December 2019

# PR19 final determinations

## PR19 final determinations: Northumbrian Water final determination

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# About this document

This document supports the 'Notification of the final determination of price controls for Northumbrian Water' and sets out further details about the final determination price control, service and incentive package for Northumbrian Water for 2020 to 2025. All figures in this document are in 2017-18 prices except where otherwise stated.

The final determination documentation sets out:

- the outcomes for Northumbrian Water to deliver;
- the allowed revenue that Northumbrian Water can recover from its customers; and
- how we have determined allowed revenues based on our calculation of efficient costs and the allowed return on capital.

This final determination is in accordance with our PR19 methodology (as updated), our statutory duties[1] and the UK Government's statement of strategic priorities and objectives for Ofwat[2]. We have also had regard to the principles of best regulatory practice, including the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted.

Our final determination carefully considers all of the representations we received from companies and stakeholders on our draft determination and takes account of the most up-to-date information available where appropriate. Where appropriate, we explicitly set out our response to points and issues raised by respondents. Where information was provided late and we have not been able to take full account of this in the final determination, this is explicitly stated.

There are four appendices to this document on cost efficiency, outcomes performance, past delivery, allowed revenue and, where relevant, additional information. For all documents related to the Northumbrian Water final determination, please see the final determinations webpage. Where we reference other documents related to our final determinations we do not include the 'PR19 final determinations' prefix to the document title, for documents relating to our initial assessment of plans or draft determinations the full document title is referenced.

If Northumbrian Water accepts our final determination, it will be accepting that it 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.

[1] See the 'Policy summary' for more information.
[2] See 'UK Government priorities and our 2019 price review final determinations' for more information.

# Contents



| Amendment | Date |
|---|---|
| Page 41 – Amendments made to figures in the wastewater resilience section, replacing £39.9 million with £33.6 million in paragraph 1 and replacing £39.9 million with £33.9 million in paragraph 2.<br><br>Page 42 - Amendment made to figure, replaced £16.8 million with £15.3million.<br><br>Page 44 Table 3.7 - Amendments made as follows:<br><br>• Grants and contributions before the deduction of income offset - Network plus – water, replacing £114.4m with £109.8m.<br>• Grants and contributions before the deduction of income offset - Network plus – wastewater, replacing £20.3m with £17.7m.<br>• Net allowed totex subject to cost sharing reconciliation Network plus – water, replacing £1,080.3m with £1,084.8m<br>• Net allowed totex subject to cost sharing reconciliation. Network plus – wastewater, replacing £927.4m with £930.0m. | 30 April 2020 |

# 1 Summary

The water sector faces challenges of climate change, a growing population and increasing customer expectations, while improving affordability of an essential service. The 2019 price review (PR19) enables and incentivises companies to address these challenges both in 2020-25 period and longer term.

To do this the sector needs to innovate and challenge itself to deliver better performance for customers and the environment. Companies need to engage and work with customers and other companies, the supply chain and with other stakeholders.

Our PR19 methodology set out a framework for companies to address the challenges facing the sector with 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 plans submitted to us on 1 April 2019. The company and a number of stakeholders provided representation responses on our draft determination on 30 August 2019. Other stakeholders provided further representations after 30 August 2019.

Our final determination carefully considers all of the representations we received from companies and stakeholders on our draft determination and takes account of the most up-to-date information available where appropriate. We consider the changes we have made in our final determination are in line with our statutory duties.

## 1.1 What our final determination includes

This section sets out the overall shape of our final determination for Northumbrian Water, covering the customer bill profile, costs, outcomes for customers and allowed revenues. More detail is provided in the following sections of this document.

### Bill profile

Our final determination for Northumbrian Water will cut average bills by 25.6% in real terms in the 2020-25 period compared to the company's proposed 21.3% reduction. Table 1.1 below sets out the difference in bill profile between the company's business plan submission in April 2019, our draft determination and the final determination. Average bills are lower than proposed by Northumbrian Water, reflecting our view of efficient costs and a reduction in the allowed return. Further details on bills are set out in section 6.

**Table 1.1: Bill profile for 2020-25 before inflation**

| | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|---|---|---|---|---|---|
| Company plan (April resubmission) | £429 | £350 | £346 | £343 | £340 | £337 |
| Draft determination | £429 | £319 | £319 | £319 | £319 | £319 |
| Final determination | £429 | £326 | £325 | £323 | £321 | £319 |

## Costs

Our final determination allows wholesale totex of £2,762.8 million. This is:

- £23.3 million higher than in our draft determination and
- £156.1 million lower than stated in the company's representation on our draft determination.

Our final determination allows Northumbrian Water £352 million to invest in improvements to service, resilience and the environment. Key parts of this allowance are:

- £152 million to improve the environment by efficiently delivering its obligations as set out in the whole Water Industry National Environmental Programme (WINEP);
- £104 million to deliver improved resilience at critical areas of its infrastructure;
- £43 million to install more than 450,000 smart meters and promote water efficiency; and
- £29 million to address the impact of deteriorating raw water quality.

Further details on our cost allowances are set out in section 3.

## Outcomes for customers

Our final determination package includes a full set of performance commitments, specifying the minimum level of service that Northumbrian Water must commit to deliver for customers and the environment under this price review. These sit alongside the company's statutory and licence requirements. Each performance commitment also has a financial or reputational incentive to hold the company to account for delivery of these commitments.

Further details of key performance commitments are set out in table 1.2 below and in section 2.

### Table 1.2: Key performance commitments for Northumbrian Water

| Area | Measure |
|---|---|
| Key common performance commitments | • 18.5% leakage reduction for Essex and Suffolk region and 11% reduction for the Northumbrian region on a three year average basis. For the company as a whole, this achieves at least a 15% reduction from PR14 performance commitment levels<br>• 5.3% reduction in per capita consumption by 2024-25<br>• 22% reduction in pollution incidents by 2024-25 to 19.5 pollution incidents per 10,000km of the wastewater sewer by 2024-25<br>• 43% reduction in internal sewer flooding incidents by 2024-25 to 1.34 incidents per 10,000 sewer connections<br>• A level of 5 minutes for 2024-25 for water supply interruptions |
| Bespoke performance commitments | • 26% reduction in external sewer flooding incidents by 2024-25<br>• 3% increase in the percentage of designated bathing waters in the company's northern operating area that are classified annually as Good or Excellent by 2024-25<br>• 28% reduction in greenhouse gas produced by the company by 2024-25 |
| Overall incentive package | Overall, the likely range of returns from outcome delivery incentive package in our final determination equates to a return on regulatory equity range of – 1.54% (P10) to + 1.36% (P90). |

Note the calculations behind these numbers are outlined in the 'Northumbrian Water - Outcomes performance commitment appendix'.

## Allowed revenues

Our final determination sets allowances for total revenue or average revenue for each of the price controls. Table 1.3 shows the allowed revenues in the final determination across each price control. Further details on our calculation of allowed revenues are set out in section 4.

**Table 1.3: Allowed revenue, 2020-25 (£ million)**

| | Water Resources | Network plus - water | Network plus - wastewater | Bioresources | Wholesale total | Residential retail | Total |
|---|---|---|---|---|---|---|---|
| Company view of allowed revenue (£m) | 393.0 | 1,557.8 | 1,181.8 | 109.3 | 3,241.9 | 281.9 | 3,523.8 |
| Final allowed revenues (£m) | 376.1 | 1,531.9 | 1,102.3 | 104.7 | 3,115.0 | 256.2 | 3,371.1 |

Note retail revenue is the sum of the margin, retail costs, and adjustments. The bioresources and residential retail controls are average revenue controls. We have included forecast revenue (in real terms) for these controls to illustrate the total revenue across all controls.

As set out in the 'Allowed return on capital technical appendix', we are updating our assessment of the allowed return on capital for Northumbrian Water's final determination. The allowed return is 2.96% (on a CPIH basis, 1.96% on a RPI basis) at the appointee level. After adjustment for the retail margin, the allowed return on capital for the wholesale price controls is 2.92% (on a CPIH basis, 1.92% on a RPI basis), a reduction of 0.16 percentage points from our draft determination, reflecting our assessment of market evidence. The allowed retail margin for the household retail control remains at 1.0%, consistent with the draft determination.

Northumbrian Water's Regulatory Capital Value (RCV) growth in 2020-25 is 6.4% and 61.7% of its RCV will be indexed to CPIH in 2025. We bring forward £25 million of revenue from future periods.

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. Further detail on our assessment of financeability is set out in section 5.

## Putting the sector in balance

We have encouraged companies to take greater account of customers' interests – and to transparently demonstrate that they are doing so in the way they finance themselves, pay dividends to their shareholders, and determine performance related executive pay. Northumbrian Water commits to meeting the expectations set out in our 'Putting the sector in balance position statement' with the exception of our expectations on dividend policy.

The company confirmed it would implement our default gearing outperformance mechanism within its business plan. Northumbrian Water expects its actual structure gearing to be below 70% during 2020-25, but close to the level that will trigger sharing payments under the gearing outperformance sharing mechanism in the period.

Our current assessment of the company's proposed dividend policy shows that the company is falling well short in a number of areas with too much focus on distributions to shareholders and insufficient weight given to customers' interests. To meet our expectations, the company will need to demonstrate to stakeholders that dividends and performance related executive pay policies are substantially aligned to its performance for customers during 2020-25. We expect the company will need to revise its proposed base dividend yield for 2020-25 to take account of the lower allowed return in our final determination and our revised expectations for a reasonable base dividend yield that we set out in the 'Aligning risk and return technical appendix'.

In the 'Putting the sector in balance' position statement we also encouraged companies to adopt a voluntary sharing mechanism, particularly where, for example, companies outperform our cost of debt assumptions. The company does not propose a sharing mechanism on cost of debt, however Northumbrian Water proposes a voluntary sharing mechanism relating to £50 million of funding it received via customer bills for a tax liability which it has not incurred in 2015-20. The company proposes sharing payments will be used to fund initiatives to support its customer goal of eradicating water poverty, and linked to this the company also proposes to make company contributions to a social tariff and payment matching scheme during 2020-25.

We provide further detail on these issues in section 7.

## 1.2 Representations on the draft determination

All companies and stakeholders were invited to make representations on our draft determinations by 30 August 2019. More detail about the issues raised in the representations by the company and our consideration of those issues can be found elsewhere in this document, the technical appendices and other documents published alongside our final determinations. Table 1.4 highlights the key points made by Northumbrian Water in its representation together with any further submissions after that date and a summary of our response to each of those points.

### Table 1.4: Company representation

| Key point in Northumbrian Water representation | Summary of our response |
|---|---|
| Northumbrian Water argues that the overall challenge is beyond what the notionally efficient company could deliver and the package should be rebalanced, including to support enhancement investment. It argues the overall package is not financeable because of the lower cost of capital, the skew on outcomes and cost efficiency. | Our assessment of cost efficiency takes into account the overall level of stretch across both costs and outcomes. Where appropriate we make adjustments to our approach at draft determination, allowing increased totex, adjusted performance commitments and incentives including providing additional enhancement funding to Northumbrian Water. We consider that the resulting combination of our requirements on both costs and outcomes are stretching but achievable. Evidence suggests that companies can perform well on both costs and outcomes with some companies performing better than the sector-wide benchmarks we set in the 2015-20 price review period. See the 'Policy summary' and 'Securing cost efficiency technical appendix' for more detail. |
| Northumbrian Water argues that we should use the 'early view' of the allowed return on capital and that the 2.19% return on capital is set at a level too low for the notional company to be considered financeable at the desired credit rating, or financeable on an actual basis.<br><br>It argues that if the draft determination becomes its final determination, there would be a real risk of a failure to take due account of the statutory financeability and consumer protection obligations set out in the Water Industry Act 1991. | We have carefully considered all of our duties, in particular our financing functions and consumer protection duties, and are satisfied that our final determination fulfils our duties in the round. Our assessment of notional financeability for the final determination is made in the context of changes made to the draft determination in our final determination. We consider the company's final determination is financeable on the basis of the notional structure based on the allowed revenues which include a reasonable allowed return on capital. The final determination is sufficient to ensure the company will be in a position to deliver its obligations and commitments to customers. It is the company's responsibility to maintain financial resilience under its actual financial structure and it must bear the risks associated with its choice of capital and financing structure.<br><br>We use an allowed return on capital based on updated market evidence, as set out in our 'Allowed return on capital technical appendix'.<br><br>We have based our final determination on target credit ratings and levels of financial ratios that are consistent with or better than Northumbrian Water's business plan on a notional basis. We note that our final determination is based on |

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|---|---|
| | Northumbrian Water being an efficient company, as we do not consider customers should bear costs associated with inefficiency or poor performance. |
| Northumbrian Water argues that the (PAYG) rates should be consistent with allowed costs and the draft determination approach departs from the natural rate. | Taking account of company representations, we have adjusted our approach to the calculation of the mix of operating and capital expenditure following our totex interventions. We align PAYG rates with our view of the mix of operating and capital expenditure in allowed totex. More explanation is provided in our 'Securing cost efficiency technical appendix'. |
| Northumbrian Water reintroduces £56 million of resilience investment that we did not make an allowance for at draft determination. A significant proportion of this relates to the Abberton to Hanningfield water transfer and duplication of assets at Howdon sewage treatment works. | Throughout the price review process we have engaged with the company and sought further evidence to better understand its proposed investments in enhanced resilience. We have considered all of the evidence provided to us and make additional allowances where the company provides sufficient and convincing evidence of the likelihood of failure, consequence to customer service and that the risk is beyond management control. We set out further information on our criteria for demonstrating the need to invest in enhanced resilience in 'Cost efficiency technical appendix'.<br><br>Overall, we allow £104 million to deliver improved resilience for customers and the environment, which includes an additional £14 million in comparison to the company's draft determination allowance. See section 3. |
| Northumbrian Water requests £86 million for a proactive programme to reduce the risk of internal sewer flooding for 7,400 properties. The company argues that it is not captured by base cost drivers and cites support from the Environment Agency, customers, Members of Parliament and councils. | The base cost allowances in our final determination include allowances for mitigating the effects of climate change and costs related to internal sewer flooding. We consider this claim as a cost adjustment claim above our base cost allowance as all companies are funded to deliver a common service level for reducing sewer flooding as part of our base costs. Northumbrian Water does not demonstrate that it will face exceptional pressures, relative to the rest of the industry, because of climate change and urban creep, to reduce flooding risk for properties. We therefore do not allow an additional £86 million for reducing risk of sewer flooding at properties that have not flooded as we consider the company receives sufficient funding through its base cost allowance to reduce sewer flooding. See section 3 for more information. |

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| | We note that, while Northumbrian Water currently performs below average on internal sewer flooding the company is able to earn outcome deliver incentive outperformance payments to reduce sewer flooding. We welcome ambition from the company to do so. We also have set a bespoke performance commitment to reduce the risk of sewer flooding at 7,400 properties. See section 2 for more information.<br><br>We set out in our PR19 methodology for the price review that customer support is important as one of a number of considerations we are taking into account when making our decisions. |
| Northumbrian Water does not accept our financial incentives on unplanned outage and the removal of the underperformance collar for internal sewer flooding, arguing that we should apply a consistent approach across all companies. It argues that the baseline for future leakage performance should be the 2019/20 target rather than actual performance (as if companies improve performance in PR14 they may be penalised). | We propose to retain our draft determination decisions on the unplanned outage performance commitment. We adopt a bespoke cap and collar approach for Northumbrian Water, Yorkshire Water and United Utilities on internal sewer flooding. We continue to use percentage reduction from 2019-20 for leakage so that it relates to actual performance achieved in the 2020-25 period and not to data or methodology changes. See section 2. |

We also received representations on Northumbrian Water's draft determination from other stakeholders as shown in table 1.5, which shows a summary of our response to company-specific comments. Representations from some other stakeholders relate to all companies and are described in the relevant technical appendices. More detail about the issues raised in the representations by stakeholders can be found elsewhere in this document, the technical appendices and other documents published alongside our final determinations.

