March 2020

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

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Introduction

1.1 In reaching our final determination[1] for Northumbrian Water, 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 properly carry out the regulated business, including meeting its statutory and regulatory obligations, and to deliver the outcomes within its final determination. As explained below, we took into account the evidence submitted by the company and accepted its proposals where they were justified, supported by sufficient evidence, and in line with comparative analysis across the industry. However, where the company's proposals were not adequately supported, we challenged assumptions and arrived at our own view.

1.2 In discussing its request for a redetermination[2] Northumbrian Water states that its "customers' key priorities were efficient costs and assurance that water and waste water services would be robust, deliverable and resilient for the future". Our final determination provides a 5% increase on Northumbrian Water's historical expenditure. Our final determination provides sufficient funding for Northumbrian Water to ensure resilient services and meet its environmental obligations. We recognise the priority that customers and stakeholders place on resilience and our final determination for Northumbrian Water included the highest amount of investment for resilience proposals of all water companies, relative to company size. Our interventions in the plan are to protect customers from paying for inefficient costs, or paying twice for the same services.

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

1.4 In relation to **total expenditure allowance**:

- there is a **costs gap** between us and the company, primarily reflecting a **difference of views as to efficient base costs**, including in the residential **retail** price control and relating to proposed spending on **sewer flooding** risks; and

[1] Ofwat, 'PR19 final determinations: Northumbrian Water final determination'.
[2] See Northumbrian Water press release: "Northumbrian Water Limited asks Ofwat to refer its PR19 Final Determination to the Competition and Markets Authority".

- there is a similar costs gap relating to proposals for **enhancement costs** including for **resilience schemes** and **environmental improvements.**

1.5 As to the allowed **return and financeability**, the key areas of difference concern the **overall balance of risk and return** and our **approach to financeability.** Northumbrian Water proposed a **higher allowed return** consistent with its original business plan, raising issues with **the interpretation of short term price movements**, **market to asset ratios**, **ratio of new to embedded debt** and the **cost of new debt**.

1.6 During the price review Northumbrian Water raised few areas of disagreement over what its performance commitments and their corresponding incentives should be to ensure that it delivers for customers and the environment. Apart from where disagreements related to wider issues of cost or financial resilience, we generally made changes in our final determination in response to the points made and **consider that no significant areas of disagreement** regarding performance commitments and incentives **remained in our final determination**.

1.7 We **summarise** below what was included in our overall final determination, outlining each of the key issues that arose between us and Northumbrian Water during the PR19 process.

The company

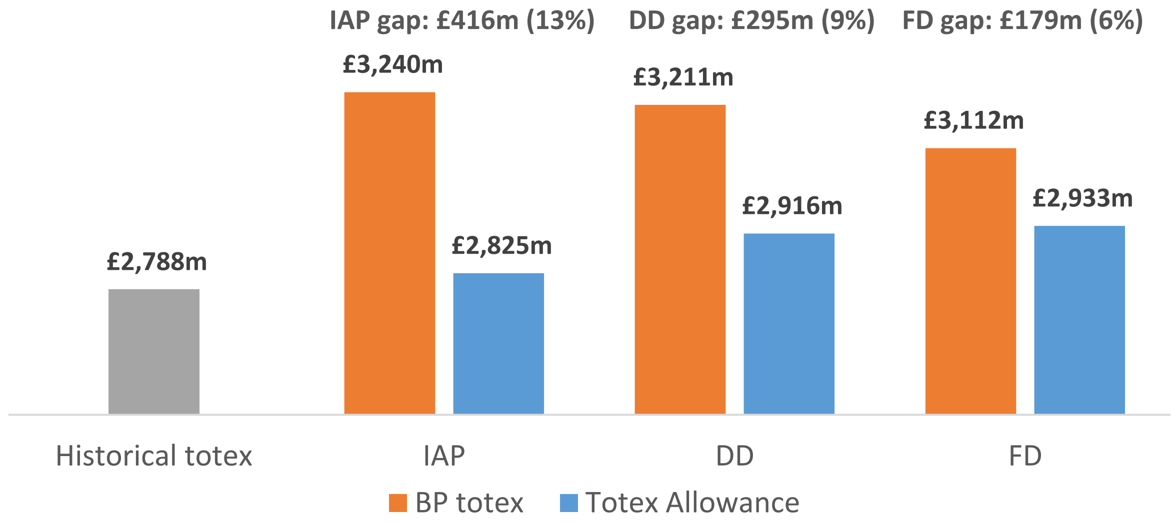
1.8 Northumbrian Water Limited provides water and wastewater services. In the north east of England it supplies water and wastewater services to 2.7 million customers as ‘Northumbrian Water’ and in the south east it supplies water services to 1.9 million customers trading as 'Essex & Suffolk Water'.

1.9 References to ‘**Northumbrian Water’** in our submissions to the Competition and Markets Authority (“CMA”) are to the company as a whole and all of its relevant operational areas unless otherwise specified.

1.10 Northumbrian Water is a wholly-owned subsidiary of Northumbrian Water Group plc, which is majority owned by CK Hutchison Holdings Limited, listed in Hong Kong.

Total expenditure allowance

Figure 1.1: Overview of totex allowances for Northumbrian Water (2017-18 prices)[3]



1.11 We have allowed Northumbrian Water a total expenditure ("totex") £2,933 million for wholesale and retail price controls for the period 2020-25. Our final determination allowance is 6% below the £3,112 million requested by the company in its August 2019 representations on the draft determination.

1.12 The overall costs gap of £179 million is **roughly split half and half** between the **routine costs** which companies incur in the normal running of their businesses ("**base**") and **enhancement expenditure** which can vary substantially over time.

1.13 As Figure 1.1 shows, the gap has **existed throughout the PR19 process**, but **reduced by roughly half** as Northumbrian Water submitted a representation in August 2019 which reflected a £128 million cost reduction from its September 2018 plan. Over the same period we increased our allowed costs by £109 million as a result of new evidence presented by the company and a review of our models.

[3] We present our totex allowance as the sum of base and enhancement expenditure, including allowances for residential retail. We exclude operating lease adjustments, third party service costs, pension deficit recovery payments, atypical expenditure and non-section 185 diversion costs. If we included these items, our final determination totex allowance would be £3,012.9 million (£2,762.8 million for wholesale services, £250.1 million for retail services) compared to a requested cost of £3,198.5 million (£2,198.9 million for wholesale services, £279.6 million for retail services). Historical totex refers to actual spending over 2014-19. See section 'Key elements of the methodology appendix' for further details on our definition of totex expenditure.

1.14 Our challenge **to Northumbrian Water's cost proposals was mainly in wholesale wastewater and residential retail**. Northumbrian Water is one of the **least efficient companies in residential retail**, based on its forward-looking expenditure and our benchmarking analysis: we gave the company an 11% challenge on the £279.6 million it requested. We considered the company to be **efficient in its wholesale water** expenditure proposals.

The costs gap - base

1.15 In its representation to the draft determination, Northumbrian Water submitted a proposal for an **£86 million programme** to reduce **the risk of sewer flooding to 7,400 properties** due to increasing pressures from climate change and urban creep.

1.16 We considered that the implicit allowance in our base costs for reducing sewer flooding is **sufficient for Northumbrian Water to reduce the risk for the 2020-25** period. We did not find sufficient and convincing evidence that the company will face exceptional pressures relative to the wider industry to warrant the need for an allowance additional to that provided for through our models. For our final determination, we maintained our draft determination decision **not to allow additional base costs.**

1.17 Our assessment of the company's proposal also found insufficient evidence that it had benchmarked its unit cost with the wider industry to demonstrate its costs were efficient.

1.18 All companies were funded to deliver a **common service level for reducing sewer flooding** under our base allowance.[4] We expect Northumbrian Water to reduce the number of internal sewer flooding incidents by 43% in 2024-25 from the level forecast for 2019-20. If the company delivers a more stretching sewer flooding performance, it will be able to earn **outperformance payments** under the outcome delivery incentive framework.

