses when local supplies are interrupted, when claiming that it may not always be able to meet demand without the transfer scheme. These include supply from other water treatment works; more raw water through the Ely Ouse to Essex transfer; additional raw water supply from the Chelmsford sewage works recycling scheme or the Environment Agency's groundwater river support scheme;[186] or treated water storage across the Essex water resource zones.

[182] Northumbrian Water, SOC134 Appendix 3.3.2 Essex Resilience - Abberton to Hanningfield Transfer Main, July 2019, p.8
[183] Northumbrian Water, SOC134, Appendix 3.3.2 Essex Resilience - Abberton to Hanningfield Transfer Main, July 2019, p 16
[184] DI, or distribution input, is the amount of water needed to feed into a water supply distribution network to meet demand.
[185] Northumbrian Water, SOC276, Essex Resilience Enhancement Business Case p 19, paragraph 69
[186] Northumbrian Water, SOC515, Essex & Suffolk Water Final WRMP August 2019, pp 38-39

Conclusion

3.149 We note that Northumbrian Water has inconsistently reported the rationale and expected benefits of the proposed Abberton to Hanningfield transfer scheme between its water resources management plan and various submissions to Ofwat. The company has not adequately demonstrated the existence of a significant drawdown risk to Hanningfield reservoir, or risk to potable supplies in the Essex supply area, when the new treatment process at Layer water treatment works comes on line. Resilience is a vital issue, however, poorly designed and understood interventions will increase costs to customers with little or no benefit. We therefore remain of the view that the proposed transfer scheme is not justified and no additional funding should be required.

Other points raised by Northumbrian Water

3.150 Table 3.4 sets out other points made by Northumbrian Water in its submission in relation to costs and our response to each of those points, including new costs we were not aware of before final determinations.

Table 3.4: Other points on costs raised by Northumbrian Water in its submission

Key point in Northumbrian Water's submission	Summary of our response
Business rates and abstraction charges funding – Northumbrian Water states that funding for abstraction charges and business rates does not reflect the degree of management control and variability. (statement of case, pp.93-97, paragraphs 453–481)	At final determinations we recognised that companies have limited control over the level of business rates and the effect of revaluations but some degree of influence. We therefore allowed further protection for companies and customers through a reconciliation mechanism at the end of the 2020-25 period, with special sharing arrangements for business rates and abstraction charges. See 'Business rates and abstraction charges funding' section below.
Industrial emissions directive - Northumbrian Water requests £99m capex and £0.9m pa opex to satisfy the obligations of Directive 2010/75/EU and a corresponding uncertainty mechanism. (statement of case, pp.167-170, paragraphs 916–934)	We understand from the Environment Agency that the actual expenditure required by the company may be considerably less than it presents in its statement of case, and that much of the investment required (additional storage for treated biosolids) is not a new activity for wastewater companies. We consider that the company has significantly exaggerated its expenditure requirements and we recommend that the CMA does not make an allowance. See 'Industrial Emissions Directive' section below.

Key point in Northumbrian Water's submission	Summary of our response
Business rates overstatement – Northumbrian Water's business rates allowances is over stated by £11.74 million per year. (statement of case, p.171, paragraphs 935–939)	Northumbrian Water did not change its forecast business rates following agreement with the Valuation Office Agency in October 2018. Had it done so, we would have set its final determination allowance at the lower amount. See 'Business rates overstatement' section below.
Kielder transfer scheme and abstraction charges – Northumbrian Water's abstraction charges will be £60.9 million more than we allowed at final determinations. (statement of case, p.171-173, paragraphs 940–958)	Northumbrian Water acknowledges that the increase in abstraction charges proposed by the Environment Agency was not known at final determinations and therefore is was not taken into account in setting our allowance. Northumbrian Water is protected to large extent from the change in abstraction charges by an uncertainty mechanism in the final determination. Without an adjustment to allowances, Northumbrian Water would bear only £15.2 million of this increase when we reconcile costs at PR24. As part of its wider approach to new information available since the final determination, the CMA is able to take this information into account in setting its re-determination. See 'Kielder transfer scheme and increase in abstraction charges' section below.
Thames bulk supply abstraction costs – Northumbrian Water's charges will be £0.5 million a year more than we allowed at final determinations. (statement of case, pp.173-174, paragraphs 959–962)	We note this information was not available at final determinations. However, an efficient allowance for bulk supply costs is included in our base allowance for companies. The increased costs for the company would not have affected the allowance that we set at our final determination. We have not been able to check or confirm the stated nature of costs and change in charges from the statement of case and would recommend that further evidence and assurance is sought from Northumbrian Water before making any adjustment to the allowance in the re-determination. See 'Thames bulk supply costs' section below.
Grants and contributions – Northumbrian Water considers that our decision to add a one-off contribution equal to £14.4 million in the final determination leads to double counting. (statement of case, pp.174-175, paragraphs 963–972)	Our one-off contribution was also made in Northumbrian Water's draft determination and it did not raise the issue in its representations. As a result, there was no obvious reason to change our approach for final determinations as we considered our assumption was justified. See 'Grants and contributions' section below.

Business rates and abstraction charges funding

3.151 In its statement of case Northumbrian Water proposes that business rates and abstraction charges should be subject to 100% pass through rather than a cost sharing mechanism.[187]

3.152 In the final determinations we recognised that although companies have limited control over the level of business rates and the effect of revaluations, they have some degree of influence. Northumbrian Water itself highlights in section 9.5 of its statement of case that it successfully challenged the rateable value set by the Valuation Office Agency in 2017.

3.153 We therefore allowed further protection for companies and customers through a reconciliation mechanism at the end of the 2020-25 period, with special sharing arrangements for business rates and abstraction charges.

3.154 The reconciliation allows a company to recover 75% of any costs in excess of its PR19 cost allowance, or allow customers to recover 75% of the amount by which its costs are lower than PR19 allowances. We will reconcile these adjustments alongside the totex sharing adjustments for the company at PR24.

3.155 We consider that this mechanism provides companies with appropriate protection in respect of business rates and abstraction charges. It recognises that some factors are outside of companies' control, while retaining some incentive for companies to fully engage with the Valuations Office Agency and the Environment Agency to minimise the change in business rates and abstraction charges, and to affect the factors that companies can influence. It also protects customers by ensuring they share benefits for companies where business rates reduce. We do not consider that Northumbrian Water has presented any new arguments and we therefore retain our view that the mechanism provides sufficient protection for both companies and customers.

Industrial Emissions Directive

3.156 In our final determination cost efficiency appendix we describe the building blocks of our totex assessment, one of which is our handling of unmodelled base costs including the wastewater Industrial Emissions Directive costs.[188] In their business plans only three companies, excluding Northumbrian Water, requested operating expenditure associated with some permitting obligations of

[187] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.93-97, paragraphs 453-481

[188] Ofwat, PR19 final determinations – Securing cost efficiency technical appendix, sections 2.1 and 3.2

the Directive. These were generally of low materiality and we assessed the forecast costs and made allowances.

3.157 The additional costs Northumbrian Water is now requesting in its statement of case are associated with potential Industrial Emissions Directive permitting obligations at sewage sludge biological treatment plants, which we were not aware of before our final determination.[189] There is still some uncertainty surrounding the number and type of schemes the Environment Agency will require all wastewater companies to deliver to meet the requirements of the Directive, but we understand that the actual requirement for Northumbrian Water is likely to be significantly less than the company claims in its statement of case (£99m capex and £0.9m per year opex). We consider that it has exaggerated its potential costs significantly.

3.158 As presented in recent information from the Environment Agency,[190] we understand that Northumbrian Water only carries out the biological treatment of sewage sludge at two sites (Bran Sands and Howdon), and that it indicated to the Environment Agency that these were the only sites that will be affected by the implementation of the Directive. Other types of facility mentioned in its statement of case (e.g. sludge thickening sites, strategic centrifuge dewatering sites and chemical dosing sites) are not within the scope of the Industrial Emissions Directive permitting requirements.

3.159 Of the two sites that are within scope, both already have existing environmental permits and the costs likely to be involved in achieving continued compliance under the Directive are not anticipated to be significant.

3.160 Northumbrian Water states that compliance with the Directive will require it to make structural changes to many of its facilities to store sewage sludge appropriately.[191] The company indicated to the Environment Agency that much of its anticipated costs of the Directive can be attributed to acquiring, developing and obtaining permits for biosolids storage sites.

3.161 The storage of treated biosolids, particularly during times of extreme wet weather or when restrictions on spreading to land occur, is not a new activity for wastewater companies. Biosolids storage capacity is a routine business risk

[189] Northumbrian Water, SOC388, 'EA Letter to English WaSCs and DCWW', July 2019. Companies were reminded about permitting requirements of the Directive in a letter from the Environment Agency.
[190] N006- Environment Agency email regarding Industrial Emissions Directive, 29 April 2020
[191] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 923 - 924

which companies are expected to manage through contingency in their storage design and operation. This risk has been communicated with wastewater companies since the 2012 floods,[192] and as such costs associated with it should not be attributed to the implementation of the Industrial Emissions Directive.

3.162 We consider that the CMA should not allow Northumbrian Water the expenditure it requests for its Directive obligations, nor should there be provision of an uncertainty mechanism to allow such costs at a later date in AMP7. The Environment Agency suggests that the company's costs and requirements to meet the Directive, as presented in its statement of case, are significantly overstated, and we consider that any remaining, likely small, permitting costs should be borne by the company.

Business rates overstatement

3.163 In its statement of case Northumbrian Water states that we have made an over allowance of £11.74m per year for business rates.[193]

3.164 We set the business rates allowance with reference to its forecast 2020-21 costs for companies that were receiving transition relief following the 2017 revaluation. The company states that its rateable value was revised in October 2018 however, it did not alter its business rates forecasts in either the April 2019 business plan or the August 2019 representations on the draft determination.

3.165 If the company had revised its forecasts we would have set its allowance at the lower amount. We consider that the CMA should use this revised amount in its determination.

Kielder transfer scheme and increase in abstraction charges

3.166 Northumbrian Water states that the Environment Agency intends to increase abstraction charges in relation to the Kielder Operating Agreement. The increase amounts to £60.9 million over 2020-25.[194]

3.167 The Environment Agency recovers its payment made to Northumbrian Water under the Kielder Operating Agreement through abstraction charges. All

[192] N007, Environment Agency, 'Contingency Plans for Waste Storage', November 2013
[193] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 935 - 939
[194] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 940 - 958

abstraction licences that are supported by the Kielder reservoir and transfer scheme have an additional charge element added to their annual abstraction bill, this is known as the Kielder Source Factor. Northumbrian Water acknowledges that the increase in abstraction charges proposed by the Environment Agency was not known at final determinations and therefore was not taken into account in setting our allowance. Northumbrian Water is protected to a large extent from the change in abstraction charges by an uncertainty mechanism in the final determination. Without an adjustment to allowances, Northumbrian Water would bear only £15.2 million of this increase when we reconcile costs at PR24. As part of its wider approach to new information available since the final determination, the CMA is able to take this information into account in setting its re-determination.

Thames Water bulk supply costs

3.168 Northumbrian Water states that its costs will increase by £0.5 million a year under the bulk supply agreement with Thames Water.[195]

3.169 We believe that Northumbrian Water has historically reported its payments to Thames Water under this agreement as bulk supply costs (and not abstraction charges), which is part of base costs included in our econometric models. Other companies incur similar or alternative costs to source their water. All these costs, whether under a bulk supply agreement or otherwise, are included in our econometric models and would be reflected in our base allowance for companies. We do not consider that this new information requires an adjustment to our final determination allowance for Northumbrian Water.

3.170 We further note that disputing companies (and all companies in general) are likely to reveal where costs are going up but not where costs are coming down. If Northumbrian Water does not accommodate the additional charge within its cost allowance, it will share a significant proportion of it with customers, and the remaining exposure is small. Northumbrian Water's underperformance cost sharing rate for water is 53.81%, therefore it would bear £1.35 million of the increase in costs. Non-disputing companies would have to deal with such changes to their costs or charges in a similar way, within the confine of their final determination allowance and the cost sharing arrangement.

3.171 We note this information was not available at final determinations. We have not been able to check or confirm the stated nature of costs and change in charges from the statement of case and would recommend that further

[195] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 959 - 962

evidence and assurance is sought from Northumbrian Water before making any adjustment to the allowance in the re-determination.

Grants and contributions

3.172 Northumbrian Water considers that Ofwat's decision to add a one-off contribution equal to £14.4 million in the final determination leads to double counting as it was already included in its projected infrastructure charge receipts. The company claims that this adjustment was not made in its draft determination and therefore had no opportunity to comment ahead of the final determination.[196]

3.173 We strongly refute the claim that Northumbrian Water did not have opportunity to comment on this adjustment to its grants and contributions ahead of the final determination. The same grants and contributions adjustment was made in the company's draft determination and Northumbrian Water did not raise the issue in its representation.

3.174 Northumbrian Water submitted the aforementioned £14.4 million of expenditure in a free-form enhancement line within its original business plan submission rather than in the new developments line.[197] This led us to make the reasonable and justifiable assumption that the company had not captured this expenditure within grants and contributions. We made our assumption clear within Northumbrian Water's draft determination and the company did not raise any queries in relation to the assumption made.[198] As a result, there was no obvious reason to change our approach for final determination.

3.175 Based on the new evidence provided by Northumbrian Water in its statement of case, we are unable to confirm if the £14.4 million adjustment made to its grants and contributions is already included in the company's grants and contributions as it claims. But it does add to several other instances where the company has failed to report data accurately and/or in line with other companies, which undermines our confidence in its business plan.

3.176 It is also important to highlight, as Northumbrian Water also does in its statement of case, that the issue is relatively immaterial due to the use of a single till approach. As a result, removing the one-off contribution would only

[196] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, paragraphs 963 - 972

[197] For avoidance of doubt, in Northumbrian Water's draft determination we state that £14.39 million was reallocated from supply demand balance expenditure and assessed as growth. But in fact, the £14.39 million was reallocated from a free-form enhancement line and assessed as growth.

[198] Ofwat, PR19 draft determinations: Northumbrian Water draft determination, July 2019, pp. 46-47

have a relatively minor impact on PAYG revenue and RCV additions. We recommend that the CMA does not make an adjustment given the lack of confidence in the information provided by Northumbrian Water.