### Table 1.5: Stakeholder representations

| Stakeholder representations | Summary of our response |
|---|---|
| The Consumer Council for Water thinks the company's 'well-conducted research' supported resilience investment and customers will expect dialogue between Ofwat and the company where insufficient evidence has been provided. | We have engaged with Northumbrian Water to better understand its resilience schemes and have sought further evidence throughout the process. We have provided allowances for resilience where sufficient and robust evidence is provided. See table 1.4 and the 'Securing long-term resilience technical appendix'. |
| The Environment Agency supports Northumbrian Water's work to combat flood risk, including internal sewer flooding. | We consider that our base cost allowances include an implicit allowance for mitigating the effects of climate change and costs related to internal sewer flooding. We do not allow the company's £86 million enhancement claim for proactive flood risk reduction. The company does not demonstrate that it is atypically affected by climate change.<br><br>Our final determination includes a package of flood related performance commitments, including the company's bespoke commitment to reduce the risk of flooding at 7,400 properties.<br><br>See table 1.4 and sections 2 and 3. |
| The Water Forums, Northumbrian Water's customer challenge groups, support a balance between investors and customers and wants cost savings reinvested in resilience enhancement projects, e.g. flood risk reduction. The Water Forums support increasing enhanced resilience rather than further bill increases beyond what customers support. | We note the comments set out by the customer challenge group, which reflect, in part, the company's representation. As set out in our final determination, we consider that we have set incentives to protect customers from the risk of poor service and inefficiency. |
| Northumbria Regional Flood and Coastal Committee supports resilience spend. | We have considered whether the evidence provided by the company is sufficient and convincing in line with our resilience framework. See table 1.4 and section 3. |
| A number of stakeholders, including nine councils and nine Members of Parliament asked us to reconsider aspects of our draft determination and to allow resilience spending in their areas. | We set out in our PR19 methodology for the price review that customer support is important as one of a number of considerations we are taking into account when making our decisions. We consider whether each resilience scheme was efficient and well-evidenced. |

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|---|---|
| | We have allowed some schemes, for example providing funding for resilience improvements at Howdon treatment works. We have not provided allowances for other schemes, such as the £20.4 million requested for connecting the Abberton and Hanningfield reservoirs. We do not make the allowance because the company describes algal blooms in the reservoir as the primary risk to supply is due to the resultant reduced throughput of the treatment works. Instead, we allow funding for an additional treatment process to the treatment works to mitigate the risk that the company describes. See section 3. |

## 1.3 Key changes from the draft determination

Our final determination carefully considers the representations we received from companies and stakeholders on our draft determinations on 30 August 2019. It also takes account of the most up-to-date information available where appropriate. Changes to overall revenue and costs allowances are set out in table 1.6.

**Table 1.6: Difference in cost and revenue allowance final to draft determination**

| | Draft determination | Final determination |
|---|---|---|
| Allowed revenues (£m, 2017-18 CPIH deflated) | 3,287.0 | 3,371.1 |
| Wholesale cost allowance[1] (£m, 2017-18 CPIH deflated) | 2,739.4 | 2,762.8 |
| Retail cost allowance (£m, nominal) | 251.5 | 250.1 |
| Wholesale allowed return[2] (% - CPIH basis) | 3.08% | 2.92% |

[1] Note that we include pension deficit recovery costs in the wholesale cost allowances we present in table 1.6 above and in table 3.1 later in this document. At the draft determination we published cost allowances excluding pension deficit recovery costs. The numbers we show here as the draft determination allowances can be calculated by adding the pension deficit recovery costs from draft determination table 3.2 to draft determination table 3.1 total allowances. Our decisions on individual elements of the totex allowance are set out in section 3.
[2] The allowed retail margin for the household retail control remains at 1.0%, consistent with the draft determination.

Significant changes from the draft determination for Northumbrian Water are:

- We include an additional £7.9 million for the 'Suffolk resilience' investment (£14.5 million requested) to provide treated storage for customers with no protection against the risk of outage at Barsham treatment works.
- We make a £26.4 million downward adjustment to allowed costs relating to the forecast of low growth in the Northumbrian region.
- We increase allowed revenue by £25 million to address a notional financeability constraint.
- We adjust the water supply interruptions 2024-25 level (making it easier to achieve) to five minutes, with an amended glidepath in the first four years and reduce the outcome delivery incentive underperformance rate to be symmetrical with its outperformance rate.
- On internal sewer flooding, we introduce a collar to limit company exposure to risk of underperformance payments.
- Taking account of company representations, we revise our approach to determine the mix of operating and capital expenditure to take better account of the nature of our decisions on cost allowances. We apply the updated approach in our technical intervention to PAYG rates.
- We revise Northumbrian Water's average bill profile from a large reduction upfront followed by flat real terms prices, to have a smaller reduction upfront, followed by a gradually falling real price over 2020 – 25.
- We expect the company will need to reduce its proposed base dividend yield for 2020-25 to take account of the lower allowed return in our final determination and our revised expectations for a reasonable base dividend yield.

# 2 Outcomes

### Key changes from the draft determination

The key changes made to the outcomes elements of the draft determination are:

- We increase the performance commitment levels on mains repairs, by making changes that apply industry wide to ensure levels take account of historical levels of performance and the implications of leakage reduction levels for mains repairs. We also amend the underperformance payment rate on mains repairs for all companies to industry average.
- We increase the water supply interruptions 2024-25 level (making it easier to achieve) to five minutes, with an amended glidepath in the first four years taking account of wider evidence to calibrate the stretch of the performance commitment for an efficient company We reduce the outcome delivery incentive underperformance rate to be symmetrical with its outperformance rate. Together these two changes provide a more balanced spread of incentives and risks on water supply interruptions
- We amend the deadband on the compliance risk index (which measures compliance with the Drinking Water Inspectorate's (DWI's) water quality standards) to a score of 2.00 throughout the period reducing the risk of underperformance payments in the last three years of the 2020-25 period. This allows more flexibility in performance to take into account the uncertainty created by the ban on the use of metaldehyde, which has been overturned by the High Court and also aligns with the median level of company performance.
- We introduce a collar on internal sewer flooding, to limit company exposure to risk of underperformance payments.

Throughout PR19, we have been asking companies to:

- make stretching performance commitments to their customers;
- have stronger incentives to deliver on their commitments; and
- better reflect resilience in their commitments

The outcomes framework is a key component in driving companies to focus on delivering the objectives that matter to today's customers, future customers and the environment in the 2020-25 period and beyond. Outcomes define the service package that companies should deliver for their customers and their incentives to do this.

There are two key elements of the outcomes framework: performance commitments and outcome delivery incentives. Performance commitments specify the services that customers should receive and set out in detail the levels of performance that the companies commit to achieve within the five year period from April 2020 to March 2025. Outcome delivery incentives are the reputational and financial incentives that companies have, to deliver on their performance commitments to customers. They specify the financial or reputational consequences for companies of outperformance or underperformance against each of these commitments (they are referred to as 'out' where there is a payment to the company for better than committed performance, 'under' where there is a payment to customers where there is worse than committed performance, or 'out-and-under' incentives, depending on their design).

Most outcome delivery incentives will be settled at the end of each year to bring incentive payments closer to the time of delivery of the service ('in-period' incentives) and some will be settled once at the end of the five year period ('end-of period' incentives). The outcomes framework gives companies the freedom to innovate and explore to find the most cost-effective way of delivering what matters to their customers.

The company's current performance is average in a number of areas including supply interruptions and water quality contacts. Performance deteriorated in 2018-19 in comparison to 2017-18 and it has poor performance on internal sewer flooding. However, performance on leakage is improving and on pollution incidents it is in the upper quartile of all companies.

In its September 2018 business plan, the company generally proposed stretching performance commitments including in areas where its comparative performance is weaker, for example, sewer collapses. The company also proposed to stretch beyond the industry upper quartile for pollution incidents. However, the outcome delivery incentives proposed were of concern in many cases, since we considered they did not provide sufficient customer protection in cases where outperformance payments could exceed expectations.

In its April 2019 business plan the company amended many of its outcome delivery incentive rates in response to our actions set out following our initial assessment of plans, including removing outperformance rates where it did not have customer support, affording more customer protection. The company also provided additional information on enhanced outcome delivery incentives. At draft determination we:

- increased the stretch on unplanned outage
- amended bespoke performance commitment definitions to make them more robust and
- intervened on outcome delivery incentives: we increased the strength of financial incentives for leakage and internal sewer flooding; we reduced the strength of

financial incentives for pollution incidents; and we re-balanced financial incentives for mains repairs
- intervened on all aspects of enhanced outcome delivery incentives in accordance with our methodology on enhanced outcome delivery incentives in our PR19 draft determinations: Delivering outcomes for customers policy appendix. We found that the research the company provided was insufficient in representing its customers' views (see section 2.1 below) and we consider our approach to enhanced outcome delivery incentives provides additional customer protection.

In its representations to the draft determination, the company focused on the approach to setting leakage performance commitment levels, unplanned outage underperformance rates, internal sewer flooding collar and its sewer flooding risk reduction performance commitment.

The company considers that basing leakage on a percentage reduction from actual 2019-20 values rather than forecasts is inappropriate, since it penalises companies who improve performance before the start of the 2020-25 period. Since the leakage measurement methodology has changed for PR19 and companies are still working towards compliance, we use percentage reduction from 2019-20 actual three year average levels because we consider that this ensures that the performance commitment relates to actual performance achieved in the 2020-25 period and not to data or methodology changes.

On unplanned outage, the company makes representations that its underperformance rate is too high relative to other companies. At draft determination, we accepted the company's underperformance rate for unplanned outage, since we were satisfied that the company's rate provided sufficient customer protections against poor comparative performance. We consider this remains the case and hence the rate is appropriate.

Northumbrian Water aims to improve customer experience through reducing the risk of flooding and has set out a package of complementary flooding-related performance commitments. These are internal sewer flooding (common), external sewer flooding (bespoke), sewer flooding risk reduction (bespoke), repeat sewer flooding (bespoke), sewer blockages (bespoke) and risk of sewer flooding in a storm (common). We welcome the company's commitment to improving in this area.

At draft determination, on internal sewer flooding, we removed the downward adjustment the company had made to its outcome delivery incentive rates based on regional variation in house prices. We also removed the proposed underperformance collar because we did not consider the performance commitment was financially material. In its representations, Northumbrian Water states that it is the only company without an underperformance collar on internal sewer flooding and it would expect a consistent approach for all companies. It proposes an underperformance cap and collar at the same level as we set other companies in draft determinations.

Since Northumbrian Water is one of three companies with poor comparative performance, at final determination we introduce a collar to protect the company and to reduce its exposure to underperformance payments during the first two years of the 2020-25 period while it improves to industry upper quartile levels. We also change the underperformance rate to be symmetrical to the outperformance rate and set an outperformance cap at the estimate of P90 performance.

The sewer flooding risk reduction performance commitment is a bespoke performance commitment to proactively reduce sewer flooding risk at 7,400 properties. At draft determination, we took the approach that the costs that the company considered were required to deliver this performance commitment were part of base costs within our models. In its representations, the company provides further argument to support an increase in the cost allowance and asks that, if these are not accepted, we remove the performance commitment.

We consider that the base costs allowed in our final determinations provide sufficient expenditure for an efficient company to deliver the required proactive reductions in the risk of sewer flooding. We propose no change to the performance commitment as Northumbrian Water has demonstrated that the outcome is important to customers and stakeholders, including the Environment Agency.

We consider there to be little risk of overlap between the incentives provided by the two performance commitments, though acknowledging that improvements in reducing sewer flooding risk may lead to improved performance in internal sewer flooding. The sewer flooding risk reduction performance commitment counts the number of properties where the risk of internal and external sewer flooding has been proactively reduced (at properties that have not previously flooded). There is some correlation here with the internal sewer flooding performance commitment, which measures the number of incidents per 10,000 wastewater connections per year, as the number of incidents could reduce if some properties are at reduced risk of flooding. However, in many cases the probability of the properties flooding that are covered by the performance commitment is lower than 1 in 10 years before work is completed and so unlikely to flood in the next five years whether the work occurs or not. Therefore the correlation in the short term is limited. However, the work to reduce the risk of flooding will provide resilience against flooding in the long term.

Further to this, the internal sewer flooding performance commitment has an underperformance payment rate and an outperformance payment rate whereas the sewer flooding risk reduction performance commitment has a very small underperformance only payment rate. Since the correlation between these performance commitments is limited, the underperformance rate for sewer flooding risk reduction is very low, and only 7,400 properties are affected, we consider there is little overlap in relation to their financial incentives.

See section 3 for more information on our final determination regarding Northumbrian Water's enhancement claim for £86 million of flooding investment.

The outcomes framework sits in the broader context of the company's statutory and licence requirements for service delivery. Independently of the outcomes framework, each company also has to ensure that it complies with its legal obligations, or risk enforcement action. If a company's performance falls below the level set for a performance commitment (irrespective of the existence of any deadband or collar), we will consider whether this is indicative of wider compliance issues to the detriment of consumers and whether enforcement action, with the potential for remedial and fining measures, is warranted.

Please see the 'Delivering outcomes for customers policy appendix' for further details on our policy decisions on cross-cutting issues such as common performance commitments and outcome delivery incentive rates.

## 2.1 Customer engagement

In our PR19 methodology we set out our expectations that companies should demonstrate ambition and innovation in their approach to engaging customers as they develop their business plans. This includes direct engagement with customers to develop a package of performance commitments and outcome delivery incentives.

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.