The cost gap - enhancement

1.19 Our final determination provides funding to enable delivery of Northumbrian Water's entire **Water Industry National Environment Programme** ("WINEP").

[4] See Ofwat, 'PR19 final determinations: Delivering outcomes for customers policy appendix'.

We made a £37.5 million efficiency challenge on the total WINEP (allowing £152 million of £189 million requested).

1.20 Within the water price control, we allowed the company almost all of the £14 million it proposed for WINEP.

1.21 Within the wastewater price control, the company requested £174 million for WINEP schemes and we made an allowance of £138 million. Our industry comparative assessment identified that Northumbrian Water was **inefficient in its phosphorus removal programme** and costs were poorly justified. We allowed lower amounts than proposed by the company in the wastewater programme due to poor optioneering and inefficient costs.

1.22 Northumbrian Water requested, and was allowed, the **largest expenditure for resilience enhancement in the industry relative to the size of the company.** In our final determination we allowed Northumbrian Water a total of £104 million to deliver enhanced resilience at critical areas of water and wastewater infrastructure, compared with £146 million requested by the company. Funded projects included mains reinforcement, single point of failure schemes, and protection of wastewater treatment assets from pluvial and fluvial flooding.

1.23 As explained with more detail in Northumbrian Water's PR19 final determination document,[5] the cost gap in resilience enhancement is due to the fact that we considered some investments were funded through base allowance (e.g. additional capacity for Springwell service reservoir), or other areas of enhancement (e.g. the Essex resilience Abberton to Hanningfield raw water transfer scheme). Also, in some cases the company did not provide sufficient evidence of the risk it was trying to mitigate (e.g. mains renewal element of the Suffolk resilience scheme), or that its optioneering was thorough and its costs efficient (e.g. Howdon sewage treatment works).

Delivering outcomes for customers

1.24 During the price review Northumbrian Water raised few areas of disagreement over what its performance commitments and their corresponding incentives should to ensure that it delivers for customers and the environment. Apart from where disagreements related to wider issues of cost or financial resilience, we generally made changes in our final determination in response to the points

[5] Section 3.3 of Ofwat, 'PR19 final determinations: Northumbrian Water final determination'.

made and **consider that no significant areas of disagreement remained at final determination**.

Aligning risk and return and financeability

Risk and return

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

1.26 Northumbrian Water's April 2019 revised business plan was based on our **'early view' of the allowed return set out in the PR19 methodology (3.40% in CPIH terms**). We set a **lower allowed return at draft determinations (3.19%, CPIH)**, reflecting movements in market rates and some refinements to our assessment of the market evidence on the allowed return. Our draft determinations signaled that trends in market data since the February 2019 data cutoff used in the draft determination could support an even lower allowed return in our final determinations.[6]

1.27 In its representations on our draft determination,[7] Northumbrian Water raised issues concerning our use of short-term data, market-to-asset ratio analysis, ratio of new to embedded debt and the cost of new debt – all issues which the company claimed inappropriately lowered the allowed return.

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

1.29 Evidence from the share prices of the listed water companies and credit rating agencies after the final determinations suggests the allowed return is not too

[6] Ofwat, 'PR19 Draft Determinations: Cost of capital technical appendix' pp. 6-7.
[7] Northumbrian Water Draft Determination – Company Representation pp. 9-10.

low. We explain the issues further in the 'Cross-cutting issues' document that accompanies this submission to the CMA.

Financeability

1.30 With regard to our assessment of **financeability**, Section 11 of the PR19 methodology[8] set out an approach that is consistent with **established regulatory practice** adopted in previous price reviews, and was consulted on as part of the methodology to be applied at PR19.

1.31 In its representation on our draft determination, Northumbrian Water's Board concluded it was not possible to provide assurance that the company was financeable based on the draft determination package on the notional capital structure (on which our draft determination was set) or the basis of the company's actual capital structure. It based this conclusion on an in-the-round assessment of the changes to the service package and allowed costs, along with the reduction to the allowed return on capital. However, we considered the financial ratios calculated in line with the company's final determination to be **consistent with a credit rating of Baa1/BBB+ for the notional capital structure** following the **advancement of £25 million through PAYG** rates. On this basis we assessed **Northumbrian Water's final determinationto be financeable**.

1.32 We summarise our overall approach to financeability in the final determination in the 'Cross-cutting issues' document that accompanies this submission to the CMA.

Actual company structure

1.33 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. We have previously signaled that companies with high gearing may need to take steps to address financial resilience. CCW[9] identifies Northumbrian Water as one of two water companies that has reported cumulative dividends for 2015 to 2019 above its return on regulated equity.

[8] Delivering Water 2020: Our final methodology for the 2019 price review, pp. 187-203.
[9] CCW, Water companies' financial performance report 2018-19: Potential implications for customers, March 2020.

1.34 Northumbrian Water has an existing intercompany loan outstanding of £159 million to its parent company, Northumbrian Water Group Limited, which we have challenged with the company.

2. Northumbrian Water: Our final determination

Introduction

2.1 The 2019 price review ("PR19"), including the final determination for Northumbrian Water, needs to be understood in context. The water sector faces challenges from climate change, a growing population and increasing customer expectations. At the same time the sector needs to improve the affordability of an essential service. PR19 enables and incentivises companies to address these challenges both in 2020-25 period and longer term.

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

2.3 The company and a number of stakeholders provided representations on our draft determination on and after 30 August 2019. Our final determination carefully considered all of the representations received and took account of the most up-to-date information available where appropriate. We consider our final determination is in line with our statutory duties.

2.4 We engaged with Northumbrian Water during summer and autumn 2019, at working and Board level, to better understand the company's perspectives on enhancement and resilience expenditure proposals, PAYG rates and the company's view of our draft determination.

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

2.6 The following sections set out the key elements of our final determination and what we consider may be the key areas of concern for Northumbrian Water:

- Securing cost efficiency;
- Delivering outcomes for customers; and
- Aligning risk and return and financeability.

What our final determination includes

2.7 We set out key metrics relating to our final determination package for Northumbrian Water in Table 2.1, which shows the latest version of data submitted by the company: August 2019 for cost data or April 2019 for other areas of the business plan. We did not request a full set of data with the company's August 2019 representations.

2.8 Our final determination provides £19 million more allowed wholesale expenditure, and £88 million more wholesale allowed revenue than our draft determination. Further explanation of our wholesale and retail controls is provided in the Northumbrian Water final determination[10] and Appendix 1 to this document. Northumbrian Water's performance commitments are set out in Northumbrian Water – outcomes performance commitment appendix.[11]

Table 2.1: Summary of key metrics

Wholesale	Revised business plan (April 2019)	Draft determination	Representations (August 2019)	Final determination
Wholesale totex, 2020-25 (£million, 2017-18 CPIH deflated prices)	2,931.5	2,664.4	**2,832.4**	**2,683.3**
PAYG rate (%)	49.1%	50.1%	-	**54.1%**
Wholesale allowed return (CPIH basis, %)	3.30%	3.08%	-	**2.92%**
RCV run-off rate (%)	4.84%	4.84%	-	**4.85%**
Allowed wholesale revenue, 2020-25 (£million)	3,241.9	3,026.9	-	**3,115.0**
Residential retail	**Company view (August 2019)**	**Draft determination**	**Representations (August 2019)**	**Final determination**
Residential retail cost allowance, 2020-25	279.6	251.5	**279.6**	**250.1**

[10] See Ofwat, 'PR19 final determinations: Northumbrian Water final determination'.
[11] See Ofwat, 'PR19 Final determinations Northumbrian Water - Outcomes performance commitment appendix'.

Wholesale	Revised business plan (April 2019)	Draft determination	Representations (August 2019)	Final determination
(£million, nominal)				
Residential retail net margin (%)	1.00%	1.00%	-	**1.00%**
Allowed retail revenue, 2020-25 (£million, nominal)	311.5	286.1	-	**283.4**
Appointee	**Company view (April 2019)**	**Draft determination**	**Representations (August 2019)**	**Final determination**
Average bill per household customer, 2020-25 (£, 2017-18 CPIH deflated prices)	343	319	-	**323**

Securing cost efficiency

2.9 Throughout PR19 we made clear that we expected companies to demonstrate an increase in cost efficiency. We set a cost-outcomes package that provided 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. Our cost-outcomes package is stretching but achievable.