Conclusions

3.177 Overall we are satisfied that our final determination ensures that the company has adequate funding to properly carry out the regulated business, including meeting its statutory and regulatory obligations, and to deliver the outcomes for customers. Having reviewed the cost and engineering arguments raised by the company in its statement of case, we do not consider that a change in final allowance is required the majority of its issues (overall efficiency challenge, real price effects, growth, WINEP, resilience, abstraction and business rates, leakage, industrial emissions directive, and grants and contributions).

3.178 The company has raised new claims which, had we known about or had certainty of at final determination, we would have considered in our assessments (business rates overstatement, Kielder transfer scheme and Thames Water bulk supply costs).

4. Delivering outcomes for customers

Summary

4.1 At final determination, we set an outcomes package for Northumbrian Water which included 51 performance commitments. Fifteen of these performance commitments were common to all water and sewerage companies. Financial outcome delivery incentives (ODIs) applied to 35 performance commitments.

4.2 The company is currently only meeting 59% of its performance commitments which is below the average sector level achievement of 66%.[199] In terms of financial ODIs, the company is currently performing poorly on drinking water quality compliance,[200] but performing well on water supply interruptions.[201] The company should earn a positive return on regulated equity on its ODIs during the 2015-20 period. The company has an above average service incentive mechanism (SIM) score for customer service.

4.3 In its September 2018 business plan, Northumbrian Water proposed stretching performance commitment levels for several performance commitments including pollution incidents where the company proposed an ambitious 14.34 incidents per 10,000km by 2024-25. However, we were concerned with how the company calculated the marginal benefit values for its outcome delivery incentive rates from one source and the company did not provide convincing evidence that this single piece of research was high quality or that it had triangulated with other customer valuation research.

4.4 Our final determination retained Northumbrian Water's proposed performance commitment levels where we considered these to be stretching but achievable, for example for the taste and smell contacts performance commitment. However, we also took account of wider evidence to assess achievability, including representations made by other companies where relevant (for example on the mains repairs performance commitment) and made changes for our final determinations on this basis.

[199] Ofwat, Service delivery report data – 2018-19
[200] Based on the company's 2018-19 Annual Performance Report, p.175, the company currently has underperformance payments of £3.98 million for drinking water quality compliance.
[201] Based on the 2018-19 Ofwat Service Delivery Report Data, the company currently has outperformance payments of £8 million for supply interruptions. See tab "INPUTS | Outcomes" cells H315 to K315.

4.5 Our final determination also retained Northumbrian Water's proposed ODI rates where the company had provided high-quality evidence that these reflected customers' preferences and would incentivise performance improvement; for example for the per capita consumption performance commitment. Where we did not consider the company's evidence to be sufficient, we intervened to set alternative ODI rates. The approximate financial value of each of the company's performance commitments is summarised in our final determination.[202]

4.6 Table 4.1 highlights the key issues made by Northumbrian Water in its submission in relation to outcomes and a summary of our response to each of those issues.

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

Key issues in Northumbrian Water's submission	Summary of our response
Leakage - Ofwat's approach to setting the baseline for the 2020-25 leakage performance commitment level has penalised Northumbrian Water for showing early ambition in leakage reduction. 'Ofwat has set the target baseline by using the final years of AMP6 actual performance, rather than the AMP6 PC levels. In doing so, Ofwat has directly penalised us and other companies which have invested to make a head start on the challenging AMP7 PC targets and have actual leakage levels below the PC level.' (statement of case, p.110. paragraph 530)	We do not consider it is appropriate to adjust Northumbrian Water's performance commitment to measure improvement from the PR14 performance commitment level in 2019-20. We consider that use of companies' actual 2019-20 position ensures that if performance exceeds their forecast companies are not rewarded twice through the incentives from PR14 and PR19. This is a necessary mechanism to protect customers. Additionally, PR14 leakage performance commitment levels were set using different assumptions and are not directly comparable with the measurement of leakage in the 2020-25 period, which would also make it inappropriate to use it. Further detail can be found in the 'Key issue - Leakage performance commitment' section below and chapter 5 of our 'Cost efficiency – common issues' document.
Threshold to share outperformance payments - The 3% cap is inconsistent with the stated preferences of our customers. Ofwat's gross reward calculation fails to achieve its stated aim of protecting customers against bill increases from ODI payments and drives further asymmetry in the package. Ofwat's mechanism creates perverse incentives that may discourage companies from meeting customer preferences and could reduce service improvement in the future.	There are other mechanisms to manage bill volatility and a threshold when gross outperformance reaches 3% of regulatory equity is consistent with bill stability in the 2020-25 period. In practice, it is not clear that sharing all outperformance beyond the 3% of regulatory equity gross threshold is detrimental to the company compared to the company's proposed 2% net threshold. Northumbrian Water's theoretical examples of significant outperformance and significant

[202] PR19 final determinations: Northumbrian Water final determination, pp.26-27.

Key issues in Northumbrian Water’s submission	Summary of our response
(statement of case, pp.112-116, paragraphs 543-562)	underperformance have not been observed in practice. We consider the examples the company provides, while theoretical, actually demonstrate that a gross threshold provides more appropriate incentives. Where companies are significantly failing performance commitments we would expect them to increase focus on rectifying poor performance, which may not be achieved if the company is able to offset by high returns on outperformance elsewhere. Further detail can be found in the ‘Key issue - Threshold at which to share outperformance payments’ section below.
Sewer flooding risk reduction performance commitment - Ofwat has rejected the investment case for sewer flooding resilience but has erroneously retained the associated performance commitment / outcome delivery incentives in the final determination. (statement of case, pp.132-133, paragraphs 662-673)	The company had demonstrated that investment to reduce sewer flooding risk is important to customers and stakeholders and we did not consider it was appropriate to remove the performance commitment. This performance commitment complements the common internal sewer flooding performance commitment. We are satisfied that the final determination is sufficient to cover investment in this area. Even if the company did not invest to proactively reduce the risk of flooding where there has been no previous flooding, it could still meet the performance commitment by reducing the risk of repeat flooding at properties that flooded in the past. As set out in chapter 3 above cost allowances provide sufficient expenditure to deliver the performance commitments. Further detail can be found in the ‘Key issue - Sewer flooding risk reduction performance commitment’ section below.
Unplanned outage performance commitment - Northumbrian Water considers that the unplanned outage measure is unlikely to either reflect asset health or incentivise the right behaviours; and argues that a financial incentive is not appropriate in light of the novelty of the metric, measurement across companies not being comparable and the implications of that for the suitability of benchmarking to set performance commitment levels. (statement of case, pp.140-145, paragraphs 714-751)	Companies have a duty to responsibly manage their assets to provide consistent and wholesome supplies of water. We expect all companies to adopt effective asset management approaches in order to ensure that their assets are being maintained appropriately for the benefit of current and future generations. We regard reporting information on asset availability, or non-availability, as a key component of this. We also consider that we applied mitigating steps when assessing this performance commitment to reflect the fact that it was a new measure.

Key issues in Northumbrian Water's submission	Summary of our response
	Further detail can be found in the 'Key issue - Unplanned outage performance commitment' section below.

Considerations for the CMA

4.7 The final determination provided a set of performance commitments for Northumbrian Water that reflect appropriate levels of services for customers, together with calibrated ODIs to achieve and outperform these.

4.8 In some areas Northumbrian 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.

4.9 For the 2018-19 reporting year, its performance on pollution incidents was 12 incidents per 10,000km of sewers, improving on its 2017-18 performance of 17 incidents per 10,000km of sewers. This performance is far better than the final determination levels that start at 24.5 incidents per 10,000km of sewers for 2021-22 and reduce to 19.5 incidents per 10,000km of sewers for 2024-25. If the company maintains its 2018-19 performance it will receive outperformance payments of £15.9 million over the 2020-25 period.

4.10 For water supply interruptions, Northumbrian Water's 2016-17 performance was an average interruption of two minutes 10 seconds per customer. This improved on the year before and is better than the final determination levels that start at six minutes 30 seconds for 2021-22 and reduce to five minutes per customer by 2024-25. Performance deteriorated successively in 2017-18 and 2018-19, but in its 2018-19 annual performance report Northumbrian Water set out that it expected to meet five minutes in 2019-20. If Northumbrian Water achieves the performance it delivered in 2016-17 over the 2020-25 period it will receive outperformance payments of £20.0 million over the 2020-25 period.

4.11 It is clearly possible for Northumbrian Water to outperform to at least these amounts and we hope it will outperform even further providing better service to its customers. In other areas Northumbrian Water is well behind many other companies. It needs to catch up.

4.12 The main issues that Northumbrian Water has raised are: the measurement of leakage; the threshold to share outperformance; and having a financial incentive for unplanned outage. These are detailed methodological issues that have been accepted by other companies. Other disputing companies have not highlighted these issues. In each case, after considering the arguments put forward by Northumbrian Water, we consider the evidence supports the decisions that we made at final determinations. If the CMA considers that changes should be made for Northumbrian Water, it will need to have strong reasons not to make the changes suggested by Northumbrian Water for the other three disputing companies as well.

4.13 The issue of the bespoke performance commitment for sewer flooding is more of a company specific issue, although the issue is really about allowed costs rather than the performance commitment. However, in this case it is important to recognise that other companies also have bespoke performance commitments to help reduce sewer flooding risk in order to increase resilience, funded within base costs. Northumbrian Water has not provided evidence that it is a special case.

Our response to key issues raised by Northumbrian Water

Key issue - Leakage performance commitment

4.14 The leakage performance commitment is common to all companies. During the development of the PR19 price review we worked with companies to develop consistent reporting of common performance commitments, as opposed to PR14 when a variety of metrics were used.[203] We will measure the reduction from the leakage figure which will be reported for 2019-20. As leakage is reported as a three year average, the figure companies will report for 2019-20 will be the average leakage over 2017-18, 2018-19 and 2019-20.

4.15 Northumbrian Water argues that our approach to setting the baseline for the 2020-25 leakage performance commitment level has penalised the company for showing early ambition in leakage reduction. The statement of case explains that:

> 'Ofwat has set the target baseline by using the final years of [2015-20] actual performance, rather than the [2015-20 forecast performance commitment] levels. In doing so, Ofwat has directly penalised [Northumbrian Water] and other companies which have invested to make a head start on the challenging

[203] Explanation of our final determination for Northumbrian Water - March 2020, pp. 23-25, sections 2.50-2.56,

[2020-25 performance commitment] targets and have actual leakage levels below the PC level.'[204]

4.16 We do not consider it is appropriate to adjust Northumbrian Water's performance commitment to measure improvement from the PR14 performance commitment level in 2019-20. We consider that use of companies' actual 2019-20 position ensures that if performance exceeds their forecast companies are not rewarded twice through the incentives from PR14 and PR19. This is a necessary mechanism to protect customers.

4.17 Additionally, PR14 leakage targets were set using different assumptions and are not directly comparable with the measurement of leakage in the 2020-25 period, which would also make it inappropriate to use.

Detailed consideration

4.18 In its statement of case to the CMA the company argues that Ofwat's approach of using 2019-20 outturn performance as a leakage reduction baseline disincentivises a proactive approach to leakage. In particular the company argues that it will be penalised for making an early start on leakage reduction as this will result in a more stretching target for the 2020-25 period. The company argues this provides poor incentives especially if this is expected to be repeated in future periods and risks setting a precedent.

Our response

4.19 We do not consider it is appropriate to adjust Northumbrian Water's performance commitment to measure improvement from the PR14 performance commitment level in 2019-20. As we stated in our final determination we consider that use of companies' actual 2019-20 position ensures that if performance exceeds their forecast companies are not rewarded twice through the incentives from PR14 and PR19. This is a necessary mechanism to protect customers, and ensures we are not retroactively rewarding the same improvement twice.

4.20 Furthermore, the change in the reporting of leakage performance commitments has led to large changes in the estimates of future leakage levels. In 2018-19 some companies were still working towards full compliance with the new reporting. We specified the performance commitment as a percentage reduction from the leakage figure which will be reported for 2019-20 using the

[204] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.110, paragraph 530

new methodology as the baseline for the 2020-25 performance commitment level, in line with the discussions with industry. This ensures that the performance commitment relates to actual performance achieved in the 2020-25 period and not to data or methodology changes.

4.21 We note that the company does not set out in its statement of case what the 2019-20 PR14 performance commitment levels are on a comparable basis with the new leakage reporting definition. It is apparently therefore proposing that a % reduction in leakage on a 3 year annual average basis using the new reporting definition be applied to its PR14 performance commitment level for 2019-20 using an incomparable leakage definition. This would give rise to the possibility that out or underperformance payments are generated on the basis of changes in reporting methodology rather than underlying improvements or deteriorations in performance.

4.22 Our more detailed response to this issue can be found in section 5 of our 'Cost efficiency – common issues' document.

Key issue - Threshold at which to share outperformance payments

4.23 Our final determinations for all companies set a threshold on aggregate outperformance payments after which they should be shared with customers – one for waste and one for water. It is set on a gross basis – i.e. it does not net off underperformance payments. The threshold is set at 3% of regulated equity.

4.24 Northumbrian Water agrees that, beyond a threshold, outperformance payments should be shared with customers

4.25 However, it argues that this should be set on a net basis after taking underperformance payments into account.[205] It also proposes that the threshold be lowered from 3% to 2% of regulated equity. It considers that this will provide improved incentives and will reduce asymmetry.

4.26 In practice we consider that the likely impact of the threshold will be similar, and that a 3% gross threshold, if anything, is more likely to be advantageous to the company, compared to a 2% net threshold. However, we consider that a gross threshold provides more appropriate incentives and is therefore in customers' interests. We explain in further detail below.

[205] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.116, paragraph 562

Detailed consideration

4.27 Northumbrian Water considers that the 3% threshold is inconsistent with the stated preferences of its customers.

> 'Customers did tell us that they were concerned about bills increasing too quickly over the PR19 and in aggregate they're [sic] preference for improved outcomes suggested bills should only rise by as much as 2% of RoRE for ODI performance. Using the findings from this research, we therefore proposed that any outperformance rewards greater than 2.04% of RoRE should be shared 50:50 with customers over PR19.'[206]

4.28 However, the sharing mechanism that we proposed was not primarily to smooth bills in the 2020-25 period, but to limit the overall level of outperformance that customers have to pay for. We expect companies to consider deferring outperformance payments to avoid significant bill increases for customers if they are beyond 1%.[207] Companies that already have in-period determinations considered this issue carefully over the 2015-20 period and Severn Trent Water deferred substantial amounts to help keep bills stable.[208] Therefore a 3% gross threshold is not inconsistent with customers' view to limit bill increases in the 2020-25 period.