We continued our assessment of customer engagement evidence following each company's submission of its representations to our draft determination in August 2019. We find variability in both the quality of engagement undertaken by companies and the extent to which customers' views are reflected in company proposals.

In its September 2018 business plan, Northumbrian Water provided evidence to demonstrate elements of high-quality customer engagement although we highlighted some areas of concern in our initial assessment of the company's plan, such as insufficient evidence of a range of high-quality customer valuation research underpinning its outcome delivery incentive rates.

In its April 2019 revised business plan, Northumbrian Water submitted additional evidence of customer views on: cross subsidies for social tariffs as part of zero water poverty ambitions; incentive rates for enhanced outcome delivery incentives; more in-depth views on some service measures (interruptions, discolouration, external sewer flooding, voids), and; bill profiles post-2025.

The company has used the research findings to inform changes to the plan following our initial assessment, but it does not provide evidence to address the material gaps in the research that were previously identified. Additionally, due to the sample sizes used (167 participants), this additional evidence cannot be considered as having statistical certainty – a view also confirmed by Northumbrian Water's customer challenge group. Results from this research are mixed, with evidence suggesting approximate customer support in response to actions, but this is limited. For example, the company proposed a multiplier for its enhanced outcome delivery incentive rates, although the multiplier was not representative of the figure evidenced in its customer engagement research.

The Northumbrian Water and Essex & Suffolk Water Forums (the company's customer challenge groups) submit representations to our draft determination in August 2019. They state that it would like to see the plans remain balanced in relation to the return to investors and customers in our final determination. The Forums welcome our focus on reducing customers' bills, although they note that this should not be wholly at the expense of investment in resilience improving performance commitments that customers show support for in the company's customer engagement research.

In its August 2019 representations to our draft determination, Northumbrian Water expresses concern that in many cases its customers' preferences have been 'overwritten' by us. This is generally in relation to cost assessments, whereas the company is generally pleased that our draft determination reflected much closer alignment between the company's plan and our views in relation to outcome delivery incentives and performance commitments.

We set out in our PR19 methodology that we expect companies to reflect their customers' preferences in the levels they propose for performance commitment levels and outcome delivery incentives. We also expected companies to challenge the level of stretch in their performance commitments against a range of approaches (for example, against comparative and historical information). In our PR19 methodology we also expected companies to use customer valuations to set outcome delivery incentive rates and noted that we would compare these valuations and rates and challenge companies where appropriate. Therefore, when making our decisions, we have taken into account several factors in setting our final determination outcome delivery incentive rates including the quality of customer evidence provided. Our suite of final determination documents explains the rationale for our decisions, including the evidence used to inform our decisions.

## 2.2 Performance commitments and outcome delivery incentives

Northumbrian Water's performance commitments and outcome delivery incentives for the 2020-25 period are listed in table 2.2 and table 2.3. The full details of these

performance commitments and outcome delivery incentives are set out in the 'Northumbrian Water - Outcomes performance commitment appendix'.

The key changes we are making in the final determination are set out in table 2.1[3] below. 'Northumbrian Water – Delivering outcomes for customers final decisions' sets out our final decisions in terms of changes to our draft determination for the company's performance commitments and outcome delivery incentives, having considered stakeholder and company representations to our draft determination.

### Table 2.1: Summary of key changes to draft determinations on outcomes

| Key changes |
|---|
| Increasing the water supply interruptions 2024-25 level (making it easier to achieve) to five minutes, with an amended glidepath in the first four years taking account of wider evidence to calibrate the stretch of the performance commitment for an efficient company. We reduce the underperformance rate to be symmetrical with its outperformance rate. Together these two changes provide a more balanced spread of incentives and risks on water supply interruptions. |
| Retaining the performance commitment levels for internal sewer flooding.<br>Amending the outcome delivery incentive rates in relation to internal sewer flooding to be symmetrical with the outperformance rates to provide a balanced spread of incentives and risks.<br>The company is a poor performer on internal sewer flooding relative to other companies and although we are retaining the same industry wide glidepath and 2024-2025 levels, we are adding an 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 will provide a similar level of exposure over the five years as other companies, but reduces the downside risk for the first two years as the company progresses from PR14 levels to forward looking upper quartile 2024-25 levels, while maintaining a strong incentive over the period. |
| Increasing the performance commitment levels for mains repairs by a reducing percentage, for all companies, in all years, reducing the stretch. The aim is to allow all companies the flexibility to deliver the step change in leakage reduction, allowing more flexibility in the earlier years to use proactive mains repairs to reduce leakage. We also amend the underperformance payment rate on mains repairs for all companies[4] to industry average which will provide a more balanced spread of risks and incentives for the company. |
| Adjusting the deadband on the compliance risk index to a score of 2.00 throughout the period reducing the risk of underperformance payments in the last three years of the 2020-25. This allows more flexibility in performance to take into account the uncertainty created by the ban on the use of metaldehyde being overturned by the High Court and also aligns with the median level of current company performance. |
| Partially accepting the company proposal in relation to the smart metering programme. In particular, we are not removing the in-year levels all together (as the company suggested) but we are removing the financial incentives attached to them (delay outcome delivery incentives) to ensure consistency with the other companies. We maintain the end of period underperformance payments but we update them according to the adjusted cost sharing ratios which result in an underperformance payment of £199,000 per percentage of metering programme delivery. |

[3] Please note, table 2.1 focuses on policy changes and does not include changes made to correct errors in our draft determinations or changes made as a consequence of other amendments such as updating enhanced outcome delivery incentive rates for amendments to standard outcome delivery incentive rates using the same methodology and approach as at draft determinations.
[4] This does not include Severn Trent Water and South West Water who have early certainty on mains repairs outcome delivery incentive rates.

| Key changes |
| --- |
| We amend the performance commitment level in relation to greenhouse gas emission levels by using 2019-20 baseline figures as opposed to the 2017-18 baseline figures used by the company. |
| Amending the performance commitment definitions in relation to non-household void properties to ensure that in-period determinations take into account the financial consequences of any retail market mechanism which may be developed, for example, under the Market Performance Framework in the 2020-25 period. |

### Table 2.2: Summary of performance commitments: common performance commitments

| Name of common performance commitment | Type of outcome delivery incentive | | | |
|---|---|---|---|---|
| | Financial | | | Reputational |
| | Under | Out | In-period | |
| Water quality compliance (CRI) [PR19NES_COM03] | X | | X | |
| Water supply interruptions [PR19NES_COM04] | X | X | X | |
| Leakage (NW region) [PR19NES_COM05] | X | X | X | |
| Leakage (ESW region) [PR19NES_COM06] | X | X | X | |
| Per capita consumption [PR19NES_COM07] | X | X | X | |
| Mains repairs [PR19NES_COM12] | X | X | X | |
| Unplanned outage [PR19NES_COM13] | X | | X | |
| Risk of severe restrictions in a drought [PR19NES_COM10] | | | | X |
| Priority services for customers in vulnerable circumstances [PR19NES_COM16] | | | | X |
| Internal sewer flooding [PR19NES_COM08] | X | X | X | |
| Pollution incidents [PR19NES_COM09] | X | X | X | |
| Risk of sewer flooding in a storm [PR19NES_COM11] | | | | X |
| Sewer collapses [PR19NES_COM14] | X | | X | |
| Treatment works compliance [PR19NES_COM15] | X | | X | |
| C-MeX: Customer measure of experience [PR19NES_COM01] | X | X | X | |
| D-MeX: Developer services measure of experience [PR19NES_COM02] | X | X | X | |

### Table 2.3: Summary of performance commitments: bespoke performance commitments

| Name of bespoke performance commitment | Type of outcome delivery incentive | | | | |
|---|---|---|---|---|---|
| | Financial | | | | Reputational |
| | Under | Out | In-period | End of period | |
| Satisfaction of Customers who receive additional non-financial support [PR19NES_BES01] | | | | | X |
| Awareness of additional non-financial support [PR19NES_BES02] | | | | | X |
| Response time to written complaints [PR19NES_BES03] | | | | | X |
| Visible leak repair time [PR19NES_BES04] | X | X | X | | |
| Customers' perception of trust [PR19NES_BES05] | | | | | X |
| Percentage of households in water poverty [PR19NES_BES06] | | | | | X |
| Gap sites [PR19NES_BES07] | | | | | X |
| Voids [PR19NES_BES08] | X | X | X | | |
| Interruptions to supply greater than 12 hours [PR19NES_BES09] | X | X | X | | |
| Discoloured water contacts [PR19NES_BES11] | X | X | X | | |
| Taste and smell contacts [PR19NES_BES12] | X | X | X | | |
| Event Risk Index [PR19NES_BES13] | X | | X | | |
| Interruptions to supply between one and three hours [PR19NES_BES14] | X | X | X | | |
| Sewer blockages [PR19NES_BES15] | X | X | X | | |
| External sewer flooding [PR19NES_BES16] | X | X | X | | |
| Repeat sewer flooding [PR19NES_BES17] | X | X | X | | |
| Abstraction incentive mechanism (AIM) [PR19NES_BES18] | X | X | X | | |
| Bathing water compliance [PR19NES_BES19] | X | X | X | | |
| Water environment improvements [PR19NES_BES20] | X | X | X | | |
| Greenhouse Gas Emissions [PR19NES_BES21] | X | X | X | | |
| Bioresources [PR19NES_BES22] | | | | | X |

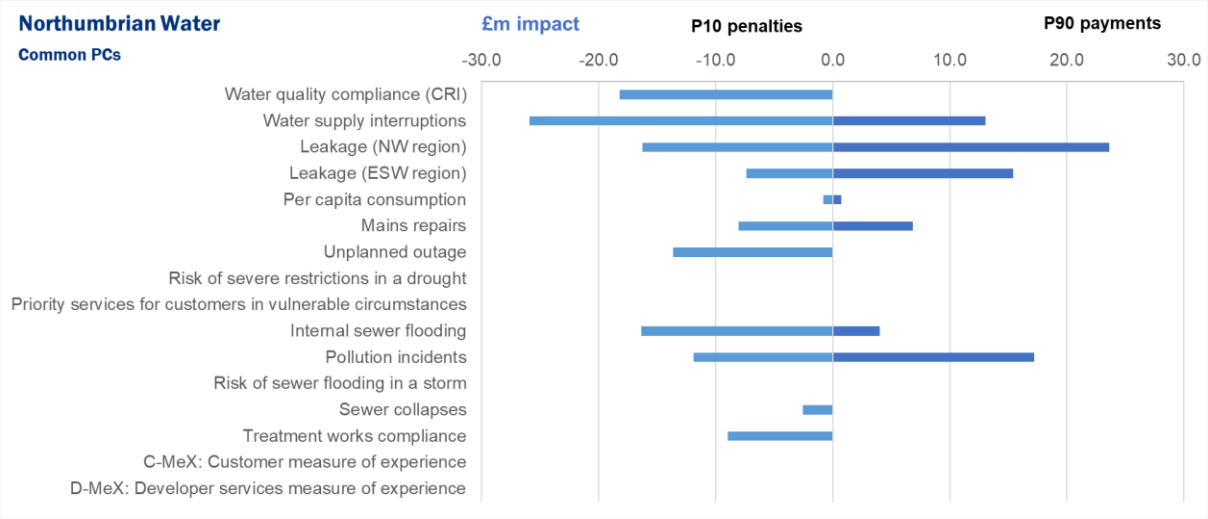
| Name of bespoke performance commitment | Type of outcome delivery incentive | | | | |
|---|---|---|---|---|---|
| | Financial | | | | Reputational |
| | Under | Out | In-period | End of period | |
| Satisfaction of Customers who receive additional financial support [PR19NES_BES01a] | | | | | X |
| Awareness of additional financial support [PR19NES_BES02a] | | | | | X |
| British Standards Institution Award for Inclusive Services [PR19NES_BES23] | | | | | X |
| Delivery of water resilience enhanced programme [PR19NES_BES24] | X | | | X | |
| Delivery of lead enhancement programme [PR19NES_BES25] | X | | | X | |
| Delivery of smart water metering enhancement programme [PR19NES_BES26] | X | | | X | |
| Delivery wastewater resilience enhancement programme [PR19NES_BES27] | X | | | X | |
| Delivery of cyber resilience enhancement programme [PR19NES_BES28] | X | | X | | |
| NWL Independent value for money survey [PR19NES_BES30] | | | | | X |
| WINEP Delivery [PR19NES_NEP01] | | | | | X |
| Water Industry National Environment Programme [PR19NES_BES31] | X | | X | | |
| Delivery of DWMPs [PR19NES_BES32] | | | | | X |
| Sewer flooding risk reduction [PR19NES_BES10] | X | | | X | |
| Delivery of Howdon STW enhancement [PR19NES_BES29] | X | | | X | |

Figure 2.1 and figure 2.2 provide an indication of the financial value of each of Northumbrian Water's outcome delivery incentives (taking into account the impact of our final determination decisions) showing how much the company would have to return to customers if it underperformed to the P10 level and how much the company would gain if it outperformed to the P90 level. The P90 is the performance threshold at which there is only a 10% chance of outturn performance being better. The P10 is the performance threshold at which there is only a 10% chance of outturn performance being worse.

The figures cover common and bespoke commitments respectively. The estimates are based on the company's own view of the plausible bounds of performance submitted in April 2019 submission. Where we have changed service levels for performance commitments, we have amended these estimates so that the distance between the service level and estimate remains the same.

Our analysis has built on the estimates companies have provided, but there is a range of plausible estimates of what may happen in plausible worst case (P10) and plausible best case (P90). There is inherent uncertainty in forecasting these parameters and the figures presented should be seen as indicative of the likely range of financial impacts for each performance commitment.

**Figure 2.1: Projected P10 underperformance payments and P90 outperformance payments for common performance commitments over 2020-25 (£ million)**




Note P10 underperformance payments and P90 outperformance payments for C-Mex: Customer measure of experience and D-Mex: Developer services measure of experience are not shown in this figure but are shown in table 5.1 below.