2.10 In September 2018 Northumbrian Water submitted a business plan with £3,240 million of total expenditure ("totex") for the 2020-25 period. The company's requested costs were 16% higher than its costs in the 5-year period of historical actual data (2014-15 to 2018-19). In our initial assessment we challenged the efficiency and evidence behind the company's proposals, and considered that efficient costs would be £2,825 million – a 13% challenge.

2.11 In April 2019 Northumbrian Water submitted its revised business plan which included £3,211 million of requested costs compared with our draft determination of £2,916 million, reducing the gap between our view of efficient costs and the company's view to 9%.

2.12 In its August 2019 representation, Northumbrian Water's requested costs were £3,112 million which was a £128 million reduction from its September 2018 plan. Over the same period we increased the allowed costs by £109 million to £2,933 million as a result of new evidence presented by the company and a review of our models. The gap between our allowance and the company's requested costs has reduced to 6%, as shown in Table 2.2.

Table 2.2: Change in cost gap in totex throughout the price control process (£ million 2017-18 CPIH deflated prices)

	Company requested costs (£m)	Ofwat view of efficient costs	Cost gap (%)
Initial assessment of plans	3,240	2,825	13%
Draft determination stage	3,211	2,916	9%
Final determination stage	3,112	2,933	6%

Breakdown of the costs gap

2.13 Table 2.3 sets out the gaps between our view and the company's view of efficient costs across base, enhancement and retail controls. In wholesale base costs Northumbrian Water had a cost gap of £61.2 million (3%). In wholesale enhancement, the company had a cost gap of £87.9 million (20%). In residential retail, there was a £29.5 million (11%) gap between our final determination and the costs requested by the company.

Table 2.3: Cost gap at final determination by area (£ million 2017-18 CPIH deflated prices)

Wholesale Expenditure area	Company view (August 2019)	Final determination allowance	Cost gap (£)	Cost gap (%)
Wholesale base expenditure	2,392.1	2,330.9	61.2	3%
Wholesale enhancement expenditure	440.3	352.4	87.9	20%
Total wholesale expenditure	**2,832.4**	**2,683.3**	**149.0**	**5%**
Residential retail expenditure	279.6	250.1	29.5	11%

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

2.14 Our view of base totex was derived from econometric models and additional allowances to cover items less well suited to this approach, such as business rates. We developed our econometric models after extensive consultations with the industry and full details of our approach are given in our final determination 'Securing cost efficiency' technical appendix.[12] Table 2.4 below sets out our view and the company's view of efficient costs in wholesale water, wholesale wastewater and residential retail base expenditure.

Base costs

Table 2.4: Base expenditure for wholesale and retail, 2020-25 (£ million, 2017-18 CPIH deflated prices)

Base expenditure area	Company view (August 2019)	Final determination allowance	Cost gap (£)	Cost gap (%)
Wholesale base - water	1,453.9	1,459.2	-5.3	0%
Wholesale base – wastewater	938.2	871.7	66.4	7%
Total wholesale base	**2,392.1**	**2,330.9**	**61.2**	**3%**
Residential retail expenditure	279.6	250.1	29.5	11%

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

2.15 For the final determination, we retained our approach of including growth-related expenditure in our base econometric models. Following representations on our draft determination that the models did not adequately compensate for companies with a high growth forecast, we made an adjustment to the models depending on whether a company operates in an area with a relatively high or low forecast of population growth for 2020-25, relative to the historical average for the sector. Northumbrian Water had a lower forecast of population growth for 2020-25 compared with the historical average for the sector. As a result, our base allowances for Northumbrian Water were reduced by approximately £5.0 million for wholesale water and £21.4 million for wholesale wastewater. Full details of our approach are given in our final determination 'Securing cost efficiency' technical appendix.[13]

[12] See Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', p. 13.
[13] Section 3.1.1 of Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix'.

2.16 In addition, we retained our decision at final determination not to make an adjustment to our base allowance for Northumbrian Water's sewer flooding cost proposal,[14] as we considered the costs for reducing sewer flooding risk for properties to be fully covered by our base allowance. We explain this further in the section on '**Key Issues for Northumbrian Water – Reducing sewer flooding risk for properties'**, below.

2.17 We allowed Northumbrian Water £4.8 million (52% of the requested expenditure) to support the development of its Drainage and Wastewater Management Plan ("DWMP") to enable the company to gain a wider understanding of its future resilience challenges and plan its long-term wastewater services strategy. In our initial assessment of business plans we indicated that the company's approach to risk assessment in wastewater was less developed than in water, suggesting that improvements were needed. Following Defra's consultations on DWMPs and additional information provided by some companies in their representations, we acknowledged that these additional planning activities are an increased requirement to previous wastewater planning processes considered within our modelled base cost allowances. Our cost estimate approach for DWMPs is based on a benchmarking exercise as described in our 'Securing cost efficiency' technical appendix.[15]

Enhancement costs

Table 2.5: Enhancement expenditure, 2020-25 (£ million, 2017-18 CPIH deflated prices)

Wholesale enhancement expenditure area	Company view August 2019 (£m)	Final determination allowance (£m)	Cost gap (£)	Cost gap (%)
Environmental obligations (WINEP)	189.8	152.3	37.5	20%
Resilience enhancement	145.9	103.6	42.2	29%

[14] Northumbrian Water did not submit any cost adjustment claims as part of its business plans. However, it did submit a representation in August 2019 requesting that we consider its proposal for addressing climate change and urban creep impacts and protecting customers from sewer flooding. We assessed this as if it was a cost adjustment claim to adjust our models for company specific circumstances.
[15] Section 4.8.4 of Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix'.[16] Section 2 of Ofwat, 'PR19 final determinations: Northumbrian Water - Cost efficiency appendix'.

Wholesale enhancement expenditure area	Company view August 2019 (£m)	Final determination allowance (£m)	Cost gap (£)	Cost gap (%)
Supply-demand balance enhancement and metering	43.1	43.1	0.0	0%
Other enhancement (e.g. raw water deterioration, security, meeting lead standards, first time sewerage)	61.6	53.4	8.2	13%
Total enhancement expenditure	440.3	352.4	87.9	20%

2.18 We assessed enhancement expenditure primarily using benchmarking analysis. Where the investment did not lend itself to statistical modelling, we relied more on the evidence provided by companies in their business plans and followed a risk-based, proportionate assessment approach based on the materiality of enhancement costs.

2.19 Our final determination allowed Northumbrian Water £352.4 million of enhancement expenditure to improve service, resilience and the environment. Key components of this allowance were funding to enable delivery of its entire Water Industry National Environment Programme ("WINEP") obligations (£152.3 million); improvements to resilience at critical assets (£103.6 million), and installing smart meters and promoting water efficiency (£43.1 million). We allowed £53.4 million funding for other enhancement areas such as addressing the impact of deteriorating raw water quality and meeting lead standards.

2.20 For water enhancement costs we allowed £169.7 million at final determination of the £212.4 million requested by the company. Costs were allowed in full for meeting lead standards, metering, and improvements to river flows, but we made only partial allowances for resilience (see also '**Key issues for Northumbrian Water – Resilience**', below) addressing raw water deterioration, security, WINEP and strategic regional water resources.[16] Where we made only a partial allowance this was because the nature and content of the evidence provided by the company did not justify more.

2.21 For drinking water protected areas, we did not make an allowance for the costs associated with the likely ban on the use of metaldehyde, but instead applied

[16] Section 2 of Ofwat, 'PR19 final determinations: Northumbrian Water - Cost efficiency appendix'.

an uncertainty mechanism to enable the company to recover costs should the ban on metaldehyde not go ahead.

2.22 For wastewater enhancement costs we allowed £182.7 million at final determination of the £229.6 million requested by the company. Costs were allowed in full for first time sewerage and security, but we made only partial allowances for WINEP and resilience (see also '**Key issues for Northumbrian Water – Resilience',** below).