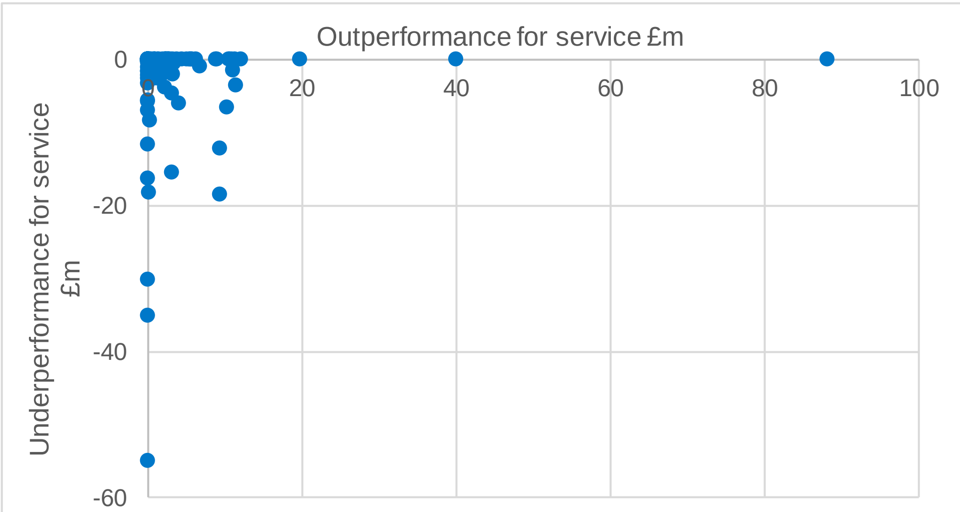
4.29 Northumbrian Water argues that the 3% gross threshold will not provide appropriate incentives. However, the reasoning provided seems inconsistent. It starts by stating that a 3% threshold is too high and unlikely to be reached.[209] But then the rest of its arguments are made on the premise that not only does it significantly pass the 3% gross threshold by excellent performance in one area, but it will simultaneously also deliver very poor performance to customers in other areas. And its final argument suggests we are setting the threshold too low. It highlights the need for the threshold to be sufficient for companies to push performance frontiers.[210]

4.30 It is unlikely that a company that significantly outperforms on some measures will independently have significant underperformance on other measures for the same service, certainly not to the extent set out by the company. In the 2015-19 period we have not observed this as shown in Figure 4.1 below. At lower levels

[206] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.113-4, paragraph 550
[207] PR19 final determinations: Policy summary, p.59
[208] Ofwat, Final determination of in-period ODIs for 2018, p. 6
[209] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.114, paragraph 550
[210] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.116, paragraph 560

of outperformance and underperformance there tends to be offsetting reducing net payments for the water or wastewater service. However, at higher levels of outperformance and underperformance there is no or little offsetting within the water or wastewater service.

Figure 4.1 Correlation between annual outperformance payments and underperformance payments in the 2015-19 period for water services and wastewater services for 17 water companies



Source: ODI payments from company annual performance reports between 2015 and 2019

4.31 The example that the company provides is that it would simultaneously deliver very significant outperformance in customer focused metrics of leakage and water supply interruptions at the same time as very significant underperformance on asset health measures of mains repairs and unplanned outage.[211] A company may need to repair more mains to reduce the backlog of waiting time for bursts, in order to reduce leakage. However, a very significant increase in mains repairs would indicate more mains bursts occurring, which would act to increase leakage and potentially interrupt water supplies. A very significant increase in unplanned outage, so that the company is able to treat less water, also increases the risk of water supply interruptions. The example is very unlikely to occur. If it did, it would indicate that the company is benefiting from some measures in the short term at the same time as asset health is deteriorating that will impact customers in the longer term.

[211] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.115, paragraph 557

4.32 Northumbrian Water claims its customers would not want it to reduce its efforts on outperforming in order to put more effort on addressing underperformance.[212] A net threshold would mean it is indifferent to increasing outperformance or reducing underperformance. It bases its assertion on its customer research that it found larger willingness to pay for some performance commitments above others. We have not seen evidence that Northumbrian Water has asked its customers about their views in such an extreme situation. We consider that customers' views of relative importance would be affected if a company is failing or exceeding its performance commitments. Indeed in its summary of customer research in its business plan submission Northumbrian Water states: [213]

> 'When understanding the issue of risk,,,,customers just felt that they shouldn't have been allowed to come into being in the first place….NW/ESW are seen to be providing an essential service and so to adopt a reactive investment position just wasn't deemed acceptable. It was recognised that to do so would lead to a spiral of assets falling into disrepair that would eventually impact on all customers'.

4.33 We consider, in the very theoretical example Northumbrian Water provides, that a gross threshold provides appropriate incentives. We would expect companies to increase focus on underperforming measures in this situation. A gross approach means that in the circumstance that there is very high outperformance (i.e. that aggregate outperformance is more than 3% of regulated equity), a company is incentivised to increase the focus on performance commitments where there is a risk of deterioration.[214] As it will only receive 50% of any further outperformance, it has a greater incentive to ensure that underperformance does not occur. It is not clear that it would be in customers' interest for a company to receive very large outperformance payments, while allowing other aspects of its service to customers to fail. Extreme outcomes such as these may also indicate the misspecification of a performance commitment or an ODI, so it is appropriate not to allow underperformance to be offset in such a case.

4.34 The company claims that a threshold at 3% of regulatory equity will add to asymmetry compared to a 2% net threshold. For this to be the case, Northumbrian Water would need to underperform by more than 1% on some measures at the same time as outperforming by more than 3% on other

[212] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.116, paragraph 559
[213] Northumbrian Water, SOC031, 'Appendix 2.2 Customer engagement executive summaries', pp. 120-121
[214] PR19 final determinations delivering outcomes policy appendix, pp.165-6. See discussion on caps

measures. However, as shown in figure 4.1 above, we have only observed such offsetting at lower levels of outperformance and underperformance that reduces net payments. At higher levels of outperformance and underperformance there is no offsetting. And 3% gross outperformance is much higher than we have observed in the 2015-19 period. Only one company has outperformed by more than 2% over this period and only one company has underperformed by more than 1%.[215] If there are no underperformance payments to offset outperformance payments, a net threshold will be no different to the gross threshold, but the 2% threshold will be reached before a 3% gross threshold. In any case the company argues that a 3% gross threshold will not be reached at all.

4.35 This means the choice of gross or net threshold has limited significance to the discussion on asymmetry of ODI payments as the company suggest.[216] If anything, a 2% net mechanism would add more to asymmetry.

4.36 The company sets out that the outperformance sharing mechanism should be considered alongside other mechanisms in the wider ODI package, such as caps and collars, and highlights that some of these also provide protections.[217] We agree that some of these mechanisms also provide protections, but the 3% sharing mechanism is a safeguard that sits over all the other mechanisms. We do not expect companies to earn aggregate gross outperformance payments that exceed 3% of regulatory equity. Neither does Northumbrian Water. However, if companies reach this level it is appropriate that customers are protected.

Key issue - Sewer flooding risk reduction performance commitment

4.37 This is a bespoke performance commitment that Northumbrian Water proposed in its September 2018 and April 2019 business plans.[218] It measures the number of properties where sewer flooding risk (internal or external) is reduced. A property is counted if the risk, as assessed by the company, has reduced due to a physical action that the company has implemented.

[215] PR19 final determinations: Aligning risk and return technical appendix, p 29
[216] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.115, paragraph 556
[217] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.114-5, paragraph 555
[218] Explanation of our final determination for Northumbrian Water - March 2020, p.28, section 2.75,

4.38 The bespoke performance commitment was included in the company business plan, together with £86 million of costs to reduce the risk of sewer flooding in the north east (please see 'Key issue – Resilience: sewer flooding in the North East' in chapter 3 for more information). In its statement of case, Northumbrian Water claims Ofwat has erroneously retained the bespoke performance commitment but rejected the cost claim at final determination.[219]

4.39 The company had demonstrated that investment to reduce sewer flooding risk is important to customers and stakeholders and we did not consider it is appropriate to remove the performance commitment.

4.40 This performance commitment complements the common internal sewer flooding performance commitment. We are satisfied that our base cost allowance and outcomes framework at final determination are sufficient to cover investment in this area.

4.41 Even if the company did not invest to proactively reduce the risk of flooding where there has been no previous flooding, it could still meet the performance commitment by reducing the risk of repeat flooding at properties that flooded in the past.

Detailed consideration

4.42 Northumbrian Water has demonstrated significant stakeholder support for the investment, including support by customers and local authorities in the region. Given its importance to stakeholders and our final determination view that the investment can be funded from the company's base allowance, we considered it was important to retain the performance commitment.

4.43 In its statement of case, Northumbrian Water makes a distinction between reducing sewer flooding risk at properties with a flooding history and at those that have never flooded before. It argues that the former is required to achieve the common performance commitment levels, whereas the latter relates to the bespoke performance commitment. As a result, it claims the bespoke performance commitment should only be included if its enhancement claim is also allowed.[220]

4.44 However, we consider that the bespoke performance commitment was not calibrated appropriately if it related only to the delivery of the £86 million

[219] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.132, section 7.5.4
[220] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.132 paragraph 666

investment case. It only returns £100 for each of the 7,400 properties where the company plans to reduce sewer flooding risk. The maximum underperformance payment is only £0.7 million and, as specified in the final determination, only applies for underperformance in 2024-25. This is a small fraction of the enhancement expenditure that the company proposed and this maximum can only apply if Northumbrian Water does not reduce the risk of sewer flooding at any property in its area over the five year period.

4.45 In its statement of case, Northumbrian Water claims having both performance commitments forces it to trade-off between short-term investment to reach common performance levels and investing in long-term resilience to sewer flooding. It states that it faces a stronger incentive for the former given the larger underperformance rates and the possibility of outperformance payments.[221]

4.46 We consider the low incentive associated with the bespoke performance commitment to be appropriate because it is complementary to, rather than in conflict with, the common performance commitment. The common performance commitment provides strong incentives to reduce sewer flooding incidents in the 2020-25 period. Delivering the bespoke performance commitment also helps to achieve this aim. Reducing risk reduces the likelihood of sewer flooding occurring in the short term as well as the longer term.

4.47 Companies have choices between short term operational improvements, such as cleaning sewers so that blockages do not lead to sewer flooding, and long term investments in reducing sewer flooding risk. To meet their statutory duties companies must do both and need to find a balance between the two. The bespoke performance commitment helps to push this balance towards longer term options.

4.48 Northumbrian Water quotes that in our final determination there is limited correlation between the performance commitments.[222] However, we stated this in the context of how much financial overlap there is between the common and bespoke performance commitments. A perfect correlation would suggest that there is financial overlap and that the bespoke performance commitment is redundant. However, the main reason for little financial overlap is the small incentive for the bespoke performance commitment. We perhaps overstated the limitation of the correlation in demonstrating that the bespoke performance commitment adds value to the ODI package. The bespoke performance

[221] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 133 paragraph 671
[222] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 133 paragraph 670

commitment provides an incentive at the margin to deliver long-term outcomes and reduce sewer flooding risk that the company may not expect to materialise in the 2020-25 period.

4.49 Table 4.2 shows that other companies also have bespoke performance commitments to reduce sewer flooding risk and provide resilience in the long term. Most companies' performance commitments are focused on reducing risk by managing surface water so it does not enter the sewerage system. Northumbrian Water's bespoke performance commitment, like United Utilities and Wessex Water's bespoke performance commitments are broader than this. However, the performance commitments of these three companies also allow the use of sustainable drainage approaches (SuDs) to manage surface water and reduce the risk of sewer flooding. United Utilities and Wessex Water's performance commitments only include properties that have experienced sewer flooding, but provide incentives to reduce the risk for those properties where flooding may not be expected in the 2020-25 period. Both measures include consideration of risk up to 1 in 50 years.

Table 4.2 Bespoke performance commitments that reduce sewer flooding risk

Company	Performance commitment
Dŵr Cymru	Surface water management
Severn Trent Water	Green communities Collaborative flood resilience
Southern Water	Surface water management
Thames Water	Surface water management
United Utilities	Hydraulic internal flood risk resilience Hydraulic external flood risk resilience
Wessex Water	Sewer flooding risk
Yorkshire Water	Surface water management

4.50 We therefore maintain our view that it is appropriate that Northumbrian Water retains this bespoke performance commitment. The level of the financial underperformance payment clearly has little overall significance, but the incentives at the margins may help to lead to a reduction in long term sewer flooding risk. Most companies in the industry have a similar incentive to reduce flooding risk where flooding may not be expected in the 2020-25 period.

Key issue - Unplanned outage performance commitment

4.51 Unplanned outage is a new common performance commitment and measures the asset health of water above-ground, or non-infrastructure, assets. It is defined as the temporary loss of peak week production capacity (PWPC) in the reporting year weighted by the duration of the loss (in days). Unplanned outage for each water production site is calculated separately and then summed over the reporting year to give a total actual unplanned outage for the water resource zone. The measure is proportionate to both the frequency of asset failure as well as the criticality and scale of the assets that are causing an outage.[223]

4.52 Northumbrian Water considers that the unplanned outage measure is unlikely to either reflect asset health or incentivise the right behaviours. The company also argues that application of a financial incentive and comparative analysis are not appropriate since the metric is new.[224]

4.53 We do not agree that it is inappropriate to apply financial incentives or compare company data. Our approach to setting performance commitment levels for this metric included mitigation to account for the fact that the metric is relatively new.

4.54 We consider that unplanned outage is a suitable way for companies to monitor asset health and that many of the points raised by Northumbrian Water are misleading. We would like to draw the CMA's attention to three key points:

- Companies have a duty to responsibly manage their assets to provide consistent and wholesome supplies of water. We expect all companies to adopt effective asset management approaches in order to ensure that their assets are being maintained appropriately for the benefit of current and future generations. We regard reporting information on asset availability, or non-availability, as a key component of this.
- Northumbrian Water has not provided a relevant alternative metric to understand asset health of its water treatment works which is an important element of resilience. Neither has it provided quantitative information detailing why unplanned outage is not a suitable metric to measure asset health.