**Figure 2.2: Projected P10 underperformance payments and P90 outperformance payments for bespoke performance commitments over 2020-25 (£ million)**

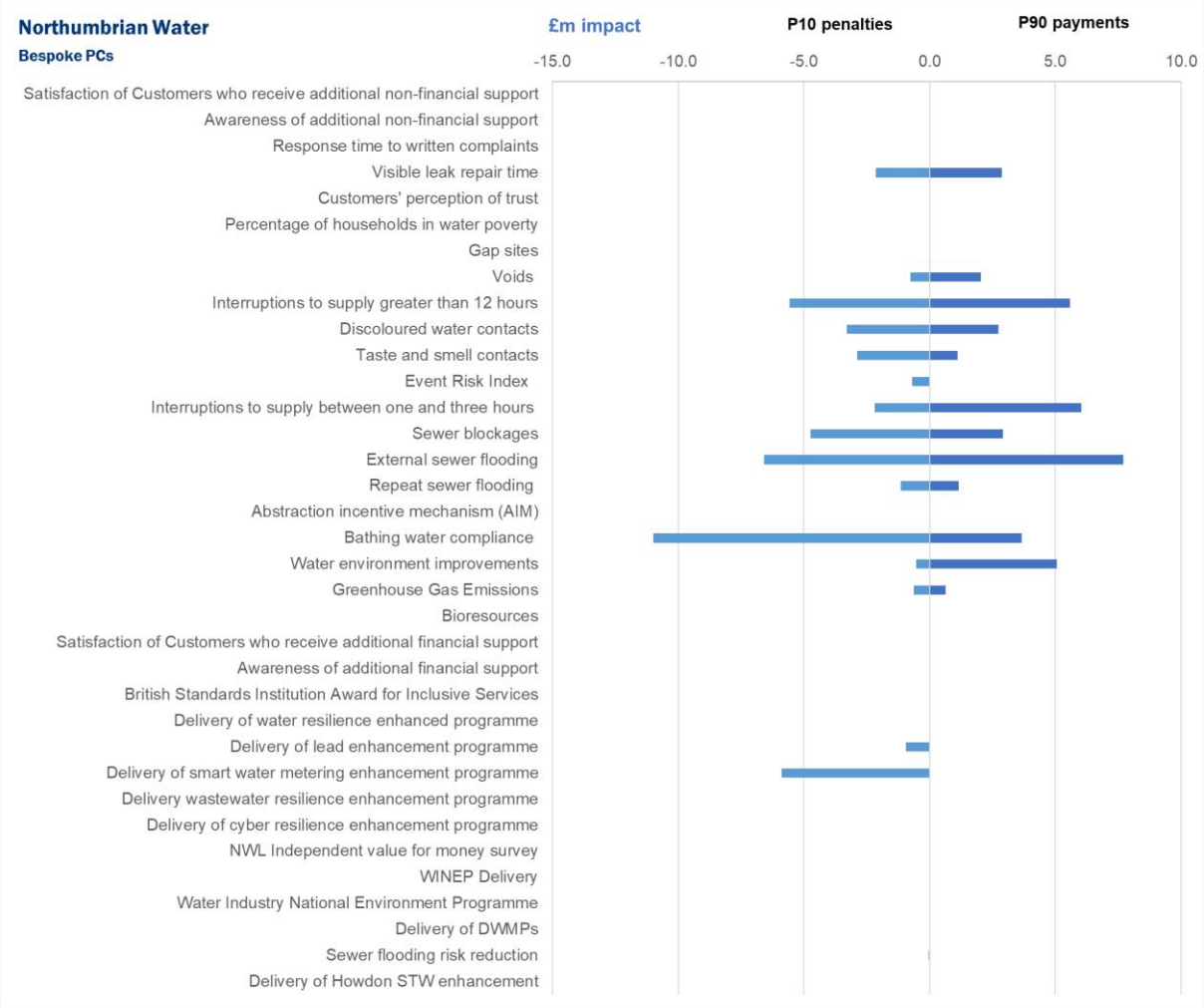



Table 2.4 provides an indication of the financial value of the overall package at the upper and lower extreme levels of performance (expressed as a percentage point impacts on RoRE (return on regulatory equity)) and the overall impact of our final determination decisions. Further information on how we have calculated these values is set out in the 'Delivering outcomes for customers policy appendix'.

**Table 2.4: Impact of draft determination and final determination decisions on RoRE range**

| | Draft determination | | Final determination | |
|---|---|---|---|---|
| | % of 5 year regulatory equity | | % of 5 year regulatory equity | |
| | P10 | P90 | P10 | P90 |
| Northumbrian Water | -3.00 | +1.17 | -1.54 | +1.36 |

The figures in the above tables are estimates. In the PR19 methodology we said that we expect companies to propose approaches to protect customers in case their outcome delivery incentive payments turn out to be much higher than expected. We asked companies, in our initial assessment of business plans 'PR19 initial assessment of plans: Delivering outcomes for customers policy appendix', to put in place additional protections for customers where we considered protections were not adequate.

We are applying caps and collars to financially material and/or highly uncertain performance commitments and allowing caps and collars on other performance commitments where company proposals are supported by high quality customer engagement. Where, through these reasons, the vast majority of companies have caps and collars on a common performance commitment, we will apply caps and collars to all companies.

We are applying a standard sharing mechanism for all companies, where 50% of outperformance payments that exceed 3% of return on regulatory equity (RoRE) in any year are shared with customers through bill reductions in the following year. We set out further detail of the mechanism in the 'Delivering outcomes for customers policy appendix'.

At draft determination we proposed the threshold would be 2% in line with the company proposal as this would provide more protection to customers. In its representations Northumbrian Water highlighted that its proposal is on a net basis, after deducting underperformance payments. This therefore provides less protection to customers than we understood. It is not clear that the company proposal provides more protection than other companies and so we have instead set the threshold on a 3% gross basis in common with all other companies.

In our PR19 methodology, we decided to replace the existing service incentive mechanism (SIM) with two new common performance commitments to incentivise companies to provide an excellent experience for residential customers (our customer measure of experience, or C-MeX) and developer services customers (our

developer services measure of experience, or D-MeX). C-MeX and D-MeX will operate from April 2020 and incentivise companies to improve their performance relative to other water companies and the wider economy.

We set out further details on how C-MeX and D-MeX will operate in the 2020-25 period, including any changes from draft determinations, in the 'Customer measure of experience (C-MeX) and developer services measure of experience (D-MeX) policy appendix'.

## 2.3 Delivering a framework for resilience in the round

Resilience is one of our four themes for PR19. We set out our expectations for water companies' business plans in our PR19 methodology. Overall, Northumbrian Water's September 2018 business plan falls short of demonstrating that the company has applied an integrated resilience framework that will deliver resilience in the round. It does however provide evidence that the company has considered a broad range of options to deliver operational resilience, from traditional engineering options, smart networks and improving response and recovery. The company's business plan also demonstrates sufficient evidence of partnership working to co-create solutions and customer engagement on resilience.

We recognise that it may take some time for companies to fully understand best practice approaches to resilience in the round and implementing a systems-based approach to resilience. In our initial assessment of business plans, we set Northumbrian Water an action (NES.LR.A2) to develop a resilience action plan which demonstrates that it has a framework in place to deliver resilience in the round, and to submit this to us by 22 August 2019. We expected the resilience action plan to build upon the feedback that we provided following our initial assessment of the business plan.

Northumbrian Water's resilience action plan falls short in many areas. In particular we are concerned that:

- it focuses on the delivery of a resilience dashboard. Whilst the dashboard is a useful tool in monitoring and potentially understanding resilience risks, it is not enough on its own to demonstrate the company has a robust framework to delivering resilience in the round.
- the company does not respond to our feedback from the initial assessment of business plans, particularly around its approach to identifying and prioritising risks. We expect the company to clearly respond to our feedback and demonstrate how this informed the development of its action plan.
- it only covers short term actions for 2020-25, with no consideration for long-term activities across planning periods to implement and consolidate the resilience approach. We expect the company to provide an action plan that incorporates

longer term activities, beyond the next planning period, that will improve its resilience approach in the long term.

- it lacks detail on how maturity levels within its proposed dashboard will be defined and assessed. We expect the company to provide details on its approach to understanding its baseline maturity and how it will track improvements over time.

Overall, Northumbrian Water, along with the sector, has further work to do to implement a fully integrated resilience framework. The company should continue to work with the sector, with Ofwat, and across sectors to incorporate best practice and address the concerns highlighted about its resilience framework above. Ofwat plans to engage the sector through its strategy to encourage further joint development of resilience approaches to accelerate best practice through the industry. We also may consider the progress companies have made as part of assessing company business plans in the 2024 price review.

# 3 Cost allowances

## Key changes from the draft determination

- Our final determination allowance for Northumbrian Water is £2,762.8 million for the wholesale services. This compares with £2,739.4 million at draft determination. In retail, our final determination allowance is £250.1 million, compared with £251.5 million at draft determination.
- Our base allowance is affected by a number of changes we have made since draft determination:
  - we include company outturn data from 2018-19 in our econometric models;
  - we exclude non-section 185 diversions costs (i.e., diversions other than those required by section 185 of the Water Industry Act 1991) from our econometric models and allow companies to recover related income outside the price control, from the relevant transport authority;
  - we strengthen the catch-up challenge applied to wholesale modelled base costs. We use the 4th placed company in wholesale water and the 3rd placed company in wholesale wastewater as an efficiency benchmark, rather than the upper quartile company at draft determinations;
  - we reduce the frontier shift challenge from 1.5% per year to 1.1% per year, but we extend to all wholesale base costs.
- We make a £5.0 million downward adjustment to our base allowance for water network plus, and a £21.4 million downward adjustment for wastewater network plus. The adjustments are due to a relatively low forecast of population growth in 2020-25 in the company's supply area.
- We make an additional allowance of £4.8 million to develop Northumbrian Water's Drainage and Wastewater Management Plan.
- We increase our allowance for Northumbrian Water's resilience enhancement proposals by £14 million.

Throughout price review 2019 we set out that we expect companies to demonstrate an increase in cost efficiency. In our final determinations, we set a cost-outcomes package that provides 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 demanding but achievable. It will incentivise companies to innovate, which will pave the way for a more efficient, higher performing sector, with a more meaningful, trusted relationship with customers.

Northumbrian Water submitted a business plan for 2020-25 with expenditure proposals that are significantly above what it has incurred historically. The company's proposed costs are less efficient than our view of efficient costs, in particular in wholesale wastewater and residential retail services. To ensure customers pay only for efficient costs we challenge the company's proposed costs and investment programme where appropriate. At draft determinations, the company had a £317 million (10%) cost gap. Northumbrian Water reduces its requested costs in its August 2019 representations by £110 million. As a consequence of that, and additional costs that we allow for following further evidence submitted by the company, the gap at final determination narrowed to £178.5 million (6%).

Our main challenge to Northumbrian Water's enhancement proposals relates to resilience enhancement and the wastewater environmental programme (WINEP).

Our approach to setting total expenditure (totex) allowances is detailed in our publication 'Securing cost efficiency technical appendix'. In addition to challenging companies to be more efficient we have also, where appropriate, set safeguards to protect customers if specific investments are not delivered as planned.

In the 'Northumbrian Water – Cost efficiency final determination appendix' we provide more detailed information on our cost challenge for enhancement expenditure, our allowance for cost adjustment claims and transitional expenditure and our unit cost adjustments related to uncertain schemes in WINEP.

## 3.1 Allowed expenditure for wholesale services

Table 3.1 shows total expenditure (totex) allowances by year and by wholesale price control for the period 2020-25. We phase our allowed totex over 2020-25 using the company business plan totex profile.

**Table 3.1: Totex[1] by year for wholesale controls, 2020-25 (£ million, 2017-18 CPIH deflated prices)**

| | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | Total | Company August 2019 - total |
|---|---|---|---|---|---|---|---|
| Water Resources | 59.3 | 59.0 | 57.2 | 55.6 | 55.4 | 286.4 | 291.1 |
| Water network plus | 288.9 | 298.7 | 290.5 | 273.1 | 259.6 | 1,410.8 | 1,445.9 |
| Wastewater network plus | 158.2 | 176.0 | 197.9 | 254.4 | 206.1 | 992.6 | 1,106.4 |
| Bioresources[2] | 14.7 | 14.7 | 14.6 | 14.5 | 14.4 | 73.0 | 75.5 |
| **Total** | **521.0** | **548.4** | **560.1** | **597.6** | **535.6** | **2,762.8** | 2,918.9 |

[1] Totex includes all costs. This includes pension deficit recovery costs, third party costs, operating lease adjustments, allowances related to the development of strategic regional water resource solutions and costs that are assumed to be recovered through grants and contributions.
[2] The bioresources control is an average revenue control. The totex allowance in our draft determination is based on a forecast level of tonnes of dry solids.

Table 3.2 sets out the components of our totex allowance. The main components are base and enhancement costs. Base expenditure refers to routine, year on year costs, which companies incur in the normal running of their business to operate, maintain and incrementally improve service to customers. Enhancement expenditure refers to investment for the purpose of enhancing the capacity or quality of service beyond base level.

We adjust allowed costs to reflect a change in the accounting treatment of leases as discussed in the 'Securing cost efficiency technical appendix'. We use the adjustment to operating costs that the company proposed in its business plan.

Our base costs for wholesale water include operating costs (excluding enhancement opex) and maintenance costs. In wholesale water, base costs also include costs associated with the connection of new developments (i.e., new developments and new connection costs) and costs for addressing low pressure. In wastewater, base costs include new connections and growth, growth at sewage treatment works and costs to reduce flooding to properties that were previously assessed as enhancement expenditure.

We adjust allowed costs to reflect a change in the accounting treatment of leases as discussed in the 'Securing cost efficiency technical appendix'. We use the adjustment to operating costs that the company proposed in its business plan.

Our draft determination allowance included all revenues and costs in relation to diversions. This approach was criticised by companies who said that it did not take into account forecast step changes in diversions costs for some companies as a result of large infrastructure projects such as High Speed 2 (HS2). Following our draft determinations consultation, we exclude revenue relating to diversions other than those required by section 185 of the Water Industry Act 1991 ('non-section 185 diversions').

Non-section 185 diversions costs are included in table 3.2. Companies will be able to recover most of the non-section 185 diversions costs directly, usually from transport authorities, outside of the price control. This is in addition to our total revenue allowance.

**Table 3.2: Totex by wholesale price control and type of cost, 2020-25 (£ million, 2017-18 CPIH deflated prices)**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Base expenditure | 246.3 | 1,212.9 | 800.0 | 71.8 | 2,330.9 |
| Enhancement expenditure | 14.5 | 155.2 | 182.7 | - | 352.4 |
| Operating lease adjustment | -0.2 | -1.1 | -2.7 | -0.1 | -4.1 |
| **Gross allowed totex for calculation of cost sharing rates** | **260.7** | **1,367.0** | **979.9** | **71.6** | **2,679.2** |
| Strategic regional water resources solutions and other cash items | - | - | - | - | - |
| Third party costs | 24.1 | 15.5 | 1.5 | - | 41.1 |
| Non-section 185 diversions | - | 4.1 | 1.3 | - | 5.4 |
| Ex-ante cost sharing adjustment | - | - | - | - | - |
| **Gross totex** | **284.8** | **1,386.5** | **982.7** | **71.6** | **2,725.7** |
| Grants and contributions after adjustment for income offset[1] | - | 112.8 | 20.3 | | 133.1 |
| **Net totex (for PAYG calculation)** | **284.8** | **1,273.7** | **962.4** | **71.6** | **2,592.5** |
| Pensions deficit recovery costs[2] | 1.6 | 24.2 | 9.9 | 1.3 | 37.1 |
| **Total** | **286.4** | **1,297.9** | **972.3** | **73.0** | **2,629.6** |

[1] Includes price control and non-price control grants and contributions.
[2] We are displaying pension deficit recovery costs separately as they are not included in the calculation for PAYG (see section 4).