2.23 Our WINEP wastewater final allowance of £137.9 million was £36.0 million lower than the company requested, primarily as a result of a £23.0 million challenge on its phosphorus removal programme, which was modelled as being inefficient compared with the rest of the industry. We also challenged poor optioneering and inefficient costs, and applied an overall catch-up efficiency and frontier shift.[17]

2.24 For security of water and wastewater sites, Northumbrian Water was awarded £13.2 million in its draft determination to address compliance with Network and Information Systems ("NIS") Directive and the Security and Emergency Measures Direction ("SEMD"). On assessing the company's evidence, we considered it to be sufficient and convincing for the non-SEMD (NIS) costs, but we disallowed the water SEMD costs as the company has already spent above average on SEMD and we consider these costs should now form part of its base allowance. In its representations, the company requested a further £2.2 million to improve its response and recovery capability in water supply interruption events (SEMD). However, we were not sufficiently convinced that the additional funding constituted a significant enhancement to service beyond what could be funded from its base allowance, and so we retained our draft determination decision.

2.25 Northumbrian Water is one of the least efficient companies in residential retail, based on its forward-looking expenditure and our benchmarking analysis. We gave the company an 11% challenge on the £279.6 million it requested. Northumbrian Water did not submit any cost adjustment claims in its business plans or representations in August 2019 on its residential retail allowance.

[17] Section 4.6 of Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix'.

Key issues for Northumbrian Water

Resilience

2.26 In our final determination we allowed Northumbrian Water a total of £103.6 million to deliver enhanced/improved resilience at critical areas of water and wastewater infrastructure, compared with £145.9 million requested by the company. We increased our final determination allowance by £14.3 million from our draft determination allowance (£89.4 million) as a result of additional evidence provided by the company.

2.27 For water resilience expenditure, our final determination allowed £63.7 million to deliver the following schemes.[18]

- Lartington mains and Tees strategic mains reinforcement (£21.4 million);
- Wearside resilience scheme (£29.3 million);
- Too critical to fail sites (£4.5 million);
- Low value-high impact single point of failure schemes (£0.6 million); and
- Suffolk resilience (£7.9 million).

2.28 Northumbrian Water provided supporting evidence in its representations on our draft determination for water resilience which resulted in the £7.9 million allowance for the Suffolk resilience investment (of the £14.5 million requested) to provide treated storage for 37,000 customers with no protection against the risk of outage at Barsham treatment works. We did not make an allowance for the mains renewal element of the proposal as the risk to customers was not adequately demonstrated.

2.29 We maintained our draft determination decision not to allow £20.4 million for the 'Essex resilience' (Abberton to Hanningfield) raw water transfer scheme as we consider this mitigates the same principal risk as the investment for additional treatment at Layer water treatment works, for which an allowance was made under 'investment to address raw water deterioration'. We also maintained our draft determination decision to accept the need for a new service reservoir at Springwell (part of the Wearside resilience scheme), however we disallowed £3.9 million of the proposed cost. We considered that the need for the proposed capacity, as a result of hazardous ground conditions, was not sufficiently defined and, furthermore, provided an asset health benefit

[18] Section 3.3 of Ofwat, 'PR19 final determinations: Northumbrian Water final determination'.

to storage reservoirs in the area, which is covered by the allowance for base expenditure.

2.30 For wastewater resilience, our final determination allowed a total of £39.9 million to protect wastewater treatment assets from pluvial and fluvial flooding and mitigate for the loss of critical assets. Part of this allowance included £6.0 million to mitigate the risks of category 1 pollution incidents at Howdon sewage treatment works. Further discussion on these resilience schemes can be found in Northumbrian Water's PR19 final determination document.[19]

Reducing sewer flooding risk for properties

2.31 Northumbrian Water submitted a proposal for a £86.0 million programme to proactively reduce flooding risk to properties due to climate change and urban creep.

2.32 In its representation on our draft determination, Northumbrian Water provided evidence to support the need for its proposed £86.0 million investment. The company advised that the proposed investment was for reducing the risk of sewer flooding to 7,400 properties which will become at risk due to increasing pressures from climate change and urban creep. It presented external research, forward looking analysis and used hydraulic modelling to demonstrate the anticipated impact.

2.33 Due in part to a campaign by Northumbrian Water, we received stakeholder support for its proposed investments from the Environment Agency, local authorities, Members of Parliament and customers. It also advised that the investment was supported by the company's Water Forums, (its customer challenge group).

2.34 We note that, relative to other companies, Northumbrian Water is currently a poorer (lower quartile) performer on sewer flooding. The sector has been mitigating the effects of climate change and urban creep in previous price control periods. Our base econometric models used historical expenditure data on sewer flooding risk reduction (together with other base costs), therefore the allowances we made from these models included an implicit allowance to reduce sewer flooding risk for properties, in line with historical rates of change in flood risk due to climate change and urban creep.

[19] Section 3.3 of Ofwat, 'PR19 final determinations: Northumbrian Water final determination'.

2.35 Comparing an estimate of our implicit allowance to the investments that companies requested in their business plans, we found that the implicit allowance was generally higher. We considered therefore that our base cost allowance for Northumbrian Water is sufficient to cover costs in this area for the 2020-25 period. We did not find sufficient and convincing evidence that the company will face exceptional pressures relative to the wider industry to warrant the need for an allowance additional to that provided for in our models.

2.36 Our assessment of the company's proposal also found that there was insufficient evidence on the efficiency of the unit cost it proposes relative to the rest of the industry.

2.37 We expect Northumbrian Water to deliver a significant risk reduction of sewer flooding for properties from its base allowance and meet our stretching performance commitments. These include reducing the number of internal sewer flooding incidents by 43% in 2024-25 from the level expected by Northumbrian Water in 2019-20. All companies are funded to deliver a common service level for reducing sewer flooding under our base allowance. If the company delivers a more stretching sewer flooding performance, it will be able to earn outperformance payments under the outcome delivery incentive framework.[20] For the final determination, we maintained our decision not to make a further cost adjustment in respect of the specific sewer flooding proposal above.

Customer and stakeholder engagement

2.38 Our initial assessment of Northumbrian Water's September 2018 business plan[21] found that the company had a high quality approach to engagement with customers on appetite for risk and resilience and that the results of research determined what actions for resilience were included in the plan. We noted that the company did not provide evidence of a range of high quality customer valuation research underpinning its outcome delivery incentives.

2.39 We note that in the press release[22] setting out its request for reference of our final determination to the CMA, Northumbrian Water states that its "customers'

[20] See Section3, 'Cross-cutting issues' document.
[21] See Northumbrian Water Test area assessment, p. 1.
[22] See Northumbrian Water press release: "Northumbrian Water Limited asks Ofwat to refer its PR19 Final Determination to the Competition and Markets Authority".

key priorities were efficient costs and assurance that water and waste water services would be robust, deliverable and resilient for the future".

2.40 In part stimulated by the company, we received a number of similar letters of support for Northumbrian Water's business plan proposals from local stakeholders such as local authorities, Members of Parliament and an individual customer following publication of our draft determination and after the company's representation on our draft determination.

2.41 We set out in our PR19 methodology that customer support is important as one of a number of considerations we take into account when making our decisions. Our total cost allowance has addressed inefficiencies in Northumbrian Water's plans, including on resilience-related and environmental expenditure and removed areas of potential double funding, so protecting customers from poor performance, inefficiency and poorly justified proposals and excess returns.

2.42 We allowed all costs proposed by the company that were well-evidenced and efficient. 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 and its customers and stakeholders.[23]

2.43 Our final determination cost allowance covered almost the full scope of work the company proposed in its business plan after consulting with its customers. We did not allow:

- £20.4 million for the proposed Essex resilience scheme, where we consider that the identified risk is mitigated in a separate allowance ('DAF treatment at Layer'); and
- £4.1 million for part of the Suffolk resilience scheme as the risk to customers was not sufficiently evidenced and it was unclear to what extent the Lound to Gorleston pipeline already mitigates this risk in the short to medium term.