[223] Ofwat, Reporting guidance – unplanned outage, April 2019
[224] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.140, paragraph 714

- The mitigating steps we put in place when assessing this performance commitment to reflect the fact that it was a new measure.

We address each of these points in turn below.

Detailed consideration

4.55 We consider that the failure of an asset which impacts on the ability of a company to produce the peak week production capacity is important information for any responsible asset stewardship organisation to measure, monitor and report. Challenging companies to maintain or improve their levels of unplanned outage incentivises them to reduce asset failures that can increase the risk of supply issues.

4.56 Companies can minimise unplanned outages through effective risk management resulting in targeted pro-active asset maintenance or capital works. Real time monitoring of asset performance can also be used to address issues before asset failures occur.

4.57 The measure was developed in collaboration with the industry through a transparent engagement and consultation process. We outlined in our final methodology how we addressed concerns raised by respondents[225] as well as future work that would be undertaken. There has also been a period of two years of shadow reporting where companies have had time to prepare for the introduction of the metric.

4.58 Northumbrian Water states that unplanned outage is not capable of serving as a measure of asset health. [226] It argues that unplanned outages can be caused by a range of events, some of which it considers are unrelated to asset health (for example pollution or algal blooms). We consider this argument is misleading because companies can adopt operational practices and/or capital solutions to manage the risks posed by such events, which would reduce the risk of unplanned outages. This is set out in the relevant Drinking Water Inspectorate (DWI) risk management guidelines: for example, the use of drinking water safety management plans.[227] These guidelines are based on guidance from the World health Organisation and are embedded in the Water

[225] Ofwat, Delivering Water 2020: Our methodology for the 2019 price review. Appendix 2: Delivering outcomes for customers, December 2017, p.19
[226] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 142 paragraph 730
[227] Drinking Water Safety Plans guidance, Drinking Water Inspectorate

Supply (Water Quality) Regulations 2000 (Amendment) Regulations 2007.[228] [229] In many cases companies will have assets installed or operational management practices to treat or manage the risks posed by such events. For example, companies may install dissolved air flotation assets in order to manage the impact of algal blooms.

4.59 The company argues that the metric does not provide the right incentives for companies and that a failing asset does not necessarily mean there is a resilience risk to be addressed.[230] We consider this performance commitment to be a measure of risk to service, therefore a performance trend that shows increasing unplanned outage indicates a lower level of asset health, increasing the risk of future service failures. It measures the ability of the company to manage its assets in order to increase long-term resilience and asset health.

4.60 The company argues that its high security of supply index (SOSI) ratings and levels of interconnectedness means that the company can manage resilience even in cases where unplanned outage performance is poor.[231] The company is therefore arguing that it can keep assets out of service and unavailable. A well maintained asset should have a low risk of failure. If assets are unable to provide service to customers it indicates a company is not maintaining and investing in them appropriately. While a company can save in the short term by choosing to defer maintenance and investment, expenditure on the asset will eventually be required. This will act to increase bills for customers in the future. In the meantime if assets continue to fail, it reduces resilience, even if there is an element of system resilience. Any asset failure will impact resilience because the assets themselves perform a function within a wider, interconnected system. If the asset it not required at all and provides no value to customers it should be retired.

4.61 In terms of water treatment works the company goes further and suggests that the Security of Supply Index (SOSI) is a measure of asset health.[232] SOSI is a scenario based measure - the scenario being the drought severity the company is planning for and what water is available under that scenario compared to the expected demand. Water available for network input is constrained by the forecast availability of assets, but is normally calculated by assuming that

[228] World Health Organisation, Water safety planning
[229] The Water Supply (Water Quality) Regulations 2000 (Amendment) Regulations 2007
[230] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 142, paragraph 730, 731, 733
[231] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 142-3, paragraph 731, 733, 734, 738
[232] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 145, paragraph 750

assets are available and are capable of operating at maximum capacity. An allowance for outage is deducted from the water available based on average outage reductions seen historically.[233] This does not provide an acceptable indicator of asset health. For a system to be resilient, assets need to be ready where water demand is high. This can be unexpected such as in the case of a freeze thaw event.[234]

4.62 Furthermore while Northumbrian Water is critical of unplanned outage as a metric, it has not proposed a suitable alternative. How best to measure resilience or asset health is a long standing issue in the industry. As far back as 2006 there was a suggestion for an indicator to understand water treatment works reliability, such as unplanned outage.[235] And the need to have clear measures to understand the health of assets, in addition to those that focus on service, has long been understood.

4.63 A focus on monitoring actual observed service now (as will be done using Ofwat's proposed KPIs) does not ensure that capability to provide future service is protected. Actual service now may be acceptable to customers, but service risk could be high.[236]

4.64 Our methodology set out that companies could propose bespoke asset health performance commitments.[237] If Northumbrian Water considered that the unplanned outage measure was inappropriate it could have attempted to develop a further measure. It could have proposed it as a bespoke performance commitment to demonstrate the health of its assets to customers and stakeholders and incentivise its assets being resilient in the long term.

4.65 The company also states that unplanned outage does not take account of company-specific factors that affect performance[238] and that differences, for example due to asset configuration, could give rise to different levels of outages. All companies have the same requirements to provide a consistent and wholesome supply of water. The unplanned outage performance commitment incentivises companies to keep assets available and in service. We consider the configuration of assets does not change the requirements on

[233] Security of supply 2006-07 – supporting information
[234] Ofwat, Out in the cold: water companies' response to the 'Beast from the East', June 2018
[235] UKWIR, Serviceability methodologies 12/RG/01/4, February 2012, p. 96
[236] Ibid, see page 1 of the executive summary. Note supply interruptions was one of the KPIs the report refers to.
[237] Delivering Water 2020: Our methodology for the 2019 price review. Appendix 2: Delivering outcomes for customers, p.28
[238] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.143, paragraph 735

companies to prevent their assets failing and increasing the risk to service. If there are company-specific factors related to outage that give rise to atypical costs, companies can submit cost adjustment claims.

4.66 The company also challenges the link between unplanned outages and service impacts to customers, stating that high unplanned outage does not necessarily mean there has been a customer impact.[239] The unplanned outage performance commitment is an asset health measure. It is not intended to directly measure the immediate service to customers, rather the risk to service in the future (resilience). The other asset health performance commitments such as sewer collapses and mains repairs also may not result in a direct customer impact with every failure.

4.67 The company suggests that a financial ODI will reduce the focus on the customer impact.[240] We consider that it fails to understand how ODIs interact and what incentives for resilience the package of ODIs will deliver. For example, Northumbrian Water has three performance commitments that measure different water supply interruptions of different durations: one to 3 hours; more than 3 hours; and more than 12 hours. These, as part of the package of incentives, will help focus incentives on the end service to customers in the short term. As such incentives are likely to be repeated in future periods, these also help to balance incentives to focus on customers in the long term (the company acknowledges the strength of a repeated game in other areas).[241] We consider that overall the ODI package provides appropriate incentives.

4.68 The company states that, since the metric is new, comparisons and financial incentives should not apply; furthermore, the company raises concerns over whether all companies are reporting the metric consistently.[242] We consider that our assessment approach appropriately balances the need to incentivise companies to manage unplanned outage while also providing mitigation for the newness of the measure.

[239] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.143, paragraph 736
[240] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.143, paragraph 737
[241] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.111 and 116, paragraphs 535 and 560
[242] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.141-143, paragraphs 720, 735, 740-743

4.69 We signalled our intention to make the asset health common performance commitments financial in our PR19 final methodology.[243] Our overall PR19 approach strengthened the role of financial ODIs in order to better align the interests of company management and investors with those of customers. Given the challenges the sector faces with water scarcity, climate change, increasing demand and changing customer expectations, we consider that incentivising companies to improve both their performance on unplanned outage and their understanding of asset health is appropriate.

4.70 As part of our assessment process we analysed the range of outturn performance data provided by companies on unplanned outage as well as information in relation to their progress towards reporting against a consistent common definition. Our assessment of the industry outturn data from 2017-18 to 2018-19 demonstrated a convergence in values and a reduction in the range of reported values, indicating an increasing reliability in the data. The analysis of the progress by companies in adopting the common definition showed that companies had made substantial progress towards compliance on measurement of this performance commitment. For example, the definition components rated as 'green' in terms of compliance improved from 26% in 2017-18 to 60% in 2018-19 and 'red' reduced from 35% to 11% over the same time frame.

4.71 In paragraph 721 of its statement of case, Northumbrian Water refers to concerns on comparability set out in a targeted review.[244] This was published before 2017-18 data was reported. As set out in the previous paragraph companies' compliance has increased significantly since then and we expected companies to be fully compliant when reporting data for 2019-20.

4.72 To help mitigate potential reporting issues we based the 2024-25 performance commitment level for each company on the 2018-19 median value, rather than an upper quartile assessment that we have generally used elsewhere. This helps to mitigate the risk of any outliers in the data, while still being stretching for the poorest performing companies.

4.73 As a further mitigation step to reflect the newness of the measure, we set different glidepaths based on how companies were performing. Companies that are performing poorly relative to the industry have glidepaths to assist them to

[243] Delivering Water 2020: Our methodology for the 2019 price review. Appendix 2: Delivering outcomes for customers, p.16
[244] Ofwat and Water UK, Targeted review of common performance commitments, published 27 March 2018.

reach the industry performance commitment level for 2024-25 on this relatively new metric. This includes Yorkshire Water, South East Water, Thames Water and United Utilities.[245] Companies performing better or equal to the 2024-25 level were set a flat profile.

4.74 At final determination we also applied an underperformance collar to all companies for this performance commitment to reflect the fact that the measure was relatively new and there was still some uncertainty around the data and measurement. Companies do not pay underperformance payments beyond the collar. Collars protect companies from disproportionate exposure in the case of very poor performance.[246]

4.75 We consider that overall our approach on unplanned outage is appropriate. None of the other disputing companies has raised concerns with respect to unplanned outage. We also note that of its 35 financial performance commitments, the company proposed financial incentives associated with at least four performance commitments that are 'new' for the period.

4.76 We recommend this performance commitment is maintained. If the CMA was to remove this performance commitment there would be a risk that Northumbrian Water's assets would deteriorate, despite it receiving funding to maintain them, exposing consumers to additional risk.

Conclusions

4.77 As we set out above, the main issues that Northumbrian Water has raised on outcomes are: the measurement of leakage; the threshold to share outperformance; and having a financial incentive for unplanned outage are detailed methodological issues that have been accepted by other companies. Other disputing companies have not highlighted these issues. In each case, after considering the arguments put forward by Northumbrian Water, we consider the evidence supports the decisions that we made at final determinations. If the CMA considers that changes should be made for Northumbrian Water, it will need to have strong reasons not to make the changes suggested by Northumbrian Water for the other three disputing companies as well.

[245] PR19 final determinations; Delivery outcomes for customers policy appendix, p.197
[246] PR19 final determinations; Delivery outcomes for customers policy appendix, chapter 7.2, pp165-166

4.78 The issue of the sewer flooding risk reduction bespoke performance commitment is really about allowed costs rather than the performance commitment. The performance commitment provides some incentive to increase resilience at the margins. But, the incentives are modest and are in no danger of overly affecting the balance of incentives. Other companies have similar bespoke performance commitments to help reduce sewer flooding risk in order to increase resilience. We consider keeping the performance commitment is in the interests of customers.

4.79 Overall Northumbrian Water has raised few points on outcomes and most are very detailed methodological issues. We consider that this provides evidence that overall outcomes package in the final determination is appropriate. It provides opportunities for outperformance where the company is a strong performer and strong incentives for the company to improve and catch up where it currently provides poor service.

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 **Our overall level of stretch on costs is achievable.** Northumbrian Water has outperformed its totex allowance in three of the previous four price controls, on average outperforming (underspending) against its expenditure allowances by 1.9%. It has so far outperformed its PR14 wholesale allowance by 9.0% from 2015-2019. PR19 represents a 0.7% challenge on historical base costs.

5.3 **Our overall level of stretch on outcomes is achievable.** Northumbrian Water has already met some of its PR19 performance commitment levels in the PR14 period, outperforming its 2024-25 performance commitment level on both water supply interruptions and pollution incidents during the current control period. Northumbrian Water will receive financial payments for going beyond performance commitment levels.

5.4 **Our overall level of stretch on costs and outcomes is achievable.** Given the limited challenge on base costs and that Northumbrian Water has previously met two of three key PR19 common performance commitment levels in the PR14 period, we consider that the overall level of stretch is achievable and offers Northumbrian Water scope to outperform.

5.5 Northumbrian Water and its consultants Economic Insight make a number of representations regarding the overall level of stretch we impose on costs and outcomes. Table 5.1 highlights the key issues made by Northumbrian Water in its statement of case in relation to the overall stretch across costs and outcomes and a summary of our response to each of those issues. We also discuss these issues in the 'Introduction and overall stretch' document.