## Movement in allowed wholesale expenditure between draft and final determinations

Table 3.3 compares our totex allowance at final determination to our allowance at draft determination. The table only includes base and enhancement expenditure. That is, it excludes pension deficit recovery costs, third party costs, and costs for strategic regional water resources development where relevant.

Following the change in approach to non-section 185 diversions costs discussed above, for final determinations, our allowance also excludes non-section 185 diversions costs of the amount stated in table 3.2. Our draft determinations allowance does not exclude these costs.

Table 3.3 also provides the company's requested costs in its April 2019 submission, and its revised requested costs in August 2019, in response to our draft determinations for slow-track companies. Table 3.4 provides further detail.

**Table 3.3: Totex by service, 2020-25 (£ million, 2017-18 CPIH deflated prices)**

| Price Control | Company April 2019 | Company August 2019 | Draft determination allowance | Final determination allowance |
|---|---|---|---|---|
| Wholesale water | 1,716.7 | 1,664.6 | 1,611.2 | 1,628.9 |
| Wholesale wastewater | 1,214.9 | 1,167.8 | 1,053.2 | 1,054.4 |
| **Total** | **2,931.5** | **2,832.4** | **2,664.4** | **2,683.3** |

**Table 3.4: Totex by type of cost, 2020-25 (£ million, 2017-18 CPIH deflated prices)**

| | Draft determination allowance | Final determination allowance |
|---|---|---|
| Base expenditure | 2,321.8 | 2,330.9 |
| Enhancement | 342.6 | 352.4 |
| - Environmental obligations (WINEP) | 159.3 | 152.3 |
| - Supply-demand balance and metering enhancement | 43.1 | 43.1 |
| - Resilience enhancement | 89.4 | 103.6 |
| - Other enhancement (e.g. raw water deterioration, security, meeting lead standards, first time sewerage) | 50.9 | 53.4 |

## 3.2 Wholesale base expenditure

Table 3.5 shows a comparison between the company's requested and our allowed base expenditure.

**Table 3.5: Base expenditure, 2020-25 (£ million, 2017-18 CPIH deflated prices)**

| Price Control | Company August 2019 | Final determination allowance |
|---|---|---|
| Water Resources | 248.4 | 246.3 |
| Water Network plus | 1,205.5 | 1,212.9 |
| Wastewater Network plus | 864.0 | 800.0 |
| Bioresources | 74.1 | 71.8 |
| **Total** | **2,392.1** | **2,330.9** |

[1] Company business plan base costs exclude enhancement opex.

For final determinations, we retain our approach of including growth related expenditure in our base econometric models. We have also made an adjustment depending on whether the company operates in an area with a relatively high or low forecast of population growth, relative to the historical average for the sector. This follows representations made at draft determinations that the models did not adequately compensate for companies with a high growth forecast. We also consider that the models overcompensate for companies that operate in an area with a low growth forecast. We consider that using the symmetrical adjustment approach set out in our PR19 methodology best accommodates for these factors.

As the population growth forecast in Northumbrian Water for the period 2020-25 is lower than the historical average growth rate in the sector, we make a downward adjustment of approximately £5.0 million to Northumbrian Water's wholesale water base allowance, and a downward adjustment of approximately £21.4 million to its wholesale wastewater base allowance. More details of our approach can be found in the 'Securing cost efficiency technical appendix'.

Northumbrian Water requests £9.2 million to develop Drainage and Wastewater Management Plans (DWMPs) in line with the DWMP framework published by Water UK. At draft determination, we did not consider there was sufficient evidence to make an adjustment to our base allowance for costs associated with the development of the DWMPs. Following our review of the outcome of Defra's recent consultations on DWMPs, and the additional information in Northumbrian Water's representation, we agree that some additional investment is required to develop DWMPs to ensure a more consistent basis for long-term planning of drainage and wastewater services as recognised by the 21st Century Drainage Programme supported by Water UK, Defra and the EA. As a result, we make a partial allowance of £4.8 million in line with our DWMPs cost estimate approach, described in the 'Securing cost efficiency technical appendix'.

## Reducing sewer flooding risk for properties

Northumbrian Water submits proposals for a £86 million programme to proactively reduce flooding risk to properties due to climate change. At draft determination we did not make an adjustment to our base allowance for this programme because our base allowance already includes an allowance for companies to reduce sewer flooding risk for properties. We expect investments in this area to improve resilience for flooding from sewers.

In its representation on the draft determination, Northumbrian Water provides additional evidence to support the need for its proposed £86 million investment. The company advises that the proposed investment is 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 presents external research, forward-looking analysis and uses hydraulic modelling to demonstrate the anticipated impact.

The company provides letters of support for the investment from the Environment Agency and Durham County Council, North Tyneside Council, South Tyneside Council and Darlington Borough Council. It also advises that the investment is supported by the company's Water Forum, its customer challenge group.

We note that, relative to other companies, Northumbrian Water is currently a poorer performer on sewer flooding. We welcome the company's proactive approach and ambition to reduce sewer flooding risk. The sector has been mitigating the effects of climate change and urban creep in previous periods. Our base econometric models use historical expenditure data on sewer flooding risk reduction (together with other base costs). The allowances we make from our base econometric models would therefore include an 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.

Comparing an estimate of our implicit allowance for sewer flooding risk reduction in our base allowance to the investments that companies request in their business plans, we find that the implicit allowance is generally higher. We consider therefore that our base allowance is sufficient to cover costs in this area under current circumstance. We do not find sufficient and convincing evidence that the company will face exceptional pressures relative to the wider industry or historical rates of change to warrant an allowance additional to that provided for through our models.

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. 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. For the final determination, we maintain our decision not to make a further cost adjustment in respect of the specific sewer flooding programme above.

See section 2 for more information on our final determination regarding Northumbrian Water's performance commitments relating to flooding.

## 3.3 Enhancement expenditure

For wholesale enhancement expenditure we challenge the scope of work, the evidence provided to support solution options and the efficient delivery of programmes. We cost benchmark with the rest of the industry where we can. In particular, we challenge the expenditure proposed by Northumbrian Water for its resilience enhancement programme and for the WINEP.

Table 3.6 summarises our allowances for enhancement expenditure.

**Table 3.6: Enhancement expenditure, 2020-25 (£ million, 2017-18 CPIH deflated prices)**

| Price Control | Company August 2019 | Final determination allowance |
|---|---|---|
| Water Resources | 14.6 | 14.5 |
| Water Network plus | 196.1 | 155.2 |
| Wastewater Network plus | 229.6 | 182.7 |
| Bioresources | 0.0 | - |
| **Total** | **440.3** | **352.4** |

Our final determination allows Northumbrian Water £352 million to invest in improvements to service, resilience and the environment. Key parts of this allowance are:

- £152 million to improve the environment by efficiently delivering its obligations as set out in the WINEP programme;
- £104 million to deliver improved resilience at critical areas of its infrastructure;
- £43 million to install more than 450,000 smart meters and promote water efficiency; and
- £29 million to address the impact of deteriorating raw water quality.

Below we discuss key areas of our determination on enhancement cost proposals. Our document 'Northumbrian Water - Cost efficiency final determination appendix' sets out in more detail the cost allowances by investment area for each price control, and we give full reasoning in our published cost assessment models (enhancement feeder models and cost claims feeder models).

### Wastewater Environmental obligations (WINEP)

The company requests £174 million for its wastewater WINEP investment. We allow £138 million. Our comparative assessment of WINEP costs shows Northumbrian Water's proposals to be inefficient in its phosphorus removal programme and efficient in network storage schemes. The company argues that the need to replace particular types settlement tanks justifies an adjustment to its phosphorus removal costs. We do not accept that an adjustment is necessary. Historical choices of technology are within management control.

### Water resilience

In our draft determination we allowed £55.8 million for water resilience enhancements, namely: 'Lartington mains and Tees strategic mains reinforcement' (£21.4 million); 'Springwell SR and South Tyneside strategic mains reinforcement' (£29.3 million); 'too critical to fail sites' (£4.5 million); and 'low value-high impact single point of failure schemes' (£0.6 million). Northumbrian Water provides additional evidence in its representations for three investments, which are discussed below.

Our final determination on water resilience enhancements makes an additional allowance of £7.9 million for the 'Suffolk resilience' investment (£14.5 million requested) to provide treated storage for customers with no protection against the risk of outage at Barsham treatment works. At draft determination we did not make an allowance for this investment. After considering the evidence Northumbrian Water provides in its representation, we now make an allowance, because we recognise the need to reduce the risk of supply interruptions to 37,000 customers. However, we do not accept the need for mains renewal (£4.1 million) to increase the transfer capacity to Ormesby treatment works. The company does not sufficiently demonstrate the risk that customers are exposed to or the mitigation that will soon be provided through the Lound to Gorleston pipeline scheme. In addition, we apply further cost challenges on the basis of insufficient evidence that a range of options have been considered and that the proposed costs are robust and efficient.

We maintain our decision not to allow enhancement costs for the 'Essex resilience' investment (£20.4 million) to provide a raw water transfer between Abberton and Hanningfield reservoirs. The drawing down risk of Hanningfield reservoir described by Northumbrian Water is closely linked to algal and turbidity outage at Layer WTW, or to treatment works maintenance activities that are within management control. We make an allowance to mitigate the risk of algal and turbidity outage through the 'DAF treatment at Layer' investment, as part of our assessment of costs to address deterioration in raw water quality. Other risks considered by the company are either outside of the scope of resilience enhancement investments (for example low rainfall and population growth), or insufficiently evidenced to demonstrate that they can, by themselves, cause significant risk to customer supply. Further, the company does

not consider the raw water transfer a priority scheme, but rather a discretionary investment within its water resources management plan.

Finally, we also maintain our decision not to allow enhancement costs (£3.9 million) for a larger service reservoir at Springwell (62Ml), beyond the capacity we allowed at draft determination of 42.75Ml, as we consider that the risk posed by hazardous ground conditions in parts of the Wearside area is not sufficiently defined and any additional capacity provides an asset health benefit to storage reservoirs in the area, which is covered by the allowance for base expenditure.

As a result of the above, our final determination makes an allowance of £63.7 million for water resilience enhancements.

### Wastewater Resilience

Our draft determination for wastewater resilience enhancements allowed Northumbrian Water to invest £33.6[5] million to protect wastewater treatment assets from pluvial and fluvial flooding. We did not make an allowance for failure of assets at Howdon sewage treatment works.

For final determinations Northumbrian Water proposes £50.8 million of investment in wastewater resilience enhancements. In its representations the company considers that we applied a cost challenge for lack of evidence of options it considered for its investment in flood protection. This was not the case and we confirm that we did not apply an optioneering challenge. We maintain our draft determination decisions for this investment (£33.9 million[6]).

At Howdon sewage treatment works we accept the need for investment in duplicate assets at the primary effluent and south bank pumping stations at which the company advises there are no feasible management control options for the loss of a critical asset. Loss of these critical assets would result in a category 1 pollution incident. We do not accept the need to invest to duplicate an asset at the activated sludge pumping station to mitigate risk of failure due to fire. The company receives a base allowance for installing and maintaining appropriate fire warning and suppression equipment. We expect the company to use its base allowance to fund such activities and mitigate this risk. In addition, we apply further cost challenges to the investment on the basis of insufficient evidence that a range of options have been considered and that the proposed costs are robust and efficient. In comparison to our draft determination allowance we allow an additional £6.0 million to mitigate risks at Howdon sewage treatment works.

[5] Amendment made to figure, from £39.9million to £33.6 million
[6] Amendment made to figure from £39.9million to £33.9 million

As a result of the above, our final determination allowance for wastewater resilience enhancement is £39.9 million.

### Water metering programme

Northumbrian Water requests £43.1 million to install new smart meters and replace existing basic meters with smart meters. For final determination, we make no change in our allowance from draft determination and we allow the company request in full.

### Addressing deteriorating raw water quality

In our draft determination we allowed £26.4 million for enhancements at Layer and Mosswood water treatment works to address deteriorating raw water quality. In its representations Northumbrian Water provides evidence of Drinking Water Inspectorate support and additional detail for these schemes. The company also provides further information in response to our queries.

The query responses identify that the costs include opex to run the enhanced treatment works. Following representations by a number of companies we revise our forecast of water treatment complexity in the modelling of these operational costs in our base model. We therefore make no allowance for these operational costs in the raw water deterioration enhancement category.

In our assessment of capex we find robust evidence of the option selection for the Mosswood scheme. The company provides limited evidence of optioneering undertaken for the Layer scheme and we consider it insufficient to demonstrate robust option selection. To reflect the limitation of the information the company provides we retain a 10% challenge to the Layer scheme's costs.

Our final determination allowance for enhancement to address deteriorating raw water quality is £28.9 million.

### Drinking water protected areas

Given the likely ban on the use of metaldehyde, we do not allow these costs as part of our of our totex allowance, but make provisions for the company to recover these costs, should the ban on metaldehyde not be applied, under an uncertainty mechanism. (see Northumbrian Water – Cost efficiency final determination appendix).

### Security of water and wastewater sites

Northumbrian Water requests £15.3[7] million in its August 2019 representation for security which includes work to comply with the Network and Information Systems

[7] Amendment made to figure from £16.8 million to £15.3 million

(NIS) Directive and the Security and Emergency Measures Direction (SEMD). The NIS Directive costs relate to protecting its assets and data from cyber threats and also costs relating to its secure operations centre. The SEMD costs relate to improving security at key sites and improvements to mitigate the loss of piped water.

We considered in our draft determination that the company provided sufficient and convincing evidence to demonstrate the need for its non-SEMD costs and also included a performance commitment to protect customers. We disallowed its SEMD costs as we considered these costs should now be covered by its base allowance. We maintain these decisions for our final determination.

For water, we disallowed its SEMD costs at draft determination as the company has already spent above average on SEMD and we consider these costs should now form part of its base allowance. The company states in its representation that it accepts our draft determination except for the disallowance of emergency response funding. We maintain our decision to not allow further SEMD costs for its water business as we do not consider the company provides sufficient and convincing evidence to demonstrate why these costs should not be funded from its base allowance as the proposed work does not provide a significant enhancement to its service.

For wastewater, at draft determination we reduced the allowance to £3.9 million to bring its wastewater security costs in line with other companies. The company accepts this in its August 2019 representation and we allow these costs for our final determination.