[23] Independent research shows that 90% of Northumbrian Water's customers supported our draft determination. See CCW's research on Draft Determination acceptability published 25th February 2020.

Delivering outcomes for customers

2.44 Details of all performance commitments are set out in 'Northumbrian Water - Outcomes performance commitment appendix'.[24]

2.45 Northumbrian Water is a leading company on two of the three performance commitments where we set a common level.

2.46 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 delivers the performance levels in its September 2018 plan, which forecast 14.3 incidents per 10,000km of sewers in 2024-25, it will receive outperformance payments of £4 million over the 2020-25 period.

2.47 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 it expected to meet five minutes in 2019-20. In its September 2018 business plan the company forecast performance of four minutes and 20 seconds by 2024-25. If the company delivers the performance levels in its September 2018 plan it will receive outperformance payments of £7 million over the 2020-25 period.

2.48 During the price review Northumbrian Water raised few areas of disagreement over what its performance commitments, or incentives, should be. In its representation on our draft determination, the company set out that "there is now much closer alignment between our plan and Ofwat's views on [performance commitments] and [outcome delivery incentives]".[25] Its representations on our draft determination focused on a few areas. These were our approach to setting **leakage** performance commitment levels, **unplanned outage** underperformance rates**, internal sewer flooding** collar and its **sewer flooding risk reduction** performance commitment.

[24] See Ofwat, 'PR19 Final determinations Northumbrian Water - Outcomes performance commitment appendix'.
[25] See Northumbrian Water Draft Determination Company Representation, p. 25.

2.49 Apart from where disagreements related to wider issues of cost or financial resilience, we generally made changes in our final determination in response to the points made and **consider that no significant areas of disagreement remained in our final determination**. Our assessment is described in detail below.

Leakage – performance commitment levels

2.50 In the PR19 process we worked with companies to develop consistent reporting of common performance commitments. For leakage this has led to large changes in the estimates of leakage. In 2018-19 some companies were still working towards full compliance with the new reporting.

2.51 Due to these issues we specified the performance commitment as a percentage reduction from the leakage figure which will be reported for 2019-20 on the new methodology as the baseline for the 2020-25 performance commitment level. This ensures that the performance commitment relates to actual performance achieved in the 2020-25 period and not to data or methodology changes. 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 using the new methodology.

2.52 In its representation on our draft determination, Northumbrian Water disagreed with our approach to the way in which the baseline is calculated. It considered we had changed the baseline from which 2020-25 performance commitment levels are calculated from the end of the 2015-20 period performance commitment level to end of 2015-20 period actual performance. The company presented a view that this is not appropriate as it disincentivises companies who, through good management, attempt to make an early start on progressing towards stretching 2020-25 performance commitment levels. The company proposed reverting to using the end of the 2015-20 period (2019-20) performance commitment level (which was also its forecast for that year) as the baseline.

2.53 In September 2019 we asked all companies to provide further information on leakage. Northumbrian Water's response[26] on 16 September 2019 stated:

"We are committed to adopting the revised reporting definition and have been undertaking an extensive programme of work to comply with this. Therefore,

[26] See N001 – Northumbrian Water Leakage Query Response, p. 3.

over time, the estimates produced may not tally with previously supplied data as each new dataset represents the best and most compliant information available at that time. We intend to be fully compliant with the new definition by April 2020."

2.54 It also noted:[27]

> "We are pleased that Ofwat accepts our proposed % reductions, but do not accept Ofwat's decision to adjust the way in which the baseline is calculated."

2.55 Companies' 2015-20 performance already has potential outperformance payments through the 2015-20 outcome delivery incentives. If we used the PR14 performance commitment levels or forecast performance in 2019-20 to set the baseline, then companies who improved performance beyond this level before the 2020-25 period begins would be rewarded twice for this activity. In addition, the way leakage is measured has changed in PR19 and the new measurement is not directly comparable to the PR14 performance commitments. This means that using the old metric as the baseline for the new period is not reliable. For these two reasons, we thought it was appropriate to continue to set this common performance commitment for the industry as a percentage reduction to the actual performance reported for 2019-20.

2.56 On 13 March 2020 Northumbrian Water provided a "list of minor corrections and other points of detail in relation to the performance commitments".[28] One of these concerned the percentage reduction in leakage in the 'Essex & Suffolk Water' operational area. We have not yet had time to consider this.

Unplanned outage – underperformance rate

2.57 This performance commitment is designed to incentivise the company to appropriately maintain and improve the asset health of the non-infrastructure or above-ground water assets (for example, water treatment works) and demonstrate its commitment to good asset stewardship. The measurement is the percentage of peak week production treatment capacity that is unexpectedly unavailable.

[27] Ibid p. 4.
[28] See N002 – Northumbrian Water FD Corrections and Clarifications p. 3.

2.58 The issue raised by Northumbrian Water concerns the financial incentive if the company does not meet its performance commitment – the underperformance rate. We did not intervene at draft determination on the company's proposed underperformance rate.

2.59 However, in its representation on our draft determination the company stated that it should receive a lower underperformance rate for this performance commitment based on our methodology adopted for other companies. The company expressed concern that the approach to set the outcome delivery incentive rate for this performance commitment in the draft determination was not applied consistently across the industry.

2.60 The company proposed an underperformance rate that it stated was aligned with other companies across the industry. It applied a value of -£1.204 million per percentage of peak week production capacity. It claimed this was in line with the most used underperformance rate normalised per household. We considered this was inappropriate given the company's poor performance when compared with the rest of the industry.

2.61 We consider that companies with poor performance need stronger incentives to improve, and companies that are expecting to underperform may have an incentive to propose lower performance rates. Our approach to intervention where a company is a poor comparative performer on an asset health related performance commitment was to ensure that the underperformance rate was not low relative to other companies.[29]

2.62 In view of this, it was inconsistent to reduce a rate that was otherwise reasonable because it was higher than some companies. Northumbrian Water's outcome delivery incentive underperformance rate for unplanned outage in the final determination is -£1.720 million per percentage of peak week production capacity. This is the same as the company had proposed in its April 2019 business plan.

Internal sewer flooding - collar

2.63 This performance commitment is designed to incentivise companies to reduce the number of sewer flooding incidents inside a property and directly measures the number of internal sewer flooding incidents per 10,000 sewer connections.

[29] See Ofwat, 'PR19 draft determinations: Delivering outcomes for customers policy appendix', p. 102.

2.64 The issue raised by Northumbrian Water concerns whether there should be a collar to limit its financial exposure from underperformance payments.

2.65 In its September 2018 business plan the company did not propose any caps or collars for the financial incentives related to any of its performance commitments. In our initial assessment of business plans we considered that Northumbrian Water did not propose protection for customers in cases of higher than expected outperformance payments that would increase customers' bills.[30]

2.66 We provided guidance[31] where companies expected high outperformance payments were relatively likely, in order to protect customers they should have a cap. It should also then impose a collar to help counterbalance the cap. Caps and collars reduce the strength of financial incentives. Nevertheless, we consider they are justified in some circumstances. Caps protect customers from higher than expected outperformance payments that exceed customers' willingness to pay. Caps also prevent companies from focusing on some performance commitments to the neglect of others. While only caps are required to protect customers, collars protect companies from disproportionate exposure in the case of very poor performance and can counter-balance a skew in exposure where a cap applies to outperformance payments.

2.67 To help identify the performance commitments where customers required protection, we expected companies to estimate the performance level that would only be exceeded 10% of the time – the P90 level. We set out that caps and collars should be placed on the performance commitments for which the P90 outperformance payment was 10% or more of the total sum of P90 outperformance payments across all performance commitments.

2.68 In its April 2019 revised business plan, Northumbrian Water noted our guidance referred to the risk of high outperformance payments, and imposed caps and collars on a number of its performance commitments. But it considered that it followed that it should apply to underperformance as well.[32] That is, where there is a risk of large underperformance payments, both a cap and a collar should also apply. Northumbrian Water did not provide an argument that it required that protection. We considered company protection at an aggregate level, rather than for each performance commitment.[33] Northumbrian Water

[30] See Northumbrian Water: Delivering outcomes for customers detailed actions p. 4.
[31] See Technical appendix 1: Delivering outcomes for customers pp. 21-22.
[32] See N003 – NES.OC.A1-74 – Additional Evidence – Appendix 1 p.13.
[33] See Ofwat, 'PR19 final determinations: Delivering outcomes for customers policy appendix', pp.172-175.

proposed collars on nine performance commitments and caps on seven. This included caps and collars on internal sewer flooding.