Table 5.1: Key issues on the overall stretch across costs and outcomes raised by Northumbrian Water in its submission

Key issues in Northumbrian Water's submission	Summary of our response
Overall level of stretch: PR19 represents the most challenging price control in recent history in terms of service improvements, productivity improvements, efficiency catch-up improvements, and cost of equity allowance. (statement of case, p.55, paragraph 254)	The cost of equity is based on market conditions and is not an increase in stretch. Bills are a function of other decisions and so are not relevant to the level of stretch. **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. Further detail can be found in the 'Key issue - Overall stretch' section below and in our 'Introduction and overall stretch' document.
Water sector productivity: Northumbrian Water states that the step change implied by PR19 is not justified as our argument that there is a productivity gap in the sector is incorrect. (statement of case, pp.59-61, paragraphs 264-276)	Northumbrian Water compares water sector productivity to sectors which are not similar in the nature of their activities, or not competitive. **We find evidence of stagnating water sector productivity relative to more appropriate comparator sectors in recent years**. Further detail can be found in the 'Key issue - Water sector productivity growth' section below and in our 'Introduction and overall stretch' document'.
Historical outperformance: Northumbrian Water states that the overall level of stretch across costs, outcomes and the allowed return is not consistent with our duties as there has not been historical outperformance of price controls. (statement of case, pp.55 and 57-59, paragraphs 252 and 259-263)	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 have consistently outperformed their totex allowances over the past four price controls.** Northumbrian Water's average totex outperformance is 1.9%. Northumbrian Water has outperformed its PR14 three upper quartile performance commitment levels. Further detail can be found in the 'Key issue - Historical outperformance' section below and in our 'Introduction and overall stretch' document.
Bill reductions and stretch on outcomes: Northumbrian Water states that the bill analysis understates the challenge in PR19, as it does not reflect the increase in challenge in outcomes where there is a step change in the degree of challenge. Economic Insight (on behalf of Northumbrian Water) also states that PR19 represents twice the challenge relative to previous price controls.[247] (statement of case, pp.59-61, paragraphs 264-276)	**Bill reductions do not reflect increased stretch**. Economic Insight compares bills in company business plans and our final determinations. This will therefore reflect whether the company submitted a challenging business plan rather than the level of stretch. Nevertheless the overall reduction in bills from PR19 is similar to previous price controls. **Northumbrian Water has also already met the 2024-25 performance commitment levels for some of the PR19 common upper quartile performance commitments** during the current price control period. This suggests

[247] Economic Insight, SOC413, 'Top-down analysis of the financeability of the notionally efficient firm', March 2020, pp. 8-9, 28

Key issues in Northumbrian Water's submission	Summary of our response
	the overall level of stretch on outcomes is achievable for Northumbrian Water. Further detail can be found in the 'Key issue - Bills and overall stretch' section below and in our 'Introduction and overall stretch' document
Energy outperformance: Northumbrian Water states that the step change implied by PR19 is not justified as although other network industries have seen systematic outperformance, company performance against regulatory settlements in the water sector is fundamentally different from the energy sector. (statement of case, pp.243-244, paragraphs 277-278)	While we have drawn on evidence from the energy and other sectors, our requirement for a step change is based on the circumstances of the water sector only. Further detail can be found in the 'Key issue - Outperformance of the energy sector' section below and in our 'Introduction and overall stretch' document.
Stretch on base costs: Northumbrian Water states it is an efficient company and is a strong performer on service and so further efficiency gains will be more challenging and there is no case for a step change for Northumbrian Water in 2020-25. (statement of case, p.61, paragraphs 280-282)	Northumbrian Water has one of the lowest efficiency challenges in the sector with a 0.7% efficiency challenge on historical base costs, Further detail can be found in the 'Key issue - Stretch on base costs' section below and in our 'Introduction and overall stretch' document.

Considerations for the CMA

5.6 In setting a stretching but achievable overall level of stretch for Northumbrian Water and all other companies, we aimed to strike a balance. 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, investors may receive less than a fair return and customers may face poorer service.

5.7 The CMA should consider the level of overall stretch we have imposed on Northumbrian Water relative to the rest of the sector. Most companies have a higher level of stretch on costs and outcomes than Northumbrian Water, and have stepped up to accept that level of stretch.[248]

5.8 Northumbrian Water states that it is an efficient company. An element of this efficiency is that it has outperformed (underspent) its totex allowances in three out of the past four price controls. We do not consider that companies should

[248] 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, Chapter 5

be able to easily outperform their allowances so that investors can earn higher returns at the expense of customers.

5.9 **The level of stretch we are imposing on Northumbrian Water's base costs is relatively small**. Our base cost allowance for Northumbrian Water is 0.7% lower than their historical base cost expenditure.

5.10 Northumbrian Water states that it is a strong performer on service and so further efficiency gains will be more challenging. However, **Northumbrian Water has already met our 2024-25 performance commitment levels for both water supply interruptions and pollution incidents during the PR14 price control period**.

5.11 Overall, although Northumbrian Water claims there is no case for a step change for the company, we consider the level of stretch on costs and outcomes we set in our final determination to be achievable and allows Northumbrian Water scope to outperform.

Our response to key issues raised by Northumbrian Water

Key issue - Overall stretch

5.12 Northumbrian Water suggests that the level of stretch has increased, based on the reduction in the allowed return on equity,[249] the reduction bills,[250] the increase in frontier shift,[251] the move from upper quartile cost benchmarks[252] and the increase in outcome requirements.[253]

5.13 **Reducing the allowed return does not increase the level of stretch.** The reduction in the allowed return reflects prevailing market evidence. If we were to follow what the disputing companies are suggesting, it would mean that we should add a premium to the allowed return to offset the increased level of stretch. We consider the level of stretch is appropriate and well justified: it

[249] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.98, paragraph 482
[250] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.8, paragraph 41
[251] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.62, paragraph 281
[252] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.67 and 69, paragraphs 302 and 317
[253] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020. pp.56 and 62, paragraphs 255, 280-282

would be wrong to ask customers to pay more because disputing companies claim to be unable to meet the level of stretch faced by the rest of the sector. Further detail on our approach to the allowed return on equity can be found in chapter 6 of this document.

5.14 **Examining bill changes as an indicator in the level of stretch is incorrect.** As set out in chapter 4 of the 'Overall level of stretch and cross cutting issues' document, 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. It is not the case that Ofwat has targeted a percentage bill reduction. We have made decisions on each of the individual building blocks and ensured that the overall level of stretch across these building blocks is stretching and achievable. The key drivers of the reduction in bills in PR19 are the reduction in the allowed return on capital and retail costs, and an increase in customer numbers (as fixed costs get shared across a larger number of customers.

5.15 **The level of stretch on costs is best described as the impact of our interventions on the level of costs** rather than whether the catch-up efficiency challenge is set at the upper quartile or 3rd or 4th company as suggested by Northumbrian Water. Despite moving from an upper quartile efficiency benchmark in PR14 to the 4th company on water and 3rd company on wastewater in PR19 the level of catch-up challenge has decreased. Overall the level of challenge on costs, taking into account catch-up and frontier shift efficiency, is similar across PR14 and PR19.

5.16 **The scope of outcomes at PR19 is far greater than the three forward looking upper quartile performance commitments** – water supply interruptions, internal sewer flooding and pollution incidents. The disputing companies suggest that the level of stretch on outcomes is defined by stretch on the three upper quartile performance commitments alone. However, there are actually 15 common performance commitments and on average each company has around 40 performance commitments.[254] To form a full view on stretch one would need to consider the stretch on all performance commitments. Therefore focusing on the three upper quartile performance commitments alone is likely to overstate the overall level of stretch on outcomes.

[254] Northumbrian Water has 16 common performance commitments as it has separate leakage performance commitments for its Essex & Suffolk Water and Northumbrian Water operating areas.

5.17 **Nevertheless, the stretch on the three upper quartile performance commitments is similar to what has been achieved in PR14**. While the PR14 performance commitment levels we set were lower and companies have tended to outperform those levels, the overall stretch across the three PR19 upper quartile performance commitments is similar to what has been achieved for these commitments during PR14.[255] The key difference between PR19 and PR14 is that we have taken into account the improvement that we expect companies to make over the period when setting performance commitment levels, based on outturn performance in PR14.

5.18 Further detail on the overall level of stretch of PR19 is set out in chapter 4 of the 'Introduction and overall stretch' document.

Key issue - Historical outperformance

5.19 Northumbrian Water and Economic Insight for Northumbrian Water, Yorkshire Water and Anglian Water state that the overall level of stretch across costs, outcomes and the allowed return is not consistent with our duties as there has not been historical outperformance of price controls.[256] [257]

5.20 Based on Economic Insight's Return on Capital Employed (RoCE) calculations, Northumbrian Water states there has not been historical outperformance for PR14, or for previous price control periods.[258,259]

5.21 Northumbrian Water states that based on RoRE calculations there have been an equal number of companies to outperform the PR14 settlement as underperform.[260]

5.22 Our proposal or a step change is not based on whether there has been systematic outperformance of previous price controls. Rather, it is based on stagnating performance on cost efficiency and outcome performance over

[255] There were five upper quartile performance commitments in PR14. These included water quality contacts and mean zonal compliance. We are not setting upper quartile performance commitments for water quality contacts and mean zonal compliance for PR19.
[256] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 57, paragraphs 259-260
[257] Economic Insight, SOC413, 'Top-down analysis of the financeability of the notionally efficient firm', March 2020, Chapter 2
[258] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.57-58, paragraphs 259-260
[259] Economic Insight, SOC413, 'Top-down analysis of the financeability of the notionally efficient firm', March 2020, Chapter 2
[260] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.57, paragraph 262

recent years; the significant improvements made by some companies and the step change proposed and accepted by others; and our view that the sector can do much more to improve performance. Nevertheless historical performance is informative in this context, in particular how companies respond to the challenges that we set.

5.23 **RoRE is the most appropriate measure to measure performance under a totex regime.** Since 2014, we have used RoRE to measure the return to equity shareholders. This is consistent with the premise of a notional capital structure - with out- and underperformance being shareholder issues - and is a more reliable and readily understood measure to calibrate and monitor performance. We require companies to report on this basis, which we report annually in our Monitoring Financial Resilience reports - we do not report performance on a RoCE basis. We note that Ofgem also reports on a RoRE basis. The RoCE measure, preferred by Economic Insight, relies on retention of current cost accounting techniques related to the reporting of maintenance spend, and is influenced by the accounting policies adopted by each company.

5.24 Over 2015-2019, companies have generally outperformed their base return. For the period 2015-19, based on the company's notional financial structure thirteen companies have reported outperformance against the financing measures (real), and ten companies outperformed on the operational measures (real). **Northumbrian Water returned dividends significantly in excess of the allowed return in both 2010-15 and 2015-19 when expressed as a percentage of notional equity.** Under the notional capital structure, eleven companies have outperformed their base return allowance with Northumbrian Water having total shareholder return in excess of 10%. Under their actual capital structure thirteen companies have outperformed their base return, with Northumbrian Water having a total shareholder return in excess of 10%. Both the National Audit Office and Citizens Advice have commented on the windfall gains made by companies over recent years.[261, 262]

5.25 It is important to consider the drivers of company returns and outperformance, and in particular performance on totex and outcomes. Companies have also tended to outperform on both totex and outcomes, with ten companies outperforming on totex (including Northumbrian Water) and ten outperforming on outcome delivery incentives (including Northumbrian Water).

5.26 **Over the last four price controls companies, including Northumbrian Water, have on average outperformed (underspent) against their**

[261] National Audit Office, The economic regulation of the water sector, 2015
[262] Citizens Advice Monopoly Money, 'How consumers overpaid by billions', 2019, p.4

expenditure allowances. Northumbrian Water has outperformed its totex allowance in three of the previous four price control periods, with average outperformance of 1.9%.

5.27 While overall net payments for outcome delivery incentives in PR14 across the sector are broadly neutral, this masks big differences across companies and between individual performance commitments. For the three upper quartile common performance commitments, companies have generally outperformed. This is particularly so for three of the disputing companies: Anglian Water, Northumbrian Water and Yorkshire Water.

5.28 Further detail is provided in chapter 6 of our 'Introduction and overall stretch' document.

Key issue - Bills and overall stretch

5.29 Based on an analysis of bill movements between company business plans and final determinations over PR04 to PR19 undertaken by its consultants Economic Insight, Northumbrian Water states that PR19 represents twice the challenge relative to previous price controls.[263]

5.30 Examining bill movements between company plans and our final determinations as an indicator in the level of stretch is misleading. As set out in chapter 2 of this document, 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 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. The comparison that Economic Insight provides is between bills in company business plans and our final determinations. This differs from Northumbrian Water's analysis of bills in relation to overall stretch as discussed above which just considers the change in bills across price control periods.

5.31 Economic Insight's comparison of bills between company plans and final determinations will reflect whether the companies submitted challenging business plans. Company business plan expenditure requests can be significantly higher than outturn expenditure, as shown in Figures 2.1 and 2.2 in the 'Cost efficiency – common issues' document. Companies can also request a much higher allowed return on capital than required. For example, most

[263] Economic Insight, SOC413, 'Top-down analysis of the financeability of the notionally efficient firm', March 2020, p.9 and chapter 3

companies used our early view of the allowed return in their business plan but did not follow the reductions we made to reflect market conditions.

5.32 Compared to company business plans, the bill movement in PR19 is similar to the bill movement in previous price reviews. And so even if the comparison was valid, which we dispute, PR19 is no more stretching than previous price reviews. We note that the reduction in Northumbrian Water's bills in PR19 is similar to the reduction we have imposed on its bills in previous price reviews. Further details are set out in the 'Introduction and overall stretch' document.

Key issue – Meeting our PR19 challenge on outcomes

5.33 Northumbrian Water and Economic Insight for Northumbrian Water, Yorkshire Water and Anglian Water state that the bill analysis understates the challenge in PR19, as it does not reflect the increase in challenge in outcomes where there is a step change in the degree of challenge. Northumbrian Water also states it is already an efficient company with strong service performance and therefore the step change is even more unjustified.[264]

5.34 As outlined above, bill analysis is irrelevant to the overall level of stretch. Additionally, **Northumbrian Water has already shown it can achieve much of the overall stretch on outcomes for PR19**. The level of outcomes stretch we have imposed on Northumbrian Water in some cases is less than it has been able to deliver in the past, and the company has potential for outperformance payments in the next control period. In particular:

- On **water supply interruptions**, the 2024-25 performance commitment level has already been achieved by the company.
- On **internal sewer flooding,** the 2024-25 performance commitment represents a 43% improvement compared to its best performing year, and compares to a 30% improvement achieved, to best performance, in PR14.
- On **pollution incidents**, the 2024-25 performance commitment level has already been achieved by the company.

Key issue - Water sector productivity growth

5.35 Northumbrian Water states that the step change implied by PR19 is not justified as our argument that there is a productivity gap in the sector is incorrect.

[264] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.61, paragraphs 280-282.

Northumbrian Water states that 'If the water sector can be shown to be materially underperforming relative to the levels of productivity improvement in other, comparable sectors across the UK economy then we would accept that there should be scope for productivity improvement in the sector and there could be justification for Ofwat's 'step change'.[265]

5.36 In support of this Northumbrian Water compares performance in the water sector with the comparator group identified by Frontier Economics. The quote used by Northumbrian Water actually refers to performance over the entire period, including the substantial productivity growth in the post privatisation period, rather than more recent years where growth has been much lower, as shown in Table 5.2 below. 'Quality adjusted cumulative TFP growth in the water and sewerage sector is materially larger than amongst the comparator group, while a highly conservative comparison on a quality unadjusted basis illustrates similar cumulative TFP growth in water and sewerage compared to the comparator group.'[266]

Table 5.2: Annual water and sewerage sector total factor productivity growth estimates over price review periods

	1994-2008	2009-2015
Frontier Economics - water productivity (quality adjusted)	3.21%	0.14%
Frontier Economics - water productivity (not quality adjusted)	1.60%	-0.10%
Frontier Economics comparator group	1.69%	-0.28%
Overall UK	0.65%	-0.28%

5.37 Based on the analysis undertaken by Frontier Economics, we agree that productivity in the water sector has slowed in recent years. However unlike Frontier Economics, we consider that productivity growth is substantially slower than relevant comparator sectors.