## 3.4 Cost sharing

In the water resources, water network plus and the wastewater network plus controls we have a cost sharing arrangement. In these controls, when a company overruns its totex allowance, the additional cost incurred above our allowance will be shared between its investors and customers. When a company spends less than its totex allowance, it will share the benefits with customers.

For the draft determinations we calculated each company's cost sharing rates based on the ratio of the company's view of costs in its September 2018 business plan relative to our view of efficient costs. For the final determinations, we calculate the company's view of costs based on a 50% weight on the company's final cost proposals in its August 2019 representation to the draft determination and 50% weight on the September 2018 business plan. We explain our approach to calculating cost sharing rates in the 'Securing cost efficiency technical appendix'.

Table 3.7 sets out the cost sharing rates for PR19 and net totex that is subject to cost sharing at the end of the 2020-25 period. We calculate cost sharing rates based

on totex gross of grants and contributions (but after making adjustments for operating leases and excluding costs of strategic regional water resources development costs, third party costs and pension deficit recovery costs). At the end of the 2020-25 period, we will apply cost sharing to totex net of grants and contributions.

For final determination we introduce an uncertainty mechanism for business rates and abstraction charges. Under the uncertainty mechanism these costs are subject to different cost sharing rates. We discuss the uncertainty mechanism in section 4.4.5. Our allowance for business rates and abstraction charges costs are excluded from table 3.7.

**Table 3.7: Cost sharing rates for 2020-25 and totex for end-of-period reconciliation[8]**

| | Water resources | Network plus – water | Network plus – wastewater |
|---|---|---|---|
| Company view of totex – September 2018 business plan | 262.9 | 1,451.8 | 1,171.9 |
| Company view of totex – representations on draft determination | 262.9 | 1,401.6 | 1,093.7 |
| Weighted company view of totex | 262.9 | 1,426.7 | 1,132.8 |
| Gross allowed totex for calculation of cost sharing rates | 260.7 | 1,367.0 | 979.9 |
| Cost sharing ratio | 1.04 | | 1.16 |
| Cost sharing rate – outperformance | 46% | | 34% |
| Cost sharing rate – underperformance | 54% | | 66% |
| Grants and contributions before the deduction of income offset (£m) | - | 109.8 | 17.7 |
| Abstraction charges and business rates | 158.5 | 172.3 | 32.3 |
| Net allowed totex subject to cost sharing reconciliation | 102.2 | 1,084.8 | 930.0 |

[8] Amendments made to Grants and contributions before the deduction of income offset (£m) for: Network plus – water and Network plus – wastewater, and amendment made to Net allowed totex subject to cost sharing allocation (£m) for Network plus – water and for Network plus – wastewater

## 3.5 Allowed expenditure in residential retail

Table 3.8 sets out our total expenditure allowance for residential retail. Our allowance does not include any of our allowed pension deficit recovery costs. These costs have been wholly allocated to wholesale controls.

Based on our benchmarking analysis, Northumbrian Water is among the least efficient companies in residential retail on a forward-looking basis. Our allowance for the company is 11% lower than what it requests. Our challenge is therefore significant, likely reflecting a lack of self-challenge from the company on its business plan proposals in residential retail relative to other companies and relative to its historical expenditure. We maintain our view that our residential retail allowance provides an appropriate basis for setting cost allowances for Northumbrian Water.

The company did not submit any cost adjustment claims for residential retail.

**Table 3.8: Expenditure, residential retail, 2020-25 (£ million, nominal)**

| | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | Total |
|---|---|---|---|---|---|---|
| Residential retail | 48.9 | 49.5 | 50.0 | 50.6 | 51.1 | 250.1 |
| Company view | 54.4 | 55.2 | 55.9 | 56.6 | 57.4 | 279.6 |

Note the residential retail control is an average revenue control. Allowed cost and the associated allowed revenue is based on a forecast of the number of customers. There will be an end-of-period true up based on the actual number of connected households.

## 3.6 Direct procurement for customers

We set out in our PR19 methodology that we expect company business plans to consider direct procurement for customers where this is likely to deliver the greatest value for customers. Direct procurement for customers promotes innovation and resilience by allowing new participants to bring fresh ideas and approaches to the delivery of key projects. Companies are to consider direct procurement for customers for discrete, large-scale enhancement projects expected to cost over £100 million, based on whole-life totex.

Northumbrian Water's business plan did not identify any schemes that are suitable for direct procurement for customers.

We expect any major schemes which may arise due to significant changes to Northumbrian Water's business plan, including in respect of the Howdon Sewage Treatment Works, to be reviewed against the direct procurement for customers criteria, as detailed in the PR19 methodology. If the criteria are met, we expect

Northumbrian Water to undertake further work to review detailed costs and commitments to ensure delivery is via the most efficient route, and to assess delivery via direct procurement for customers, to ensure that customers receive the best value.

# 4 Calculation of allowed revenue

### Key changes from the draft determination

The key changes we are making to the calculation of allowed revenue in the draft determination are:

- We allow £3,371.1 million of revenue across all price controls for Northumbrian Water in the final determination, compared to £3,287.0 million in the draft determination and £3,523.8 million in the company's April 2019 revised business plan.
- The allowed return on capital for the wholesale price controls is 2.92% (on a CPIH basis, 1.92% on a RPI basis), a reduction of 0.16 percentage points from our draft determination, based on our assessment of market evidence. The allowed retail margin for the household retail control remains at 1.0%, consistent with the draft determination.
- Taking account of company representations, we revise our approach to determine the mix of operating and capital expenditure to take better account of the nature of our decisions on cost allowances. We apply the updated approach in our technical intervention to PAYG rates.
- We increase PAYG rates to bring forward allowed revenue by £25 million to address a notional financeability constraint.
- Allowed revenue includes Northumbrian Water's contribution to the innovation competition.
- We revise our approach to calculating grants and contributions.
- We reflect Northumbrian Water's latest information on its actual performance in 2018-19 and expected performance in 2019-20 from its 15 July submission and 30 August representation.
- Our final determination includes finalised scores for 2018-19 in the residential retail service incentive mechanism. This reduces revenue by £0.5 million compared to the draft determination. We also correct a known error in our draft determination model affecting Yorkshire Water, which Northumbrian Water made representations on.

This section sets out the calculation of allowed revenue for each of the price controls, based on our assessment of efficient costs. We set out in section 4.1 the components of allowed revenue for each of the price controls. We then set out information relevant to the calculation of the components of that allowed revenue in sections 4.2 and 4.4.

## 4.1 Allowed revenue

We calculate revenue separately for each of the wholesale controls and for the residential retail control. We set out the calculation of five year revenues for each of these controls in this section.

### 4.1.1 Wholesale controls

For the wholesale controls (that is water resources, water network plus, wastewater network plus and bioresources), allowed revenue is calculated based on the following elements, not all elements are applicable to all wholesale controls as set out in table 4.1.

- Pay as you go (PAYG) – this reflects the allocation of our efficient totex baseline to costs that are recovered from revenue in 2020-25. The proportion of totex not recovered from PAYG is added to the RCV which is recovered over a longer period of time.
- Allowed return on capital – this is calculated based on our assessment of the allowed return on capital multiplied by the average RCV for each year.
- RCV run-off – this reflects the amount of RCV that is amortised from the RCV in the period of the price control.
- PR14 reconciliations – this reflects the application of out/underperformance payments from PR14 through revenue adjustments in 2020-25.
- Corporation tax allowance – this is estimated from projected corporation tax rates, profit forecasts and assumed levels of tax relief contained in our financial model for the draft determination.
- Grants and contributions – this represents revenue that we expect to be received from developers in respect of work undertaken by companies to service new developments. It includes income from connection charges, infrastructure charges and s185 diversion recharges. The total grants and contributions amount deducted from totex may not agree to this amount, as we only include grants and contributions income relating to the price control (and some income is outside the price control).
- Non-price control income – income from charges excluded from the price controls. For example, this includes bulk supplies, standpipes, unmeasured cattle troughs, and other services. In a change from our draft determination, we also now include diversions recharges which are in respect of the New Roads and Street Works act 1991 activities and other non-section 185 diversions. We deduct the forecast income from these charges from the allowed revenue, because costs relating to these charges are included in the calculation of allowed revenue.
- Innovation competition – 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. The amount each company's customers will contribute will be proportionate to individual company revenue at draft determinations. We expect the revenue collected from customers to be ring-fenced and administered so that it will not be used for purposes other than the innovation competition.

- Revenue re-profiling – 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. The financial model calculates revenue adjustments on a net present value (NPV) neutral basis.

We set out the calculation of the allowed revenue for Northumbrian Water's wholesale controls in table 4.1. We summarise the total of the build up of allowed revenue as five year totals, however our financial model calculates the allowed revenue on an annual basis for the purposes of our draft determination. We state the allowed revenue for each price control on an annual basis in section 6.

We explain how we calculate PAYG, RCV run-off and the allowed return on capital in section 4.2, the revenue adjustments for PR14 reconciliations in section 4.3, and other elements of allowed revenue in section 4.4.

### Table 4.1: Calculation of allowed revenue (£ million)

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total – Final determination | Total - Draft determination |
|---|---|---|---|---|---|---|
| Pay as you go | 261.9 | 766.5 | 381.0 | 31.1 | 1,440.6 | 1,346.5 |
| RCV run-off | 78.4 | 437.8 | 448.5 | 50.8 | 1,015.5 | 1,033.3 |
| Allowed return on capital | 33.8 | 221.9 | 234.5 | 16.7 | 506.8 | 550.8 |
| Revenue adjustments for PR14 reconciliations | 0.0 | 0.0 | -0.7 | 0.0 | -0.7 | 1.7 |
| Fast track reward | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tax | 9.0 | 25.7 | 25.5 | 6.1 | 66.3 | 62.6 |
| Grants and contributions after adjustment for income offset (price control) | 0.0 | 108.3 | 17.7 | 0.0 | 126.0 | 82.6 |
| Deduct non-price control income | -6.9 | -35.0 | -8.5 | 0.0 | -50.4 | -50.4 |
| Innovation competition | 0.0 | 7.2 | 4.6 | 0.0 | 11.8 | 0.0 |
| Revenue re-profiling | -0.1 | -0.4 | -0.3 | 0.0 | -0.8 | -0.2 |
| Final allowed revenues | **376.1** | **1,531.9** | **1,102.3** | **104.7** | **3,115.0** | **3,026.9** |

We set out the calculation of allowed revenue for each wholesale control on an annual basis in the 'Northumbrian Water - Allowed revenue appendix' in tables 1.1 to table 1.4.

In our new strategy for regulating water and wastewater companies in England and Wales, we highlight that innovation is crucial for meeting the challenges the sector faces.

The adoption of innovative approaches is key to delivering long-term resilience and great customer service at an affordable price, and the sector will need to step up and increase innovation in order meet the strategic challenges it faces in a cost-effective and sustainable way. We also want to see companies work more effectively together and with their supply chain to better tackle these challenges.

Our outcomes and total expenditure approach facilitate this innovation, by giving companies the flexibility and freedom to adopt innovative means of delivering services. We are promoting innovation by setting Northumbrian Water stretching outcome performance commitments. Our outcome delivery incentives approach means that companies have to return money to customers where they fall short, but it also gives companies the opportunity to earn additional financial payments if they successfully improve performance and deliver for customers above and beyond the level expected of most companies. This encourages companies to look for innovative ways of delivering better services to customers and improving the environment.

However, as well as our existing package of measures which encourages companies to innovate individually, we have been considering how we can stimulate innovation more widely in the sector and encourage collaborative innovation initiatives.

In our new strategy consultation[9], we explored options for customer-funded interventions designed to drive innovation to benefit customers in the longer-term. Having reviewed the responses to the consultation, we are publishing our decision in 'Driving Transformational Innovation in the Water Sector' alongside the PR19 final determinations, confirming that we are making up to £200 million available for innovation activities for the period 2020-25 through the introduction of an innovation competition. We will work together with companies and other stakeholders in the sector to set up a competition which will effectively drive innovation in the sector to the benefit of customers across England and Wales.

## Residential retail control

For the residential retail control, allowed revenue is calculated as:

- Retail cost to serve – this reflects our efficient view of costs per customer for the retail business.
- Net margin on wholesale and retail activities – this is calculated based on the wholesale revenue applicable to residential retail customers, plus the retail cost

[9] Ofwat's emerging strategy: Driving transformational innovation in the sector.

to serve, with a net margin applied. Net margins are calculated excluding any adjustments to residential retail (see table 4.2 below) – the full calculation is set out in our financial models.

- Our methodology set out an early view of the retail margin that applies for the retail price controls. This was used by Northumbrian Water in its business plan and is unchanged in our final determinations.

Allowed revenue for the residential retail control is set on a nominal basis. We present the make-up of the allowed revenue in nominal prices in table 4.2.

**Table 4.2: Retail margins, 2020-25 (nominal price base)**

| | Draft determination | Final determination |
|---|---|---|
| Total wholesale revenue - nominal (£m) | 3,204.6 | 3,270.6 |
| Proportion of wholesale revenue allocated to residential (%) | 77.5% | 77.5% |
| Residential retail costs (£m) | 251.5 | 250.1 |
| **Total retail costs (£m)** | **2,733.9** | **2,784.1** |
| Residential retail net margin (%) | 1.0% | 1.0% |
| **Residential retail net margin (£m)** | **27.7** | **28.2** |
| Residential retail adjustments (£m)[1] | 6.9 | 5.2 |
| **Residential retail revenue (£m)[2]** | **286.1** | **283.4** |

[1] Residential retail adjustments for the PR14 residential retail service incentive mechanism and residential retail revenue reconciliations are set out in table 4.11. The figures in table 4.2 are in nominal prices, and the figures in 4.11 are in 2017-18 FYA CPIH deflated prices. The difference between the two tables is due to the difference in price bases.
[2] Residential retail revenue is the sum of the net margin, retail costs, and adjustments. Company view may not sum as this may include other adjustments.

We set out the calculation of residential retail revenue on an annual basis in the 'Northumbrian Water - Allowed revenue appendix' in table 1.5.

## 4.2 Cost recovery now and in the long term for the wholesale controls

Our totex cost allowances are sufficient to meet an efficient company's operating and capital expenditure. Companies recover this expenditure either in period from current customers using PAYG or add it to the RCV and recover from future generations of customers using the RCV run-off rates. Consistent with our methodology, we assess how each company's choice of PAYG and RCV run-off rates reflect the levels of proposed expenditure, bill profiles, affordability and customer views relevant to the short and the long term.

To determine the allowed revenue, the PAYG rate is applied to the totex allowance for each wholesale control for each year of the price control. The proportion of the totex allowance that is not recovered in PAYG is added to the RCV and recovered from customers in future periods. For the final determinations we revise our approach to the calculation of PAYG rates to better reflect the source of changes we make to costs claimed by companies as a result of our totex cost assessment. Our revised approach follows a process of further consultation with companies following the submission of representations on the draft determination. We explain our revised approach in 'Securing cost efficiency technical appendix'.