2.69 In the draft determination, we considered that Northumbrian had addressed our concern regarding customer protection and generally accepted that its proposals for which performance commitments should have caps and collars were appropriate. However, we calculated that the P90 for internal sewer flooding performance commitment was less than 10% of the total of all P90s for all performance commitments. As the relative risk to customers of high outperformance payments was low for this performance commitment, and the company had not articulated a reason that company protection was required, we removed the caps and collars for this performance commitment.

2.70 The company did not agree with our draft determination decision to remove the underperformance collar for this performance commitment. It argued that it was the only company without such a collar and, as internal sewer flooding is a common performance commitment, it would expect a consistent approach.

2.71 As we explain in the 'Delivering outcomes for customers policy appendix'[34] in our final determinations, after considering representations, we agree that where the vast majority of companies have caps and collars on a specific performance commitment, and we cannot clearly identify reasons that the remaining companies should be treated differently, caps and collars should be applied for all companies.

2.72 In considering representations, we also took into account that three companies are poor performers on internal sewer flooding relative to other companies. Northumbrian Water is one of these three. While we consider efficient companies can deliver the common performance levels, we recognise that there is an increased risk of poor performance for these companies that may take time to rectify.

2.73 For each of these companies we amended the underperformance collar to reduce the downside risk for the company in the first two years of the 2020-25 period and increase it in the last two years. This would provide a similar level of exposure over the five years as other companies, but reduce the downside risk for the first two years as the company progresses towards the 2024-25 level,

[34] See Ofwat, PR19 final determinations: Delivering outcomes for customers policy appendix, pp. 165-167.

while maintaining a strong incentive over the period. We consider this addresses the company's concern.

Sewer flooding risk reduction performance commitment

2.74 In the section above '**Reducing sewer flooding risk for properties'** (paragraphs 2.31.to 2.37) we set out why we did not accept Northumbrian Water's additional £86 million cost proposal for a programme to reduce the risk of internal sewer flooding. We determined that the costs that the company considered were required to deliver its proposed investments to reduce the risk of sewer flooding were part of base costs within our models.

2.75 In its representation, the company requested that if its proposal to increase allowed costs was not accepted, we remove its proposed sewer flooding risk performance commitment. This is a bespoke performance commitment that Northumbrian Water proposed in its September 2018 and April 2019 business plans. It measures the number of properties where sewer flooding risk (internal or external) is reduced. A property can be counted if the risk, as assessed by the company, has reduced due to a physical action that the company has implemented. The reduction in risk is measured as a likelihood of flooding within a number of years and typically the improvement must be at least 5 years. For example, an improvement from a risk of sewer flooding occurring once 1 in 15 years to 1 in 20 years. No matter the scale of the reduction in risk at a single property, it still counts as a single property for the measure.

2.76 We did not remove the performance commitment for three reasons.

2.77 Firstly, we consider there is sufficient base cost allowance to deliver investments for proactive sewer flooding risk reduction.

2.78 Secondly, this performance commitment is broader than the additional cost proposal. The proposed performance commitment applied to all reductions in risk of sewer flooding, whereas the company investment proposal aimed to reduce risk where there has been no previous flooding. While it is best to protect properties from flooding before flooding occurs, if properties do flood the company should consider how it can reduce the risk of repeat flooding. Historically, reducing the risk of repeat flooding has reflected the majority of investment in reducing sewer flooding risk. 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.

2.79 Thirdly, 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 provides incentives for the company to take action that is only likely to reduce incidents in the long term and complements the common internal sewer flooding performance commitment. Rather, the appropriate consideration is whether our cost allowances are sufficient and we are satisfied that the final determination is sufficient to cover investment in this area.

Further details on the Delivering outcomes for customers decisions we made in our final determinations

2.80 'Northumbrian Water – Delivering outcomes for customers final decisions'[35] sets out our final decisions in terms of changes to our draft determination for the company's performance commitments and outcome delivery incentives. 'Delivering outcomes for customers policy appendix'[36] sets out further details on our policy decisions on cross-cutting issues such as common performance commitments and outcome delivery incentive rates.

Aligning risk and return and financeability

Key issues for Northumbrian Water

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

2.82 The allowed return was lower in our draft determinations (3.19% in CPIH terms), reflecting movements in market rates and some refinements to our assessment of the market evidence on the allowed return. We assessed Northumbrian Water's draft determination to be financeable on the basis of the notional capital structure.

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[35] Ofwat, 'PR19 final determinations Northumbrian Water – Delivering outcomes for customers final decisions'.
[36] Ofwat, 'PR19 draft determinations: Delivering outcomes for customers policy appendix'.

2.83 Our draft determinations signaled to companies that movements in the market data suggested it was possible that the allowed return could be lower by 0.37 percentage points in our final determinations. The detail underpinning this analysis was set out in section 1.2 of the Cost of capital technical appendix in our draft determinations.[37]

2.84 In its representations to our draft determination, Northumbrian Water stated that *"*Our Board is unable to provide assurance that our Draft Determination is financeable*".* It set out that it formed this opinion based on the un-deliverability of the package as a whole and the resulting deterioration in its key credit rating metrics. The company raised concerns that the draft determination would result in a credit downgrade.

2.85 The company states that it agrees with the conclusions arrived at in Anglian Water's recent publication[38] that "We do not accept the Draft Determination package as a whole, and in the context of this package we do not accept the WACC reduction which Ofwat has applied at Draft Determination. It logically follows that we could not accept any further reduction in our Final Determination." It set out that it considered the allowed return in the draft determination does not reflect the asymmetric balance of risk and reward in the determination, stating "Based on our analysis and the balance of evidence available, the minimum WACC for a notionally geared company should be somewhere around 2.5% RPI stripped (based on the component parts discussed earlier). This will ensure a notional company could remain financially resilient over a longer term and achieve Baa1 level rating".[39]

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

2.87 The most material issues relevant to Northumbrian Water's representation on the draft determination related to the overall balance of risk and return in our draft determinations, our assessment of the allowed return and that our draft determination was not financeable. We summarise issues raised by Northumbrian Water and our response below.

2.88 As companies are responsible for their own financial resilience and our determinations focus on the financeability of the notional capital structure, we focus our commentary on the notional capital structure in the sections that

[37] Ofwat, 'PR19 draft determinations: Cost of capital technical appendix', pp. 6-8.
[38] Anglian Water – PR19 - Notional company financeability, August 2019.
[39] Northumbrian Water Draft Determination Company Representation p. 8.

follow. We comment on the actual financial structure for the company in the 'Cross-cutting issues' document that accompanies this submission to the CMA.

Allowed return

2.89 In its representation to our draft determination, Northumbrian Water disagreed with certain elements of our assessment of market evidence to inform the allowed return, while providing the caveat that it had not carried out a line by line analysis of the components of the allowed return. The key issues raised by the company were:

- **Beta** – the company set out its view that the estimation window used in our draft determination to estimate beta was too short-term in duration and thus was unduly influenced by short-term share price changes. It argued that we should use longer estimation windows. Our final determination set out that by placing more weight on 5 year betas in final determinations we had adopted a more cautious approach than at draft determinations (which used a point estimate anchored on 2 year betas). This resulted in an estimate of unlevered beta (0.29) higher than our advisors' (Europe Economics) recommendation of 0.26.
- **Total Market Return** ("TMR") – Northumbrian Water set out that we should not use our analysis of Market-to-Asset ratios (MARs) to inform our 'forward-looking' range as it had not been updated with recent evidence. We did not reflect this evidence in our TMR range for final determinations as we were concerned that our allowed return from draft determinations could have informed market expectations, creating a circularity. However, we consider that now the final determinations have been made, information inferred from MARs analysis can provide useful information about market reaction to the final determinations, including market expectations about scope for out or under performance.
- **Share of new debt** – Northumbrian Water considered the share of new debt of 20% was too high and that 15% should be used. We found once we estimated new debt implied by RCV growth and the maturity profile of the sector's outstanding debt that there was a stronger case for an estimate of 20%.
- **Cost of new debt** – Northumbrian Water set out that a weaker implied credit rating for the notional company than for our benchmark index meant that we should assume no outperformance in our allowance. We were unconvinced that there would be no outperformance, noting that bond yields for one Baa3-rated company were at least 25 basis points below the iBoxx A/BBB, suggesting it could comfortably outperform our new debt

benchmark with new issuance. We nonetheless reduced our 'outperformance wedge' from 25 to 15 basis points, acknowledging uncertainty around historic levels of outperformance persisting. Evidence since our determination suggests that companies with gearing levels close to the notional level are able to maintain credit ratings consistent with, or better than, the credit rating targeted in our financeability assessment.