5.38 The comparator sectors used by Frontier Economics are not appropriate. Frontier Economics includes postal services, telecommunications and repair of motor vehicles and motorcycles which do not appear to be directly relevant to water sector operations. They also include electricity, gas and water sectors where networks are regulated (and also had strong negative growth over the period) and so will not provide an effective competitive comparative benchmark.

[265] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.60, paragraph 272
[266] Frontier Economics, 'Productivity Improvement in the Water and Sewerage Industry in England since Privatisation – Final Report for Water UK', September 2017, p. 33

5.39 If instead we use a more appropriate comparative benchmark based on competitive sectors which undertake similar processes to the water sector, as developed by Europe Economics, then productivity growth across the comparator group exceeds that of the water sector. Over the post crisis period (2010-14) comparator sector productivity growth was 0.6% per year compared to little or no growth in the water sector.[267] Further details on assessment of productivity growth including the choice of comparator sectors is set out in 'Cost efficiency – common issues', Chapter 6.

Key issue - Outperformance of the energy sector

5.40 Northumbrian Water states that the step change implied by PR19 is not justified as although other network industries have seen systematic outperformance, this is not a basis for applying a more challenging approach to the water sector. The company states that our proposal for a step change may have arisen out of concern of outperformance from the energy sector.[268]

5.41 As part of our assessment of scope for improvement in the water sector, we have drawn on evidence from the energy and other sectors. However our requirement for a step change is based on the circumstances of the water sector only.

Key issue - Stretch on base costs

5.42 Northumbrian Water states it is an efficient company and is a strong performer on service. It claims that as a result further efficiency gains will be more challenging and there is no case for a step change for Northumbrian Water in 2020-25.[269] Northumbrian Water also states that we have increased the level of stretch compared to PR14, which is greater than that in energy controls. [270]

5.43 In comparison to historical base costs, our final determination reflected a sector wide 3.0% efficiency challenge over five years (after allowing for inflation)

[267] Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019, p 77, Table 3.13
[268] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.61, paragraph 277
[269] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.61, paragraphs 280-282
[270] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.62, paragraphs 280-281

compared to historical expenditure.[271] Overall, across the sector our base cost allowances were just 0.4% below company business plans.[272]

5.44 As shown in Table 5.3 in our 'Introduction and overall stretch document, in comparison to historical base costs, our final determination on base costs reflected a 0.7% efficiency challenge over five years for Northumbrian Water, significantly lower than the average stretch of 3.0%. As part of PR19 a number of companies stepped up as part of PR19 with Dŵr Cymru, United Utilities and Thames Water all proposing substantial reductions compared to historical base expenditure.

5.45 We do not consider that a 0.7% reduction on Northumbrian Water's base costs represents a step change in performance that it would not be able to achieve.

Conclusions

5.46 The level of stretch imposed on Northumbrian Water is low compared to many other companies, including those that accepted the final determinations. The challenge on historical base expenditure is only 0.7% and the company has already met two of the three upper quartile 2024-25 common performance commitments. Northumbrian Water alleges that the price control is one of the most challenging set and there is no case for a step change based on historical performance. However the evidence that the company has provided is significantly flawed. Northumbrian Water provides little evidence that the overall challenge on the company itself is particularly challenging. We consider that the overall final determinations were stretching but achievable. We consider that they are particularly achievable for Northumbrian Water.

[271] 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, Chapter 5, Table 5.3.
[272] 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, Chapter 5, Table 5.3

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 Northumbrian Water provided an appropriate balance of risk and return**, with a broadly balanced risk range.

6.3 **Northumbrian Water's determination is financeable on the notional structure**. We advanced revenue of £25 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 It is the company's responsibility to maintain its financial resilience under its actual financial structure. Northumbrian Water may need to take further steps to improve its financial resilience having maintained a high dividend payout ratio since it was acquired by CKI (we set out this evidence in chapter 2 of the accompanying 'Risk and return – common issues' document).

6.5 Table 6.1 highlights the key issues made by Northumbrian Water in its statement of case submission in relation to risk and return and a summary of our response to each of those issues.

Table 6.1: Key issues on risk and return raised by Northumbrian Water in its submission

Key issues in Northumbrian Water's submission	Summary of our response
Errors in cost sharing rates. Northumbrian Water considers that the approach to cost sharing rates does not incentivise the submission of efficient costs in business plans and does not take account of reasons for costs being disallowed.	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

Key issues in Northumbrian Water's submission	Summary of our response
(statement of case, pp.6 and 103, paragraphs 22 and 500)	standing tool used by Ofwat and in other regulated sectors. Northumbrian 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.
Cost of capital too low. Northumbrian Water argues that based on detailed analysis, including market-based evidence and third party input, that we have incorrectly calculated the allowed return and set it at a level that is demonstrably below what is in customers' long-term best interest. It says that the overall range for the allowed return is 2.49% to 2.75%. (statement of case, p.146, summary and p.7, paragraph 31)	Northumbrian Water requests a higher allowed return than was included in its business plan (2.40% in real RPI terms). Our determination provides a reasonable return for an efficient company. 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).[273] Our asset beta and debt beta are a balanced reading of the evidence at the time of our determination, though the beta estimate is high on current data
Financing duty. Northumbrian Water considers we have failed to satisfy our financing duty. The company states that the final determination results in an unacceptable level of downside risk, which includes a combination of unrealistically low cost allowances, challenging and stretching performance commitment levels, an asymmetric and downwardly skewed package and an unprecedented low cost of capital. This means: • It cannot on average expect to earn a reasonable level of return in the base case; • It cannot achieve a credit rating that is consistent with what is assumed in the average cost of debt; • There is insufficient financial headroom in the projected credit metrics to be resilient to plausible downside scenarios The company states its capacity to withstand plausible downside scenarios is reflected in the projected credit rating for the company which it says is likely to deteriorate from Baa1 to Baa2. (statement of case, p.7, paragraphs 34-35; p.177, summary)	The cost allowances and performance commitment levels included in our determination are stretching but achievable for an efficient company. Our determination provides Northumbrian 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. Evidence since our determination supports our view that an efficient company with the notional capital structure could maintain a credit rating that is two notches above the minimum of the investment grade. It is by no means clear that statements made by the credit rating agencies suggest Northumbrian Water would be downgraded to Baa2 on the basis of our determination alone.[274] Since its acquisition by CKI, Northumbrian Water has maintained a gearing level above the notional level and has maintained high dividend payments that have outstripped reported company profit. It is not appropriate that customers should incur increased costs to provide additional headroom due to its actual capital structure.

[273] CMA, NATS (En Route) Plc / CAA Regulatory Appeal – Provisional findings report, 24 March 2020
[274] Moody's Investor Service, 'Moody's extends review for downgrade on Northumbrian Water', 9 March 2020

Key issues in Northumbrian Water's submission	Summary of our response
Financeability adjustment error. Our final determination included an adjustment to the pay as you go rate to bring forward revenue in order to meet a notional financeability constraint. Northumbrian Water argues rating agencies do not take these adjustments into account and this is not a sustainable solution as it defers the financeability problem into future price control periods. (statement of case, p.8, paragraph 36 and p.177, summary)	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.[275] 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.
Incorrect tax calculation. The company references that our financial model assumed a reduction in corporation tax to 17% from 19% which was in line with government projections at the time of our determinations. In March 2020 it was announced that the further cuts would not take place and the 19% rate has been retained. Northumbrian Water proposes uplifting the rate to 19%. (statement of case, p.167, paragraph 913)	The corporation tax rate applied in the financial modelling reflected our expectations following the government projections. Our final determinations include a reconciliation mechanism to account for changes in the corporation tax rate, meaning that the corporation tax rate would be reconciled at PR24 absent the CMA's redetermination. We accept it is reasonable for the CMA to apply an appropriate corporation tax rate based on the most up to date information available.
Failure to balance incentives. Northumbrian Water argues we have failed to ensure these incentives are appropriately balanced against longer-term considerations. It argues a negative skew in cost sharing rates, outcome delivery incentives and uncertainty mechanisms results in an unfinanceable package. It argues the final determination does not incentivise investment, focussing on short term bill reductions. (statement of case, p. 103, paragraph 497)	Our approach recognises that companies benefit from an asymmetry of information in preparing business plans. It incentivises companies to put forward stretching business plans and to deliver efficient services to customers. Northumbrian Water had significant opportunity through the review process to convince us that its requested costs were efficient and necessary, and to convince us that we should apply its performance commitment levels and outcome delivery incentive rates. In an incentive based regime, uncertainty mechanisms should not allow full pass through of costs where management is able to take steps to mitigate the impact of downside risks. There is no evidence that our determination does not incentivise investment. Following our final determinations, the listed water companies traded premia to their market to asset valuations that were high in historical standards.
Gearing outperformance mechanism. Northumbrian Water states that there is no basis for Ofwat's introduction of the gearing outperformance sharing mechanism in PR19 for the following reasons:	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, equity investors enjoy most or all of the benefits, but

[275] Ofwat, 'PR19 final determinations: Aligning risk and return technical appendix', December 2019, Section 6.3, pp. 83-87, 'Challenges about the use of financeability levers to advance revenues in our determinations

Key issues in Northumbrian Water's submission	Summary of our response
• The mechanism is not consistent with financial theory and previous price reviews • Bills will increase in the long term. (statement of case, pp. 163-164, paragraphs 897, 904)	financial resilience is reduced, and some risk may transfer to customers and or potentially taxpayers, in the event that a company fails. For a regulated essential utility, it is important to align decisions about financial structures with customer interest.

Considerations for the CMA

6.6 **The issues raised by Northumbrian Water on risk and return, including the allowed return, the balance of risk and return and financeability predominantly relate to the common application of our policy across companies**. While we summarise our response to the issues raised by Northumbrian 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.

6.7 **Northumbrian Water requests an allowed return that is materially higher than its business plan or its representations**. It states an allowed return in the range 2.49% to 2.75% (RPI basis), equivalent to 3.49%-3.76% in CPIH terms.[276] This range is recommended by its advisor, KPMG, in a report accompanying the company's submission. 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 The company requests a reassessment is carried out of the relevance of the adjustment to the **allowed return for the retail margin**. The company included a retail margin of 1% in its business plan (which is consistent with our view) and did not raise any issues with the calculation of the disaggregation of the return to retail and wholesale activities in its business plan or its representations. **The company does not appear to have set out any detail to substantiate a concern** and the revision we made to the adjustment in the final determinations was one that favoured companies.

6.9 Northumbrian Water requests that in its assessment of beta, the CMA should place 'more weight on a wider consideration of the risk drivers for regulated

[276] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.7, paragraphs 30-31

networks and the associated transmission mechanisms for systematic risk in light of a deteriorating environment'.[277] **The company does not appear to have substantiated its concern or how its assessment of risk drivers, transmission mechanisms or a 'deteriorating environment' impacts on its assessment of beta**.

6.10 Northumbrian Water states **agreement** with the overall framework for setting the allowed return – namely that the capital asset pricing model should be used to determine the cost of equity and that cost of debt can be estimated directly from debt indices, and that estimates underpinning the cost of capital should change over time.[278] The CMA should also note the following in respect of the allowed return:

- Northumbrian Water's comments support our view that a non-zero debt beta is appropriate; its advisers propose 0.1.[279]
- Northumbrian Water has not raised issues with key aspects of our allowed cost of debt, namely the use of a trailing average of the iBoxx A/BBB, and a reconciliation mechanism for the cost of new debt.

6.11 Companies were very clear on our approach to cost sharing from the beginning of the review. Northumbrian 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 Northumbrian Water

Key issue - Allowed return

6.12 Northumbrian Water made several criticisms of the approach we followed to setting the allowed return. The company:

[277] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.161, paragraph 871
[278] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, section 8, p. 150, paragraphs 781-783 and p. 151, paragraphs 790.
[279] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 160, paragraph 861

- claims we departed substantially from previous regulatory decisions in our judgments relating to methodology and evidence bases across all parameters, and that this undermined perceptions of regulatory stability.[280]
- claims we took a partial and selective view of the evidence base, particularly in relation to betas and the risk-free rate. [281]
- claims we took a number of short term perspectives on key parameters, notably in the risk-free rate, adding further scope for instability in allowed returns across successive control periods.[282]
- claims we have, consciously or unconsciously, been subject to the wider societal and political environment as the effects of austerity measures have been felt. Consequently our judgements have the potential to convey systematic risk. [283]
- claims that our allowed return was below the cost of capital implied by publicly traded instruments.[284]
- claims that we did not consider the asymmetric risks of setting the allowed return too low. [285]
- implies that any changes to the parameters on which the allowed return is stated should be gradual – it references discretionary changes to the allowed return as unprecedented, suggesting departures from regulatory practice to the calculation of the total market return,[286] and beta.[287]
- suggests changes to the cost of equity should be small to maintain stability and predictability. [288]

6.13 Northumbrian Water has acknowledged in its submission the evolving situation regarding Covid-19. The company is currently considering the impact to the

[280] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.151, paragraph 792
[281] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.151, paragraph 792
[282] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.151, paragraph 792
[283] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.152, paragraph 799
[284] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.149, paragraph 779
[285] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.162-163, paragraphs 886-891
[286] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.156, paragraph 827
[287] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, April 2020, paragraph 864
[288] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.155, paragraph 818

CMA redetermination and has stated that it wishes the opportunity to make further representation on this in due course.[289]

6.14 Our overarching objective in setting the allowed return at final determinations was to provide a reasonable base level of return reflective of the sector's risks, and which is sufficient to cover efficient debt and equity financing costs over 2020-25 for a company adopting our notional financial structure.

6.15 We **fundamentally disagree** with the claims implied by Northumbrian Water that the way in which we have set the allowed return has focused on the short term or has been unduly influenced by the wider societal and political environment. We wholly disagree that we have been selective in our assessment of the evidence base, indeed we have adopted a cautious approach in some areas, for example adopting an estimate of unlevered beta, which at 0.29 was well above the estimate of 0.26 proposed by our advisers.[290] The change in our approach to the assessment of equity beta in our final determination accommodated the view expressed to us by companies in response to the draft determinations that we should place weight on both 2 and 5 year betas.