In this section we set out our approach to calculating the PAYG rates, the RCV to which the allowed return on capital is applied and the RCV run-off rates.

### 4.2.1 PAYG in allowed revenue

We calculate total PAYG totex for each year of each wholesale price control based on the totex allowance for each year multiplied by the relevant PAYG rate for that year. To this we add allowed pension deficit recovery costs to derive total PAYG revenue.

We summarise in table 4.3 the average PAYG rates across 2020-25 for each wholesale control, and the calculation of total PAYG revenue. The PAYG rates shown in the table are a weighted average across the five years 2020-25, the annual PAYG revenue and PAYG rates for each wholesale control are shown in the 'Northumbrian Water - Allowed revenue appendix', tables 2.1 to 2.4.

To PAYG totex we add the allowed costs for pension deficit recovery set out in table 3.2 to derive the total amount to be recovered in 2020-25 for each price control.

### Table 4.3: PAYG allowances for each wholesale control (5 year)

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Totex allowance (£m) | 284.8 | 1,273.7 | 962.4 | 71.6 | 2,592.5 |
| Final determination PAYG rate (%) | 91.4% | 58.3% | 38.6% | 41.6% | 54.1% |
| Pay as you go totex (£m) | 260.3 | 742.3 | 371.0 | 29.8 | 1,403.5 |
| Pension deficit recovery cost (£m) | 1.6 | 24.2 | 9.9 | 1.3 | 37.1 |
| **Total pay as you go (£m)** | **261.9** | **766.5** | **381.0** | **31.1** | **1,440.6** |

### Table 4.4: PAYG rates for each wholesale control (5 year)

| | Water resources | Water network plus | Wastewater network plus | Bioresources |
|---|---|---|---|---|
| Original company plan (%) | 90.5% | 52.2% | 35.2% | 40.8% |
| Draft determination (%) | 90.5% | 53.0% | 34.8% | 40.8% |
| Final determination (%) | 91.4% | 58.3% | 38.6% | 41.6% |

In the draft determination, we applied Northumbrian Water's approach to PAYG rates of recovering in each year an amount equivalent to operating costs. In its representations, Northumbrian Water states PAYG rates should be consistent with the composition of the allowed costs with all enhancement costs allocated to capex.

For our final determination we apply the same approach as for the draft determination. Taking account of company representations, we have revised our approach to the calculation of the mix of operating and capital expenditure following our totex interventions.

In order to calculate the mix of operating and capital expenditure we follow the approach set out in 'Securing cost efficiency technical appendix'. We set out how we

apply the technical intervention in the 'Aligning risk and return technical appendix' and we have published our calculation of the PAYG rates for each company alongside our determinations.

Following our assessment of notional financeability of the final determination, we are increasing PAYG rates for all years for all wholesale controls by 0.93% to increase cash flows in the 2020-25 period and to align to credit ratios targeted by the company on a notional basis, bringing forward £25 million of allowed revenue from future periods. We set out our financeability assessment in section 5.2.

The movements in PAYG rates between the company plan, the draft determination and final determination reflect the differences in the mix of operating and capital expenditure in our totex allowance along with the increase to PAYG rates for notional financeability in the final determination.

### 4.2.2 Opening RCV adjustments

As part of its business plan Northumbrian Water proposed allocations of the RCV for both water resources and bioresources price controls based on Ofwat guidance. We are allocating the company's RCV between the existing wholesale controls and these new controls in accordance with the proportions proposed by Northumbrian Water.

We make reconciliation adjustments ('midnight adjustments') related to the company's performance against incentive mechanisms from previous price reviews and for land sales in order to determine the opening RCV for the period of the PR19 controls. We also adjust the RCV upwards to reflect a change in the accounting treatment of leases, which causes some assets formerly recognised as operating leases to be recognised on the company's Balance sheet. In doing so, we follow the approach set out in IN 18/09 Guidance for reporting operating leases in PR19 business plans. We use the adjustment proposed in the company business plan.

**Table 4.5: Opening RCV, 1 April 2020 (£ million)**

| | Water resources | Water network plus | Wastewater network plus | Bioresources |
|---|---|---|---|---|
| RCV – 31 March 2020 | 2,030.8 | | 2,107.7 | |
| % of RCV allocated by control | 14.97% | 85.03% | 93.47% | 6.53% |
| RCV – 31 March 2020 | 304.0 | 1,726.8 | 1,970.0 | 137.7 |
| Midnight adjustments to RCV | -4.4 | -26.7 | -148.0 | N/A |
| Midnight adjustments relating to operating leases | 0.3 | 1.3 | 9.8 | 0.3 |
| Opening RCV – 1 April 2020 | 299.9 | 1,701.5 | 1,831.8 | 138.0 |

### 4.2.3 Allowed return on capital

Companies are allowed a return on the RCV, equal to the allowed return on capital.

Northumbrian Water's business plan incorporates the early view allowed return on capital for the wholesale price controls of 3.30% - CPIH deflated (2.30% - RPI deflated) that we state in the PR19 methodology. The allowed return on capital for the wholesale price controls in our final determinations is 2.92% – CPIH deflated (1.92% – RPI deflated). We set out the basis for the allowed return on capital in our 'Allowed return on capital technical appendix'.

The PR19 methodology confirmed we are transitioning to CPIH as our primary inflation index from 2020. At 1 April 2020, we will index 50% of RCV to RPI; the rest, including totex that is added to the RCV, will be indexed to CPIH. Table 4.6 and table 4.7 set out the opening and closing balance for each component of RCV as of 1 April 2020 and 1 April 2025 respectively.

The PR19 methodology confirms our protection of the value of the RCV as at 31 March 2020 across each of the wholesale price controls. This applies to the RCV that is defined as 'RPI inflated RCV' and 'CPIH inflated RCV' in tables 4.8 and 4.9; this RCV is run-off (or amortised) over time. Totex that is added to the RCV from 1 April 2020 is stated as 'post 2020 investment'.

In determining the 'Allowed return on capital' revenue building block, we apply the relevant deflated allowed return on capital to the average RCV for the year for each component (RPI inflated, CPIH inflated and post 2020 investment). This results in an

allowed return on capital for each wholesale control over the period 2020-25 as set out in table 4.8.

### Table 4.6: Opening RCV by wholesale control for each component of RCV, 1 April 2020 (£ million)

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| RPI inflated RCV | 149.9 | 850.7 | 915.9 | 69.0 | 1,985.6 |
| CPIH inflated RCV | 149.9 | 850.7 | 915.9 | 69.0 | 1,985.6 |
| Other adjustments | - | - | - | - | - |
| **Total RCV** | **299.9** | **1,701.5** | **1,831.8** | **138.0** | **3,971.2** |

### Table 4.7: Closing RCV by wholesale control for each component of RCV, 31 March 2025 (£ million)

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| RPI inflated RCV | 117.8 | 696.6 | 756.3 | 47.6 | 1,618.4 |
| CPIH inflated RCV | 112.6 | 665.6 | 722.6 | 45.5 | 1,546.3 |
| Post 2020 investment | 21.7 | 468.3 | 534.1 | 38.6 | 1,062.6 |
| Other adjustments | - | - | - | - | - |
| **Total RCV** | **252.1** | **1,830.5** | **2,013.0** | **131.7** | **4,227.3** |

**Table 4.8: Allowed return on capital by wholesale control for each component of RCV, 2020-25 (£ million)**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| RPI inflated RCV | 12.8 | 74.2 | 80.2 | 5.5 | 172.7 |
| CPIH inflated RCV | 19.0 | 110.1 | 119.1 | 8.2 | 256.5 |
| Post 2020 investment | 1.9 | 37.5 | 35.3 | 2.9 | 77.6 |
| Other adjustments | - | - | - | - | - |
| **Allowed return on capital** | 33.8 | 221.9 | 234.5 | 16.7 | 506.8 |
| **Company April 2019 – return on capital** | 39.4 | 269.2 | 280.5 | 19.5 | 608.5 |

Note allowed return on capital is calculated by multiplying the annual average RCV for each element of RCV (RPI inflated, CPIH inflated and post 2020 investment) by the wholesale WACC for each control. The allowed return on capital for each year of the price control for each wholesale control is shown in the 'Northumbrian Water - Allowed revenue appendix' in tables 4.1 to 4.4.

### 4.2.4 RCV run-off

RCV run-off is the proportion of the RCV which is recovered in the 2020-25 period. Companies are able to propose different run-off rates for RPI inflated and CPIH inflated RCV and also, for the water resources and bioresources controls, for post 1 April 2020 investment. Table 4.9 sets out the resultant RCV run-off revenue for each component of RCV for each wholesale control.

### Table 4.9: RCV run-off on the RCV (5 year) (£ million)

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| CPIH inflated RCV | 37.4 | 185.1 | 193.3 | 23.5 | 439.3 |
| RPI inflated RCV | 38.2 | 189.6 | 197.9 | 24.0 | 449.8 |
| Post 2020 investment | 2.8 | 63.1 | 57.3 | 3.2 | 126.4 |
| **Total RCV run-off** | **78.4** | **437.8** | **448.5** | **50.8** | **1,015.5** |

Note total RCV run-off is calculated by multiplying the opening RCV by the relevant RCV run-off rate for each element of RCV (RPI inflated, CPIH inflated and post 2020 investment) by the RCV run-off rate for each control (50% of run-off is applied to post 2020 investment in the year of additions).

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 does not make any representations in relation to RCV run-off rate and we apply the company's RCV run-off rates for the final determination.

Table 4.10 sets out the average RCV run-off rates across 2020-25 for each wholesale control proposed in the company's business plan and for our draft and final determinations.

### Table 4.10: RCV run-off rates for each wholesale control (5 year)

| | Water resources | Water network plus | Wastewater network plus | Bioresources |
|---|---|---|---|---|
| Company April 2019 (%) | 5.50% | 4.79% | 4.63% | 7.25% |
| Draft determination (%) | 5.50% | 4.79% | 4.63% | 6.87% |
| Final determination (%) | 5.51% | 4.79% | 4.63% | 7.28% |

Note RCV run-off (%) reflects the average of the rates applied to the CPIH and RPI inflated RCV components across the 5 years 2020-25.

The annual rates for each wholesale control are set out in the 'Northumbrian Water - Allowed revenue appendix' in table 5.1 to table 5.3.

## 4.3 PR14 reconciliations

In PR14, we set mechanisms to incentivise companies to do the right thing for their customers. These financial incentives cover cost efficiency, outcomes performance, revenue forecasting (wholesale and retail), customer service (the service incentive mechanism), water trading and land sales. It is important to reconcile the financial impacts of these mechanisms in PR19 to ensure that customers only pay for the service the company delivers.

We are also applying adjustments to reflect performance in the final year of the 2010 to 2015 period, which could not be fully taken into account in PR14, and the inflation correction to the RCV from the capital expenditure incentive scheme (CIS). These adjustments apply to the RCV (the 'midnight adjustment') and revenue for the 2020-25 period. These adjustments are made in line with the 'PR14 reconciliation rulebook'.

We are publishing models for each of these reconciliations, and for the overall RCV and revenue adjustments on our website. 'Northumbrian Water - Accounting for past delivery final decisions' provides a detailed explanation of all policy interventions we are making in the models. Table 4.11 summarises our interventions. Table 4.12 sets out the resulting adjustments to revenue and the RCV. The 'Northumbrian Water - Accounting for past delivery appendix' sets out how these adjustments are allocated across controls and how the RCV adjustment feeds into the midnight adjustments to RCV set out in table 4.5.

The 'Accounting for past delivery technical appendix' sets our further details on our reconciliation of PR14 incentives, the residential and business retail service incentive mechanisms and our deliverability assessment.

For outcome delivery incentives, the information we use to reflect performance in 2019-20 is based on the company's latest expectations. Final figures for 2019-20 will not be able to be taken into account in PR19. We set out in the 'PR14 reconciliation rulebook' that we plan to complete the reconciliation for 2019-20 outcome delivery incentives at PR24 for 2025-30 so that we use final information.

However, most outcome delivery incentives for the 2020-25 period are in period and will have been reconciled before this date. In light of this we consider it would be more appropriate to complete this reconciliation in the autumn of 2020 and apply any change to bills for 2021-22 as part of the new in-period process. We are designating all of the financial PR14 performance commitments as being in-period for this purpose. Any adjustment between the 2019-20 forecast and actual figures should be modest and we do not expect a significant impact on bills. If, contrary to expectations the bill impact is more significant, we expect companies to take measures to smooth the impact for their customers. The new PR19 mechanism to share benefits with customers from unexpected high outcome delivery incentive payments in a year will

not apply to PR14 outcome delivery incentives. Instead the PR14 protection that caps the impact across the five years 2015-20 will apply.

The above applies equally to the company's 2015-20 in period outcome delivery incentives and we use forecast information for 2019-20 to reconcile these outcome delivery incentives. For the avoidance of doubt, no application is required in 2019 for in period determinations.