2.90 In addition to our decisions on equity beta and new debt - which were clearly favourable to the company when compared to our draft determination - we also increased the company's effective return through reducing the retail margin adjustment.[40] Collectively, we estimate that these three decisions amounted to an allowed return on capital 33 basis points higher than it would have been using our approach from our draft determinations.

2.91 We discuss these issues in further detail in the in the 'Cross-cutting issues' document that accompanies this submission to the CMA

2.92 We set out in our final determination that we were satisfied that our determination included a reasonable allowed return that was sufficient to reward investors for the risk they face in a sector that benefits from significant risk protections.

Balance of risk and return

2.93 Northumbrian Water considers that Ofwat has specifically ensured the balance of risk and return is skewed significantly to the downside.[41] Northumbrian Water set out its views were supported by a consultancy report it commissioned with Anglian Water, Dŵr Cymru and Yorkshire Water from Economic Insight.[42]

2.94 Our final determinations aimed to be stretching to encourage companies to deliver efficiencies and better levels of service to customers. In making representations on draft determinations, companies are likely to focus on downside risks rather than scope for outperformance. Companies also benefit from the asymmetry of information which means they have more information, but little incentive to reveal the scope for outperformance.

[40] This adjustment is applied to the appointee allowed return to derive the wholesale allowed return, avoiding double-counting the retail net margin return in the latter.
[41] Northumbrian Water, Draft Determination Company Representation p. 6.
[42] Economic Insight report: 'Financeability of the notional efficient firm'.

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

2.96 As discussed elsewhere,[43] a number of independent reviews have highlighted excess returns and persistent outperformance of previous price reviews in water and other sectors. We note that Northumbrian Water has outperformed the first four years of the current price review period, with an 8.5% RoRE return. It paid dividends with yield of in excess of 12% based on actual gearing over the same period. Since the 2011 acquisition by CKI, Northumbrian water has paid cumulative dividends of £1.6 billion, large in relation to its regulatory capital base of £4.3 billion in 2018-19.

2.97 We assessed that Northumbrian Water has significant scope to earn upside from outperformance as well as the risk of lower returns from underperformance with modest skew to the overall risk range, driven primarily by outcome delivery incentives. We set out our view that Northumbrian Water, if efficient, should be able to achieve the base return on the notional structure. We set out in Figure 2.1 our assessment of the company's represented risk range as measured by the return on regulatory equity and the range we set out in our final determination based on the common approach we took to the calculations.

[43] See 'Cross-cutting issues' document.

Figure 2.1: Company representation and final determination RoRE ranges for Northumbrian Water

Financeability

2.98 Northumbrian Water did not consider the draft determination to be financeable. Northumbrian Water referenced the issues set out in Anglian Water's discussion paper on financeability.[44]

2.99 We summarise below the issues raised by Northumbrian Water and our response:

- **PAYG rates** – Northumbrian Water set out that PAYG rates in the draft determination represented a departure from the natural rate as the approach did not take account of the specific opex/capex split of the totex challenged. Taking account of representations from Northumbrian Water and other companies, and following an informal consultation with all companies in autumn 2019, we revised our approach to determine the mix of operating and capital expenditure for all companies to take better account of the nature of our decisions on cost allowances in calculating PAYG rates.

[44] See 'PR19 – Notional Company Financeability' published by Anglian Water on the WaterUK Marketplace for ideas, August 2019.

- **Revenue** advancement - Northumbrian Water set out that Moody's does not take the benefit of revenue advanced from the use of PAYG rates into account when calculating adjusted interest cover. Our aim in determining the allowed return was to set it at a level consistent with market evidence, such that investors are fairly rewarded for the risk associated with their investment; we do not consider that setting the allowed return on equity to attain a specific level of indicative adjusted interest cover protects the interest of customers. Applying an increase to the allowed return at a time when cash returns are low would require a reduction in returns below market rates in future periods to prevent customers paying more over the economic cycle. We consider that net present value neutral cash flow profiling adjustments more fairly balance customer interests. Revenue advancement using PAYG rates or RCV run-off rates has the effect of crystallising some of the inflationary return related to the partial transition from RPI to CPIH as the measure of inflation.
- **Calculation of FFO/net debt** – Northumbrian Water set out that Standard and Poor's deduct the indexation from index linked debt loans before calculating the ratios which reduces the funds from operations to net debt measure from 9.96% to 9.01%. Northumbrian Water stated this is one of the key financial ratios to ensure retention of a BBB+ rating with Standard and Poor's. Different credit rating agencies use different definitions for key financial ratios. Our financial ratios do not mirror exactly any one credit rating agency as definitions differ between the credit rating agencies who also may apply further adjustments to specific companies. We note that the company's assessment of the Standard and Poor's calculation of funds from operations to net debt is consistent with the threshold guidance of c.9% that it sets out in its April 2019 revised business plan.[45] We set out in Table 2.6 that the level for this financial ratio in the draft and final determination is higher than set out in the company's April 2019 business plan.
- **Treatment of pension deficit in the calculation of financial ratios -** Northumbrian Water set out in its representations that our financial model for the draft determination overstated the adjusted interest cover financial ratio due to the treatment of pension deficit recovery payments. We accepted this representation and adjusted the treatment of pension deficit in the financial ratios for the final determination which lowered the financial ratios compared with our draft determination.
- **Treatment of infrastructure renewal expenditure in the calculation of financial ratios** – Northumbrian Water set out that our draft determinations assessed financeability on different bases due to what is meant by 'natural'

[45] Northumbrian Water – Living Water, our plan 2020-25 and beyond, April 2019.

rate, particularly in relation to the different accounting treatment for infrastructure renewal expenditure and basis of recovery (PAYG versus addition to the RCV). Our PR19 methodology allows companies to set the basis for determining PAYG rates providing they are supported by compelling evidence for their approach and that resultant bills are supported by customers. However, we amended the calculation of the adjusted interest cover ratio in the final determinations to remove the impact of recovering capitalised costs through PAYG. This allowed for a better comparison of financial ratios across companies in the final determinations.

2.100 For the draft determination, we applied Northumbrian Water's approach to RCV run off rates which is to align these to the long-term depreciation policy for the assets using current cost depreciation. Northumbrian Water did not make any representations in relation to RCV run-off rate and we applied the company's RCV run off rates in the final determination.

2.101 Financial ratios were weak in our initial assessment of financeability in our final determination. Following the advancement of £25 million through PAYG rates, we assessed the financial ratios to be consistent with the credit rating the company had targeted for the notional structure in its business plan (Baa1/BBB+).

2.102 In Table 2.6 we set out the key financial ratios provided by the company in its business plan, and in our draft and final determinations. The financial ratios underpinning our final determination were broadly consistent and in some cases better, on average, than those proposed by the company in its business plan that underpinned its Board assurance statement that its plan was financeable on the basis of the notional capital structure.

2.103 We set out further detail of our overall approach to the financeability assessment in the 'Cross-cutting issues' document that accompanies this submission to the CMA]. The detail underpinning our financeability assessment in the final determination was set out in section 5.2 of the Northumbrian Water final determination[46] and in the Allowed return on capital technical appendix[47] that accompanied the final determination.