6.16 The allowed return we set follows a balanced reading of the market evidence at the time we made the determination. The allowed return was set taking account of all of our duties and the overall balance of risk and return in the price determination package. As we set out below and in the document 'Risk and return – common issues', the CMA's provisional findings in the NERL determination on components of the allowed return that are relevant to this determination (total market return and risk free rate) are consistent with our assessment.[291]

6.17 Shortly after PR14, we signalled to companies that market evidence pointed to an allowed return that would be materially lower than the cost of capital we set at the last determination. We wholly disagree with Northumbrian Water that a balanced reading of our duties requires gradual adjustments to the allowed return. Setting the allowed return at a level that far exceeds market expectations would be inconsistent with our duty to protect the interests of consumers. Our initial submission to the CMA set out evidence from the traded

[289] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.8, paragraph 38
[290] Europe Economics, 'The Allowed Return on Capital for the Water Sector at PR19 – Final Advice', December 2019, p. 36
[291] CMA, NATS (En Route) Plc / CAA Regulatory Appeal – Provisional findings report, 24 March 2020

value of listed companies that there remains significant investor demand.[292] And credit rating agencies have reaffirmed their view that the sector benefits from a well-established, transparent and predictable regime.[293]

6.18 In the run-up to final determinations, we engaged extensively with companies to identify more robust ways of setting the allowed return on equity and debt – providing an adequate base return, without overcompensating companies. In many key respects our framework has stayed the same as at PR14:

- We continue to set the allowed return on equity using the capital asset pricing model (CAPM).
- Our risk-free rate estimate continues to be based on index-linked gilt yields.
- We continue to set our beta estimate mainly drawing on 2 yearly and 5 yearly data, and considering a range of frequencies.
- Our total market return estimate continues to be based on analysis of historical equity returns and forward-looking approaches.
- We continue to set the allowed cost of debt with reference to our benchmark index (the iBoxx A/BBB).

6.19 We do not dispute that our reading of the market evidence on some key parameters has departed from previous regulatory decisions, but this is for good reason. Regulatory stability does not justify that regulators should cease learning from previous experiences or that they should ignore recent evidence. Where we have identified concerns with the integrity of the data used (e.g. flaws in historical inflation, latter-day RPI overstating inflation), we have moved to address these issues, capturing the views of companies and other stakeholders. Northumbrian Water has emphasised changes from PR14 which result in lower revenue, but has underplayed changes which are revenue positive – for instance the use of enterprise value gearing in our beta calculation and the reduced retail margin adjustment.

6.20 In one important area we modified our approach. Whereas at PR14, our estimates of total market return and risk-free rate were arguably considerably higher than that implied by the weight of the market evidence, we have now tended to take central point estimates from the plausible range implied by the market evidence. We consider that this approach is in the best interests of customers and companies alike, as the legitimacy of the regulatory regime is

[292] Paragraph 5.14 of Reference of the PR19 final determinations: Cross-cutting issues in our initial submission referenced the average market to asset value premium for Severn Trent and United Utilities in February 2020 was 28% and 20% respectively. Water companies continue to benefit from the 'safe haven' effect in the context of current market uncertainties.
[293] e.g. Moodys 'Yorkshire Water Services Ltd. Update following CMA appeal and downgrade of Class A bonds to Baa2', March 2020, p2

undermined if customers and other stakeholders perceive the regulatory framework as consistently overcompensating companies relative to the best evidence on their actual costs.

6.21 Where we have used shorter trailing averages of data, this has been guided by evidence-based assessments that using shorter rather than longer trailing averages are likely to yield an estimate of the allowed return for 2020-25 closer to that which is implied by market conditions.

Calculation of the allowed return

6.22 Northumbrian Water claims that there are errors in the way we have calculated our allowed return. The company claims:

- That our approaches to estimating **total market return** using averages of historical returns are inconsistent with our point estimate, and that we have departed from established regulatory practice.[294]
- That issues with **historical inflation** used to justify our use of the Bank of England's historical CPI series when calculating total market return were not new, and were reflected in our TMR estimate from PR14.[295]
- That flaws in the Bank's CPI series should have led us to base our view of **historical inflation** on a wider range of sources.[296]
- That our averaging window for the **risk-free rate** was too short and hence inherently unstable, and was based on 'outlier' data.[297]
- That our estimate of **debt beta** of 0.125 was not supported by reliable market data or evidence.[298]
- We underestimated the **equity beta** as a result of reliance on high frequency betas at a short horizon (2 years daily beta) rather than using lower frequency betas over longer periods (i.e. 5 years monthly data).[299]

[294] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 155-156, paragraphs 823-828
[295] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 156-157, paragraphs 829-838
[296] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 157, paragraphs 839-841
[297] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 157-159., paragraphs 843-859
[298] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 160, paragraphs 861-862
[299] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 160-161, paragraphs 863-870

- That a reassessment of **equity beta** should take account of the risk drivers for regulated networks and associated transmission mechanisms and incorporate a lower estimation of debt beta.[300]
- That our estimate of the **'outperformance wedge'** on embedded and new debt was unreliable, as it did not control for the effect of tenor and was inconsistent with credit ratings and revised inflation forecasts.[301]
- That the **retail margin adjustment** is unnecessary as the risks in the retail and wholesale controls are different and our methodology is inconsistent with the CMA's redetermination of SONI's price control determination.[302]

6.23 We respond to all of the above issues in the 'Risk and return – common issues' document. We summarise our position below.

6.24 We disagree with Northumbrian Water's claims that our assessment of **the total market return** is understated. An increase in the propensity of RPI to overstate inflation over time means that a TMR estimate derived through averaging long-run RPI-deflated equity returns will overcompensate investors. While we partially addressed this issue at PR14 with an adjustment, this did not address the full extent of the issue, and justifies a switch to a CPI-deflated historical series.

6.25 We do not agree with the company's claim that our evidence from averaging historical equity returns does not support our point estimate of 6.5% **total market return** in CPIH terms.[303] We consider that estimates of TMR based on averaging of CPI-deflated historical returns over 10-20 years reflecting some weight placed on the geometric average, are consistent with our point estimate of 6.5% in CPIH terms. We note that Northumbrian Water's advisors, KPMG, endorse consideration of holding periods from 10-20 years.[304]

6.26 We disagree with Northumbrian Water's claim that our approach to estimating the **risk-free rate** is inappropriate. Market data in the period before final determinations suggested a persistent and strongly negative risk-free rate over 2020-25 with weak evidence on mean-reversion or other types of convergence that might justify a longer trailing average or glide path. 15 year RPI-linked gilt

[300] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 161, paragraph 871
[301] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 161-162, paragraphs 857-881
[302] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p. 162, paragraphs 883-884
[303] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.155-156, paragraphs 823-828
[304] KPMG 'Estimating the cost of capital for PR19', SOC416, p31, Table 3

yields – our risk free rate proxy – were below our risk-free rate point estimate of -2.35% over April 2020.

6.27 Northumbrian Water raised concerns around the **debt beta** of 0.125 applied in our determination, noting that its advisors KPMG had recommended a figure of 0.1. Our estimate is at the lower end of Europe Economics' 0.10-0.17 range and also supported by econometric analysis of monthly data.[305]

6.28 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.

6.29 Northumbrian Water requests that **equity beta** be re-estimated, placing more weight on the **risk drivers** for regulated networks and associated transmission mechanisms. Northumbrian Water does not appear to have carried out such analysis in its submission. We consider that such an exercise may at any rate be unnecessary: equity beta is substantively forward-looking, with market perceptions of the forward risk environment entering into beta through share price movements.

6.30 The **unlevered beta** in our determination, at 0.29, is 1 basis point lower than PR14. While changes to the regulatory incentive packages can impact on beta estimates, it should also be noted that changes in the composition of the data observations from which beta is estimated can impact on beta for the water companies. Water companies continue to benefit from the range of risk protection measures that were in place at PR14, with the added protections of a cost of new debt reconciliation mechanism, a reconciliation for movements in tax rates and bespoke cost sharing mechanisms for business rates, abstraction charge costs and relative price effects adjustments for outturn manufacturing wage growth. Taken together these mechanisms should reduce risk compared with PR14. 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.[306]

[305] Ofwat, 'PR19 final determinations: Allowed return on capital technical appendix', December 2019, p. 62

[306] Europe Economics, 'Further Advice on the Allowed Return on Capital for the Water Sector at PR19 – Betas and Gearing', May 2020, pp. 3-4, provided as R033

6.31 We did not consider that our estimate of the **outperformance wedge** should control for the impact of tenor. It is well understood that tenor contributes to yield, and companies have achieved lower yields and outperformance by reducing tenor of new debt. We consider it appropriate to capture some of this outperformance for customers. Our assumption is conservative; there is evidence following final determinations that water companies have outperformed by more than our assumption.

6.32 Northumbrian Water disputes our application of a 4 basis point **retail margin adjustment** to derive the wholesale allowed return from the appointee allowed return. The company argues that the risks of the retail control are different to the risks of the appointee, and thus that there is no double count. We disagree, noting that, in common with its peers, the company did not challenge the retail margin adjustment during the price control process, including at its higher levels of 11 basis points at earlier stages of the PR19 process. We continue to consider that there is a double count, which results from the allowed return being estimated at the aggregate level for the company (i.e. including wholesale and retail controls). As the 1.0% retail margin separately provides the allowed return for the retail control, there would be double recovery without adjusting for this via a deduction from the appointee allowed return.

Gearing outperformance sharing mechanism

6.33 Northumbrian Water sets out in its statement of case that it considered the introduction of a gearing outperformance sharing mechanism was an error, making the following arguments:[307]

- The mechanism is not consistent with well-established corporate finance theory and regulatory practice.
- There is no one size fits all level of gearing that is optimal for all companies.
- The mechanism would most likely increase customer bills over time.
- The mechanism would impact on a long-standing regulatory practice to optimise financial structures.
- The mechanism would impact on regulatory stability, thereby increasing systematic risk in the sector.

6.34 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. We set

[307] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.163-165 , paragraphs 892-910

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.

Key issue - Financeability

6.35 Northumbrian Water claims that we failed to meet our financing duty. It claims this is due to the combination of measures in the final determination, along with the company's view of flaws in the way in which we have calculated the cost of capital. The company claims:

- The final determination is **unbalanced and asymmetric** and it is highly unlikely that it will on average be able to secure a reasonable return on its capital. It claims the design and calibration of the regulatory framework and mechanisms at PR19 are such that the cost of capital understates the required return, there is a material totex gap under the final determination; and stretching performance commitments levels imply losses on an expected basis.[308]
- The company claims its view is corroborated by the **credit rating agencies**, which it references as considering PR19 to be credit negative,[309] that the determination is projected at a credit rating of Baa2 on a notional basis, which will result in the company incurring higher debt costs than we allowed in our cost of debt.[310] Northumbrian Water claims that on the basis of its additional expected costs the metrics are consistent with a Baa3 credit rating.[311]
- The company considers we have adopted a **short-term approach** to financeability that is a misapplication of our duties to consumers and resilience and that a credit negative final determination is not in the consumer interest now or in the long term.[312]

6.36 Northumbrian Water claims our final determination is **unbalanced and asymmetric**. The key issues raised by Northumbrian Water in relation to financeability are broadly common with some of the issues raised by the other

[308] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.179, paragraph 984
[309] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.179, paragraph 985
[310] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.179, paragraphs 987-988
[311] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.194, paragraph 1086
[312] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.180-181, paragraphs 992-999

disputing companies. Our determination provides Northumbrian 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 (see chapter 4). And, as noted in chapter 2 of this document, the issues raised by the company are not in truth 'hard-edged' questions whether we have failed to meet our statutory duties, but rather disagreements as to the merits of decisions we made in the final determination.

6.37 We set out that our determinations, for all companies, were consistent with a credit rating two notches above the minimum of the investment grade assuming an efficient company that meets our cost allowances and performance commitments.

6.38 Since we made our determinations, we have seen evidence from the **credit rating agencies** 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 (see chapter 4).

6.39 Northumbrian Water is currently rated Baa1 (rating under review) by Moody's under its actual structure. In its recent credit opinion following the extension of review for possible downgrade, Moody's state:

'The recalibration of performance targets and incentive rates at the final determination stage compared with the draft determination would mean that NWL could achieve net rewards over the next period, but some of these may be subject to the company delivering on its investment plan.'[313]

6.40 The opinion also sets out the factors that could lead to a downgrade:

'The rating could be downgraded if the CMA's re-determination provides for a lower allowed return, lower cost allowances or greater operational penalties that are not adequately mitigated by management action.'[314]

[313] Moody's Investor Services, 'Northumbrian Water Ltd. Update following extension of review for downgrade upon CMA referral of final determination', March 2020. Page 6, Solid performance in AMP6 will partially offset PR19 pressures, but AMP7 targets skewed to the downside
[314] Moody's Investor Services, 'Northumbrian Water Ltd. Update following extension of review for downgrade upon CMA referral of final determination', March 2020. Page 2, Factors that could lead to a downgrade.

6.41 It is far from clear that the company would be downgraded Moody's solely on the basis of the final determination.

6.42 We disagree that we have adopted a **short term approach** to financeability or that we have misapplied our duties. We reference evidence in the 'Risk and return – common issues' document that our approach to financeability has not negatively impacted on the financeability of the water sector. On the contrary, our approach to financeability is the most appropriate approach taking account of all of our duties.

6.43 We discuss these issues further in the 'Risk and return – common issues' document.

Assessing financeability

6.44 Northumbrian Water claims that we have not undertaken a robust financeability assessment.[315] The company states that:

- our analysis of projected final determinations **credit metrics is not consistent with rating agencies' methodologies**;
- **decoupling the notional financeability test from the cost of capital** analysis undermines the notional test as a key cross-check on the calibration of allowed returns;
- we have applied a **remedy** that does not address the financeability constraint identified and could jeopardise the long-term financeability and resilience of the company based on the notional and actual financing structures, which is not in the interests of customers;
- we have not conducted **sufficient downside scenario analysis** to test financial resilience on the final determinations; and
- there is limited consideration of the implications of the final determination for equity financeability.