[46] Ofwat, 'PR19 final determinations: Northumbrian Water', pp. 73-77.
[47] Ofwat, 'PR19 final determinations: Allowed return on capital technical appendix'.

Table 2.6: Ofwat calculation of key financial ratios – notional structure before reconciliation adjustments (5 year average)

	Revised business plan (April 2019)	Draft determination	Final determination
Gearing	61.59%	59.60%	59.53%
Interest cover	3.96	4.05	4.21
Adjusted cash interest cover ratio (ACICR)	1.51	1.52	1.50
Funds from operations (FFO)/Net debt	9.64%	9.96%	9.84%
Dividend cover	1.77	2.18	2.34
Retained cash flow (RCF)/Net debt	6.90%	7.86%	7.82%
Return on capital employed (RoCE)	5.64%	5.31%	5.28%

2.104 We set out the basis of the calculation of the ratios in the PR19 methodology.[48]

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

[48] See Chapter 11 of Delivering Water 2020: Our final methodology for the 2019 price review.

Appendix 1 – Calculation of our final determination

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

Further detail on the interventions on outcomes are set out in chapter 3 of the Northumbrian Water final determination and Northumbrian Water - delivering outcomes for customers final decisions.

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

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

	Final determination allowance
Wholesale base expenditure	2,330.9
Wholesale enhancement expenditure	352.4
Operating lease adjustment	-4.1
Gross allowed totex for calculation of cost sharing rates	**2,679.2**
Strategic regional water resources solutions and other cash items	0.0
Third party costs	41.1
Non-section 185 diversions	5.4
Ex-ante cost sharing adjustment	0.0
Gross totex	**2,725.7**
Grants and contributions after adjustment for income offset	133.1
Net totex for PAYG calculation	**2,592.5**

Note: We provide a breakdown of wholesale base expenditure and enhancement expenditure in Tables 2.4 and 2.5. For further details on operating lease adjustments, strategic regional water resource solutions, third party costs and non-section 185 diversions see p33-34 and Table 3.2 in Northumbrian Water final determination.

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

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Totex for PAYG calculation	2,885.2	2,614.6	2,592.5	Cost adjustments are explained in chapter 3 of the Northumbrian Water final determination, Northumbrian Water Cost efficiency appendix and cost feeder models. The relationship between gross totex and net totex for PAYG is set out in Table 3.2 of the Northumbrian Water final determination.
PAYG (%)	49.1%	50.1%	54.1%	PAYG % is based on the opex and capex split of the expenditure allowance adjusted for the revenue brought forward for financeability reasons. Further details are provided in section 4.2.1 of the Northumbrian Water final determination, Northumbrian Water Allowed revenue appendix and Northumbrian Water Aligning risk and return final decisions, and the PAYG model.
Totex PAYG	1,417.1	1,309.6	1,403.5	
Pension deficit repair costs	54.9	37.0	37.1	
Total pay as you go	**1,472.0**	**1,346.5**	**1,440.6**	
Average opening RCV in each year	4,338.3	4,268.5	4,189.2	RCV run off rates have not been adjusted. Further details are provided in section 4.2.4 of the Northumbrian Water final determination, Northumbrian Water Allowed revenue appendix and Northumbrian Water Aligning risk and return final decisions.
RCV run off rate (%)	4.84%	4.84%	4.85%	
RCV run-off	**1,050.7**	**1,033.3**	**1,015.5**	
Average RPI RCV in each year	1,810.1	1,810.9	1,798.9	The allowed return on capital is based on prevailing market evidence. Further details are provided in section 4.2.3 of the Northumbrian Water final determination, Northumbrian Water Allowed revenue appendix, Northumbrian Water Aligning risk and
RPI return (%)	2.30%	2.08%	1.92%	

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Total RPI Return on RCV	208.2	188.2	172.7	return final decisions and Allowed return on capital technical appendix.
Average CPI RCV in each year	2,423.2	2,354.3	2,288.7	
CPI return (%)	3.30%	3.08%	2.92%	
Total CPI Return on RCV	400.3	362.5	334.1	
Total Return on RCV	**608.5**	**550.8**	**506.8**	
Revenue adjustments for PR14 reconciliations	9.3	1.7	(0.7)	Adjustments made to the reconciliation of PR14 incentives are described in section 4.3 of the Northumbrian Water final determination, Northumbrian Water Accounting for past delivery appendix and Northumbrian Water Accounting for past delivery final decisions . Note - adjustments are explained relative to 15 July submission rather than representation.
Fast track reward	-	-	-	Not applicable.
Tax	70.7	62.6	66.3	The tax allowance reflects the corporation tax that the company expects to pay in 2020-25. Tax adjustments are explained in section 4.4.1 of the Northumbrian Water final determination and Northumbrian Water Aligning risk and return final decisions.

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Grants and contributions (price control)	81.3	82.6	126.0	An allowance for the revenue that water companies will receive from developers for the work that they undertake to service new developments. Adjustments to grants and contributions forecasts are set out in section 4.4.2 of the Northumbrian Water final determination. In our final determinations we amended our approach to grants and contributions. This included the removal of non-section 185 diversions to outside the price control. More details of our approach are set out in Our approach to regulating developer services.
Deduct other income (non-price control)	(50.4)	(50.4)	(50.4)	This reflects income water companies receive from outside the price control. Adjustments to non-price control other income are described in section 4.4.3 of the Northumbrian Water final determination and is described in Our approach to regulating developer services
Innovation fund/competition	-	-	11.8	This represents the additional revenue that the company will collect from its customers for the purpose of a collectively funded innovation competition for the period 2020-25 This described in section 4.1.1 of the Northumbrian Water final determination and Driving Transformational Innovation in the Water Sector.
Revenue re-profiling	(3.5)	(0.2)	(0.8)	This reflects the change in revenue in 2017-18 prices as a result of adjustments made to annual revenues to smooth the final bill profile consistent with customer preferences, on a net present value neutral basis. This is described in section 4.1.1 of the Northumbrian Water final determination.
Final allowed revenues	**3,241.9**	**3,026.9**	**3,115.0**	The calculation of final allowed revenues is set out in Table 4.1 of the Northumbrian Water final determination, Northumbrian Water

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
				Allowed revenue appendix and Northumbrian Water - Detailed calculation of the final determination revenue allowances.

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

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Total wholesale revenue	3,455.6	3,204.6	3,270.6	Wholesale revenues adjusted from 2017-18 prices to nominal prices.
Proportion of wholesale revenue allocation to residential, %	77.43%	77.46%	77.48%	We did not intervene in the proportion of wholesale revenue allocated to residential retail and any differences reflects movements in revenues across different wholesale controls.
Wholesale revenue allocated to residential	2,675.8	2,482.4	2,534.0	Wholesale revenues multiplied by proportion allocated to retail
Residential retail costs	272.8	251.5	250.1	Cost adjustments are explained in chapter 3 of the Northumbrian Water final determination and residential retail cost feeder models

	Revised business plan (April 2019)	Draft determination	Final determination	Further explanation
Total retail costs	2,957.5	2,740.8	2,789.3	Wholesale revenue allocated to retail plus retail costs
Residential retail net margin (%)	1.00%	1.00%	1.00%	Retail allowed margins are set out in Northumbrian Water Allowed revenue appendix
Residential retail net margin	29.9	27.7	28.2	This is calculated as (1-retail margin)* (total retail costs mins retail adjustments
Residential retail adjustments	8.9	6.9	5.2	Retail adjustments from the reconciliation of PR14 incentives, PR14 service incentive mechanism and residential retail revenue reconciliations. These adjustments set out in Table 4.11 of the Northumbrian Water final determination, Northumbrian Water Accounting for past delivery appendix and Northumbrian Water Accounting for past delivery final decisions. Adjustments have been converted from 2017-18 prices to nominal prices.
Residential retail revenue (£ million)	311.5	286.1	283.4	The sum of residential retail costs plus retail net margin plus residential retail adjustments

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

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March 2020

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