6.45 Northumbrian Water provides a third party report, the 'KPMG Financeability Report' which sets out three criteria for financeability.[316] The reports sets out its view of three criteria and associated tests for a robust assessment. This includes a test to assess if the notional company can achieve the assumed

[315] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.186, paragraph 1047
[316] Northumbrian Water, SOC285, KPMG – Financeability of Northumbrian Water under the PR19 Final Determination, March 2020

credit rating and raise debt at the rates assumed in the allowed cost of debt, by applying the methodologies used by credit rating agencies.[317]

6.46 We disagree with Northumbrian Water's claims in respect of our financeability assessment. We addressed the issues raised by Northumbrian Water in our determination, which we summarise below and discuss in further detail in the 'Risk and return - common issues' document.

6.47 We disagree that our financing duty requires us to **exactly replicate** rating agencies' methodologies in making our financeability assessment. 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. The approach we adopted is consistent with the long standing approach we adopted at previous price control reviews.

6.48 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.

6.49 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. This includes a different focus on different financial ratios and the calculation of ratios in different ways. This leads to variations of credit ratings for water companies across the rating agencies.

6.50 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 (see chapter 4).

6.51 The KPMG Financeability Report simulates the methodologies applied by rating agencies, and is focused on Moody's and Standard & Poor's. The report sets out that the adjusted interest cover ratio is the key primary metric for Moody's and would likely constrain the overall rating. Northumbrian Water sets out

[317] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.182-183, paragraphs 1002-1004

Moody's minimum guidance of 1.5x and 1.3x for a Baa1 and Baa2 rating respectively. It notes that Moody's has not set out a threshold for Baa3 and infers this to be 1.1x as set out by KPMG.[318]

6.52 We agree that adjusted interest cover is an important metric for Moody's. However, this is one element of the ratings scorecard approach used by Moody's, with 60% weighting on qualitative factors and 40% weight on financial metrics. Adjusted interest cover accounts for 12.5% of the overall rating scorecard, as does the funds from operations to net debt ratio.[319] We see evidence in recent rating opinions that Moody's make an in-the-round assessment of the financial metrics.[320]

6.53 The KPMG Financeability Report makes an assumption that adjusted interest cover ratios 0.1x above the minimum threshold would be required for a stable rating to be achieved.

6.54 This is inconsistent with how companies assessed financeability in their business plans and the basis on which companies provided assurance of financeability of the plans. In particular, in its April 2019 revised business plan, Northumbrian Water quoted threshold guidance for adjusted interest cover as above 1.4x and funds from operations to net debt as circa. 9%. In fact, on the basis of its actual capital structure, Northumbrian Water provided Board assurance that its business plan was financeable with an average funds from operations to net debt ratio of 8.7%.[321] This is below the level stated by Northumbrian Water in its statement of case: "a threshold of 9% could be considered to be the minimum FFO/Net Debt that is consistent with maintaining a target BBB+ credit rating assuming an "excellent" business risk profile".[322] We explain our approach to assessing financeability in the 'Risk and return – common issues' response.

[318] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.182, paragraph 1008
[319] Moody's Investor Services, 'Rating methodology, Regulated water utilities', June 2018, provided as R018
[320] For example, in Moody's recent credit opinion for Portsmouth Water, "Portsmouth Water Limited, Update following rating confirmation at Baa1, negative", March 2020, page 2, Factors that could lead to a downgrade, Moodys 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."
[321] Northumbrian Water, 'Living water: Our plan 2020-25 and beyond', April 2019, page 263, Section 8.3 Financeability
[322] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.182, paragraph 1009

6.55 Northumbrian Water claims that we should have considered a recalibration of the PR19 framework and the assumptions underpinning it in response to adjusted interest cover of below 1.5x. It considers this implies that the return on capital is too low. The company sets out that increasing liquidity in the short term through PAYG adjustments does not improve credit worthiness and does not reduce the company's risks related to asset risk and shortfalls in revenue as noted by these adjustments not being taken into account by some rating agencies. It states that the PAYG adjustment does not price in under-remunerated risks or secure financial headroom and is not an appropriate remedy for the financeability constraint.[323]

6.56 Northumbrian Water also claims we have disregarded the implications of the notional financeability test as a cross-check on allowed returns and thereby undermined the importance of financeability tests for the notional company and applied a remedy that increases bills but does not address the financeability constraints.[324]

6.57 **We disagree that decoupling the notional financeability test** from the cost of capital analysis undermines the notional test as a key cross-check on the calibration of allowed returns. Setting the allowed return by reference to a target level of adjusted interest cover, or uplifting the allowed return that is determined from market parameters to meet a target level of adjusted interest cover, would not protect the interests of customers either in the short or the long term.

6.58 Our aim in determining the allowed return is to set it at a level such that investors are fairly rewarded for the risk associated with their investment. We consider our allowed return for the final determinations was consistent with market evidence at that time. Aiming up the equity return to achieve a target adjusted interest cover 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. This is also likely to undermine regulatory predictability and the transparency of the determination of the allowed return on capital.

6.59 We signalled in the PR19 methodology the potential financeability challenge resulting from the low real element of the allowed return versus the inflationary element. We also set out appropriate methods to address the challenge. We

[323] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.183-185, paragraphs 1019-1039
[324] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.185, paragraph 1040

explain the financeability challenge at PR19 and appropriate methods to address this in the 'Risk and return – common issues' document (see chapter 4).

6.60 Northumbrian Water claims that **remedies** to address a financeability constraint are not appropriate. Northumbrian Water claims a full transition to CPIH is not an appropriate approach to resolving a notional financeability constraint.[325] We agree that the transition to CPIH alters the profile of cashflows compared with RPI which has consequences on customer bills and companies, and this underpinned our decision not to fully transition to CPIH as a credible measure of inflation at PR19.

6.61 As referenced by Northumbrian Water,[326] Moody's has recognised that CPIH does benefit adjusted interest cover; we set out in our determination that advancement of revenue through PAYG adjustments provides the same economic effect as a faster transition to CPIH provided the PAYG adjustments are no greater than the wedge between RPI and CPIH. This is an appropriate response to addressing a financeability constraint at PR19 taking account of all of our duties, particularly as the real component of the RPI-based return is low in comparison with past determinations.

6.62 While Northumbrian Water argues that the transition to CPIH should take account of the RPI linked debt in place under its actual financial structure, a transition to CPIH is beneficial to cashflows where a company maintains a proportion of fixed rate debt. We note that other companies requested a faster transition to CPIH at PR19 (including Severn Trent Water and United Utilities Water) and Ofgem is adopting a full transition to CPIH in its RIIO2 methodology, which lends support to a faster transition in water.[327] We have also seen that companies in the water sector have issued CPI-linked debt at efficient rates, which is contrary to the very dated estimate of liquidity premium between RPI and CPI that is referenced by Northumbrian Water.[328] We provide this evidence in the 'Risk and return – common issues' document.

6.63 We set out in the 'Risk and return - common issues' document the reasons why there is not a long-term financeability constraint. The financeability constraint is

[325] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.202-204, paragraphs 1148-1158
[326] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.202-203, paragraph 1148
[327] Ofgem, RIIO-2 Sector specific methodology – Core document, 24 May 2019, text box page 132
[328] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.203, paragraph 1152. Northumbrian Water refers to an estimated 15bps liquidity premium for CPI swaps over RPI swaps. This is referenced to a nine-year old report by the Pension Corporation published in 2011.

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 historical and includes higher interest rates before and around the time of the credit crunch.

6.64 The use of financial levers (PAYG and RCV run-off rates) to advance revenue is an appropriate approach to resolve the financeability constraint at PR19 in the best interests of customers; it is consistent with approach adopted at PR14. We disagree that this could jeopardise the long-term financeability and resilience of the sector. This is supported by work carried out by PwC which shows that the reset to the allowed return at PR24 should ease pressure on interest cover ratios as older, more expensive debt is refinanced with debt at lower rates. A 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 (see chapter 4). We provide analysis undertaken by PwC on our behalf with this submission.[329]

6.65 Northumbrian Water claims we have not conducted **sufficient downside scenario analysis** to test financial resilience on the final determinations. The company considers it is not clear whether it will be resilient to plausible downside scenarios under the final determination as our threshold of 1.0x adjusted interest cover is not consistent with the threshold for a minimum investment grade credit rating and we have not taken into account the companies' analysis of actual projected risks. Northumbrian Water also claims that a tougher regulatory settlement significantly increased the likelihood and potential severity of downside scenarios.[330]

6.66 There are a number of reasons the CMA should be cautious in placing weight on Northumbrian Water's arguments about headroom:

- There is no guidance from any credit rating agency on the minimum required financial ratios to maintain an investment grade credit rating. Northumbrian Water places significant weight on adjusted interest cover, but this is only one financial ratio considered by Moody's in its analysis. Moody's ascribed equal weight to adjusted interest cover and funds from operations to net debt.
- Northumbrian Water will be strongly incentivised to outperform our determination; in a downside scenario, it has scope to manage costs and

[329] PwC, 'Long-term financeability trends in the UK water sector', May 2020
[330] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.186, paragraphs 1042-1046

can be expected to focus on minimising outcome delivery incentive underperformance adjustments.

- The downside scenarios prescribed in the PR19 methodology for the assessment of a company's approach to financial resilience were not intended for assessment of the notional structure in the final determination.[331] These were set out to allow us to compare each company's approach to its assessment of financial resilience under the actual financial structure, to allow us to understand how a company and its investors might respond in a downside scenario. However the modelling scenarios the company has assessed on a notional basis illustrate that the company appears to maintain funds from operations / net debt and gearing within the investment grade under all scenarios; while adjusted interest cover is weak.[332]

6.67 Northumbrian Water notes that changes to the notional capital structure, including lowering the notional gearing or reducing the notional dividend yield could increase financial headroom and reduce the magnitude of the financeability challenge.[333] However, Northumbrian Water claims this does not represent a robust solution to addressing financeability issues. The company argues changes to the level of gearing for the purposes of the notional company are likely to be arbitrary and would introduce a material wedge between the actual financing structure adopted and the notional financing structure in previous controls. We disagree. The CMA could take an alternative approach to resolving a notional financeability constraint by reducing notional gearing to a level that is more consistent with the gearing levels on which our beta observations are based (around 56%). This is an approach the CMA adopted in its provisional determination for NERL; reducing gearing levels and reducing dividend levels, would be consistent with the way in which Northumbrian Water could be expected to maintain financial resilience under their actual structures.

[331] Ofwat, 'Putting the sector in balance: position statement on PR19 business plans', July 2018, pp.61-67, Section 8 Financial resilience
[332] Northumbrian Water, SOC283, KPMG – Financeability of Northumbrian Water under the PR19 final determination', March 2020, pp.42-45, paragraphs 5.4.6-5.4.26
[333] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.204, paragraphs 1159-1163, Analysis: financial resilience in downside scenarios, Figures 13 and F14

Key issue - Balance of risk and return

6.68 Northumbrian Water argues that the final determination results in an asymmetric package of measures which is unfinanceable. The company claims:

- **asymmetry in ODIs**, with potential penalties at the P10 level exceeding the reward at P90.[334]
- our approach to setting **cost sharing rates** has the wrong incentive properties and does not take into account reasons for costs being disallowed.[335]
- **uncertainty mechanisms** are asymmetric, for example reconciliation mechanisms for business rates and Environment Agency abstraction charges and considers uncertainty mechanisms cannot be effective mitigants to address financeability concerns.[336]

6.69 Northumbrian Water raises concerns with the **asymmetry in its ODIs**. Asymmetric performance incentives for the service measures are not new. The Service Incentive Mechanism that applied at PR14, and before that the Overall Performance Assessment that applied at PR09 and PR04 were asymmetric incentive mechanisms with downward skew.

6.70 We have also revised our approach at PR19 to be more beneficial to companies: where a company is already performing at a level better than the performance commitment level set in our determination, it can achieve outperformance rewards from the performance commitment level, whereas at PR14, a deadband applied to historical performance. The net effect is that it is easier for better performing companies to earn ODI upside from the beginning of the period.

6.71 A forecast downward skew for ODIs does not mean Northumbrian Water will underperform its determination. We show in the 'Risk and return - common issues' document that Northumbrian Water (and the sector) had a modest expected downward skew at PR14. How companies respond to ODI performance is, to a significant degree, under the control of management.

[334] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.189-191, paragraphs 1061-1067
[335] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp.103-109, paragraphs 499-528
[336] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, pp. 192 &200, paragraphs 1071 & 1128

Despite its forecast downward skew at PR14, Northumbrian Water has received outperformance rewards, on average, in 2015-19.

6.72 Northumbrian Water claims our approach to **cost sharing rates** does not incentivise companies to reveal their expected levels of costs, disincentivises companies from submitting proposals that enhance resilience and undermines the usefulness of information revealed in business plans.[337]

6.73 We disagree with Northumbrian Water's assertions. Companies had full sight of the intention to remove cost sharing menus applied at PR14 and introduce a new cost sharing mechanism, which is simpler and more easily understood. 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.

6.74 Northumbrian 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 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.

6.75 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.

6.76 Evidence presented in the 'Risk and return – common issues' document that Northumbrian Water outperformed the cost allowances we set in three of the last four price control periods. Northumbrian Water, if efficient, can continue to deliver its commitments and obligations to customers within the cost allowances we set, with incentives to outperform.

[337] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.107, paragraph 515

6.77 Northumbrian Water argues the **uncertainty mechanisms** we introduced for business rates and Environment Agency abstraction charges are could result in a funding shortfall.[338] The company fails to articulate the reasons why we introduced these protection measures as a departure from the standard totex sharing rates that would otherwise apply. We introduced these protections recognising the relative uncertainty with the associated costs. As companies retain the ability to influence the impact of such costs through steps management can take, it would be inappropriate to treat such costs as a direct pass through to customers.

6.78 With respect to the application of uncertainty mechanisms, totex cost sharing rates provide companies with significant protection from downside risks. Northumbrian Water references no company has been successful in a request to reopen its price control determination in the last seven years.[339] The company fails to recognise the introduction of the cost sharing incentives that accompanied the introduction of the totex regime at PR14 increase protections available to companies to manage costs between opex and capex solutions and provide companies with certainty about the cost sharing arrangements with customers where underperformance occurs.

[338] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.192, paragraph 1072
[339] Northumbrian Water, 'NWL Statement of case – PR19 CMA redetermination', April 2020, p.200, paragraph 1125

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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