**Table 4.11: Reconciliation of PR14 incentives, interventions (2017-18 prices, unless otherwise stated)**

| Incentive | Intervention(s) |
|---|---|
| Outcome delivery incentives | No interventions required. |
| Residential retail revenue | We are intervening to round the company's modification factor figures to 2 decimal places to ensure consistency with the 'PR14 reconciliation rulebook'.<br>We are including a figure of 3.74% for the 'Materiality threshold for financing adjustment - Discount Rate' in line with the 'PR14 reconciliation rulebook'.<br>Overall, our minor interventions reduce the total residential retail revenue payment at the end of the 2015-20 period from - £1.160 million to - £1.156 million. |
| Wholesale revenue forecasting incentive mechanism | No interventions required. |
| Totex | We are intervening to replace Northumbrian Water's sewerage transitional costs figure of £0.000 million with the actual outturn sewerage transitional costs figure of £3.730 million (2012-13 prices) as reported in table 4.1 Actual transition expenditure ('Updated-2010-2015-reconciliation').<br>We are also intervening to change the 'Water: actual totex figure' for 2018-19 from £378.651 million to £378.373 million. Northumbrian Water confirms that this is the correct figure to use and is consistent with its reported annual performance report figure.<br>Our interventions reduce the water totex RCV adjustment at the end of the 2015-20 period from £25.485 million to £25.398 million and reduces the water totex revenue adjustment from £10.557 million to £10.510 million.<br>For wastewater, our interventions do not change the totex RCV or revenue adjustments at the end of the period which remain at - £131.796 million and - £5.268 million respectively. |
| Land sales | No interventions required. |
| Residential retail service incentive mechanism | We are intervening to set Northumbrian Water's residential retail service incentive mechanism adjustment to +1.90%% of residential retail revenue to reflect its performance from 2015-16 to 2018-19. This equates to +£5.698 million in total revenue over the period. This reduces revenue relative to the company's estimate of the mechanism's impact and is driven by updating our analysis to take account of companies' finalised scores for 2018-19. |

| Incentive | Intervention(s) |
|---|---|
| Water trading | We are retaining our intervention to disallow the water trading export incentive claim for the trade with Thames Water. We consider that Northumbrian Water's representation does not present any new evidence compared to the evidence provided in its April 2019 revised business plan.<br><br>The policy intent of the PR14 water trading incentives was to encourage new transfers of water between water companies.<br><br>We do not consider that the trade between Northumbrian Water and Thames Water is a new transfer. The effect of the updated bulk supply agreement is to reduce the amount of water imported from Thames Water which is a reduction in an existing trade. We consider that this reduction of an existing import cannot qualify as an export for Northumbrian Water.<br><br>We consider that water resources capacity was increased through the expansion of Abberton reservoir beyond the near-term needs. As a result, Northumbrian Water took the rational and efficient decision to enter into an agreement with Thames Water to reduce the amount of water it imports. We would have also disallowed the incentive if the companies had agreed a contract with no reference to the legacy contract or had duplicated the existing transfer infrastructure because the net effect would still be to reduce an existing trade as it reduces exports to the Essex and Suffolk Water region.<br><br>Overall, our interventions reduce the total PR14 water trading revenue payment at the end of the 2015-20 period from £7.065 million to £0 million. |
| PR09 blind year adjustments | No interventions required. |

**Table 4.12: Reconciliation of PR14 incentives, 2020-25 (£ million, 2017-18)**

| Incentive | RCV adjustments | | Revenue adjustments | |
|---|---|---|---|---|
| | Company view[1] | Ofwat view[1] | Company view[1] | Ofwat view[1] |
| Outcome delivery incentives | 10.3 | 10.3 | -0.1 | -0.1 |
| Residential retail revenue | N/A | N/A | -1.2 | -1.2 |
| Wholesale revenue forecasting incentive mechanism | N/A | N/A | -14.0 | -14.0 |
| Totex | -106.3 | -106.4 | 5.3 | 5.2 |
| Land sales | -4.4 | -4.4 | N/A | N/A |
| Residential retail service incentive mechanism | N/A | N/A | 10.1 | 5.7 |
| PR09 blind year adjustments[2] | -78.6 | -78.6 | 6.6 | 6.6 |
| Water trading | N/A | N/A | 7.1 | 0.0 |
| Other adjustments | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **-179.0** | **-179.1** | **13.7** | **2.2** |
| Total post profiling[3] | N/A | N/A | 14.2 | 2.5 |

[1] The company view is based on data from the 15 July 2019 company submissions. It does not reflect impacts of the subsequent representations. The Ofwat view is based on the 15 July 2019 company submissions and takes account of representations and any interventions we are making.
[2] PR09 blind year adjustments includes the CIS RCV inflation correction. We show these separately in 'Northumbrian Water - Accounting for past delivery appendix'.
Note 3: Total post profiling is the total revenue over the period, taking account of the time value of money and the company's choices of how it wishes to apply revenue adjustments either in the first year or spread over a number of years.

## 4.4 Other allowed revenue

Other components of allowed revenue are:

- The fast track reward, where applicable;
- Corporation tax allowance – this is estimated from projected corporation tax rates, profit forecasts and assumed levels of tax relief contained in our financial model for the final determination.

- Grants and contributions – this represents revenue that we expect to be received from developers in respect of work undertaken by companies to service new developments.
- Non-price control income – this forecast income is deducted from the total allowed revenues, as this revenue is not recovered from the charges covered by the price control – but is expected to cover some of the costs included in the calculation of the price control.

**Table 4.13: Calculation of other allowed revenue (£ million)**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Fast track reward | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tax | 9.0 | 25.7 | 25.5 | 6.1 | 66.3 |
| Grants and contributions (price control) | 0.0 | 108.3 | 17.7 | 0.0 | 126.0 |
| Deduct non-price control income | -6.9 | -35.0 | -8.5 | 0.0 | -50.4 |

### 4.4.1 Taxation

We calculate a tax allowance reflecting the corporation tax that the company expects to pay in 2020-25. We calculate the tax allowance using our financial model based on the projected taxable profits of the appointed business and the current and enacted UK corporation tax rates and associated reliefs and allowances as at 30 September 2019. Any future changes to tax rates and allowances will be taken account of in the tax reconciliation model, further details are set out in the 'Aligning risk and return: technical appendix'.

Northumbrian Water provided information in data tables relevant to the calculation of the expected tax charge. As we apply the same tax information to our final determination as used for the draft determination, any movement in the resulting tax allowance is driven by differences in taxable profits, which are as a result of our interventions in other areas.

**Table 4.14: Tax (£ million) – Breakdown by price control**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Tax | 9.0 | 25.7 | 25.5 | 6.1 | 66.3 |

## 4.4.2 Grants and contributions

Companies receive grants and contributions from developers towards company expenditure to:

- reinforce the network as a consequence of new properties being connected;
- connect a new property (e.g. the meter and connection pipe);
- provide new water mains or public sewers (i.e. requisitions); and
- move an existing main or sewer or other apparatus at the request of a third-party (i.e. diversions).

### Grants and contributions (price control)

Grants and contributions before the deduction of income offset allowances (i.e. 'gross' grants and contributions) are used to calculate net totex for cost sharing and within the developer services reconciliation adjustment, as explained in 'Our approach to regulating developer services'.

Grants and contributions after the deduction of income offset allowances (i.e. 'net' grants and contributions) are used to calculate net totex for use in the financial modelling. This ensures that income offset allowances, that are funded by existing customers rather than developers, are captured within net totex that is used to calculate pay-as-you-go revenue and RCV additions. Developer services costs that are funded by developers are excluded from net totex, and are instead treated as grants and contributions within the financial model (as shown in tables 3.2 and 4.1).

Our approach to calculating 'gross' and 'net' grants and contributions is outlined in 'Cost efficiency technical appendix'. The main difference from draft determinations is that we no longer estimate a cost recovery rate for each company. The starting point for each calculation is 'gross' grants and contributions reported in companies' business plans. To arrive at 'net' grants and contributions we deduct company-specific income offset allowances rather than assume a common recovery rate for all companies. We also apply the modelled base cost efficiency challenge to grants and contributions to ensure alignment between grants and contributions and cost assessment.

Table 4.15 below shows our assumed amounts of ‘gross’ grants and contributions (price control) that is used to calculate net totex for cost sharing. This includes a one-off contribution equal to £14.4 million that Northumbrian Water did not originally include within grants and contributions in its business plan:

- Northumbrian Water included £14.4 million as supply-demand balance expenditure despite its business plan suggesting that this expenditure relates to investment directly connected with housing developments. Northumbria Water’s business plan commentary also stated that this expenditure is paid for by developers through infrastructure charges. Therefore, we consider this to be growth related expenditure and assume it is recovered from developers (Water network plus: £14.4 million).

**Table 4.15: Grants and contributions before the deduction of income offset allowances (£ million)**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Grants & contributions (before deduction of income offset allowances) | 0.0 | 109.8 | 17.7 | 0.0 | 127.5 |

Table 4.16 below shows our assumed amounts of 'net' grants and contributions (price control) that is captured within net totex that is used to calculate pay-as-you-go revenue and RCV additions.

**Table 4.16: Grants and contributions after the deduction of income offset allowances (price control) (£ million) – breakdown by price control and category**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Grants & contributions (price control) | 0.0 | 108.3 | 17.7 | 0 | 126.0 |

## Grants and contributions (non-price control)

For final determinations, we set non-section 185 diversions income outside of the price control, as explained in 'Our approach to regulating developer services'.

Table 4.17 below shows our assumed amounts of grants and contributions (non-price control) that are made up of non-section 185 diversions income.

**Table 4.17: Grants and contributions (non-price control) (£ million) – breakdown by price control and category**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Grants & contributions (non-price control) | 0.0 | 4.6 | 2.6 | 0.0 | 7.2 |

### 4.4.3 Non-price control income

Non-price control income is income from the excluded charges defined in licence condition B. For example, it includes bulk supplies, standpipes, unmeasured cattle troughs, and other services. For the final determination we confirm that diversions which are not requested under section 185 of the Water Industry Act 1991, for example, works under the New Roads and Street Works Act 1991 or those associated with High Speed 2, are also excluded from the price control. These are capital contributions and so do not get shown in tables 4.1 and 4.16.

his is deducted from the total allowed revenues, as this revenue is not recovered from the charges covered by the price control – but is expected to cover some of the costs included in the calculation of the price control. We have reviewed the company forecast of 'non-price control income' and use this in the final determination.

**Table 4.18: Non-price control income (£ million) – Breakdown by price control**

| | Water resources | Water network plus | Wastewater network plus | Bioresources | Total |
|---|---|---|---|---|---|
| Non-price control income | -6.9 | -35.0 | -8.5 | 0.0 | -50.4 |

Note negative numbers represent a deduction from the allowed revenue.

### 4.4.4 Uncertainty mechanisms

Given the range of risk mitigation measures included in price controls, the PR19 methodology said that final determinations would only include bespoke uncertainty mechanisms where robust and compelling evidence was presented for that item.

Northumbrian Water proposes a PR24 reconciliation mechanism for increased lane rental costs under traffic management legislation.

We do not accept Northumbrian Water's requested PR24 reconciliation mechanism for increased lane rental costs under traffic management legislation. We consider there is insufficient evidence that the uncertain costs are material in the context of the cost sharing arrangements already in place. We also consider that companies have control over the planning and coordination of works which allow them to manage costs that materialise. We note also that no other company has requested such a mechanism and insufficient evidence has been provided to support a view that Northumbrian Water is more exposed to such costs than other companies. We consider that the cost allowances we have provided, together with the totex sharing mechanism, provide adequate protection.

We are including a PR24 reconciliation mechanism for business rates in our final determination for Northumbrian Water along with all other companies because:

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

We are also including a PR24 reconciliation mechanism for Environment Agency abstraction licence costs in our final determination for Northumbrian Water along with all other companies serving England[10] because:

- The Environment Agency expects to consult on changes to its basis for setting abstraction licence fees during 2020 meaning that there is material uncertainty about company cost levels in 2020-25.
- Companies can only exercise limited control over cost levels by engaging with the consultation process and providing accurate information when required for licence fee setting purposes.

In each case, the cost variance to the company's PR19 cost allowance will be subject to a 75 (customer share):25 (company share) symmetrical sharing rate in the totex reconciliation at PR24. This means that the company will still be incentivised to manage costs efficiently, whilst receiving appropriate protection against material cost increases. Conversely, customers will receive a benefit if outturn costs are lower than the allowance levels we have set.

[10] The Environment Agency's responsibilities apply only to England.

# 5 Risk analysis and financeability

### Key changes from the draft determination

The key changes made to the risk analysis and financeability elements of the draft determination are:

- For the final determination, we apply our view of a sector risk range for totex, C-Mex, D-Mex and financing costs (including embedded debt) as part of our assessment of risk ranges for our final determination. We also apply updated views on risk ranges for outcome delivery incentives, determined under our Outcomes Framework.
- We revise our notional dividend yield to 3.00% (from 3.15% in the draft determination) and apply a dividend growth of 1.18% in our notional financeability assessment for Northumbrian Water. This takes account of the allowed cost of equity in the final determination.
- We revise our approach to pension deficit recovery costs in our financial modelling of the notional company to match cash out flow for pensions deficit recovery costs to the allowed funding.
- For the final determination we advance allowed revenue by £25 million to ensure our determinations are financeable on the basis of the notional structure.

We consider the final determination is financeable on the basis of the notional capital structure.

Northumbrian Water is responsible for ensuring it delivers its obligations and commitments in the context of its choice of capital and financing structure.

Northumbrian Water may need to take further steps to improve its financial resilience. We will closely monitor changes in levels of the company's gearing, credit ratings and other key financial metrics during 2020-25.

In this section we discuss the possible range of returns for the notional financial structure. In section 5.1 we present the risk ranges of our final determinations for Northumbrian Water. We comment also on the financeability of the final determination and any adjustments that we have made to the bill profile in section 5.2. We comment on the financial resilience of the actual company structure in section 5.3.

## 5.1 Risk analysis

The PR19 methodology set out that we expect companies to demonstrate a clear understanding of financial risk to the delivery of their business plans and to explain and demonstrate how they manage and mitigate that risk. It required companies to use return on regulatory equity (RoRE) analysis to assess the impact of upside and downside risk on the basis of their notional capital structures based on a prescribed suite of scenarios using the company's assessment of P10/P90 confidence limit values[11].

RoRE is calculated as the return on equity for the equity portion of the RCV based on our notional gearing assumption. A company's base RoRE is aligned with our allowed real post-tax cost of equity, but it can differ between companies because the blended real cost of equity will vary according to the proportion of the RCV (and notional regulatory equity) that is indexed to RPI or CPIH[12]. The proportion of RCV (and notional regulatory equity) that is linked to RPI or CPIH varies between companies according to factors that include the size of the investment programme, the proportion of totex that is capitalised and RCV run-off rates.

In addition, base RoRE includes the margin for the retail price control. While the retail margin is 1% on retail and wholesale costs for all companies, it varies between companies when measured against regulatory equity.

Table 5.1 and figure 5.1 sets out the annual average risk ranges for Northumbrian Water in our final determination. The risk ranges show the plausible range of company returns based on Northumbrian Water's RCV and cost data for 2020-25, the allowed equity return and a notional gearing level of 60%. The final determination ranges reflect our approaches to the assessment of risk ranges for outcome delivery incentives and our approach to apply a common approach to the assessment of risk ranges for totex and financing costs for the sector.

Our PR19 methodology aims to increase the strength of financial incentives to better align the incentives placed on companies with the interests of customers. Our determinations aim to be stretching to encourage companies to deliver further efficiencies and better levels of service to customers. The incentives we put in place incentivise companies to outperform the cost allowances and performance commitments set in our determinations, our incentive mechanisms also aim to protect customer interests where companies underperform.

[11] P90 is the performance threshold at which there is only a 10% chance of outturn performance being better. P10 is the performance threshold at which there is only a 10% chance of outturn performance being worse.

[12] RPI is the retail price index; CPIH is the consumer price index including owner-occupiers' housing costs; both are published by the Office for National Statistics.

Northumbrian Water has a significant scope to earn upside from outperformance as well as the risk of lower returns from underperformance with modest negative skew overall to its overall risk range, driven primarily by outcome delivery incentives. Our view is that an efficient company should be able to achieve the base return on the notional structure. The onus is on companies to manage the effect of downside scenarios while maintaining financial resilience.

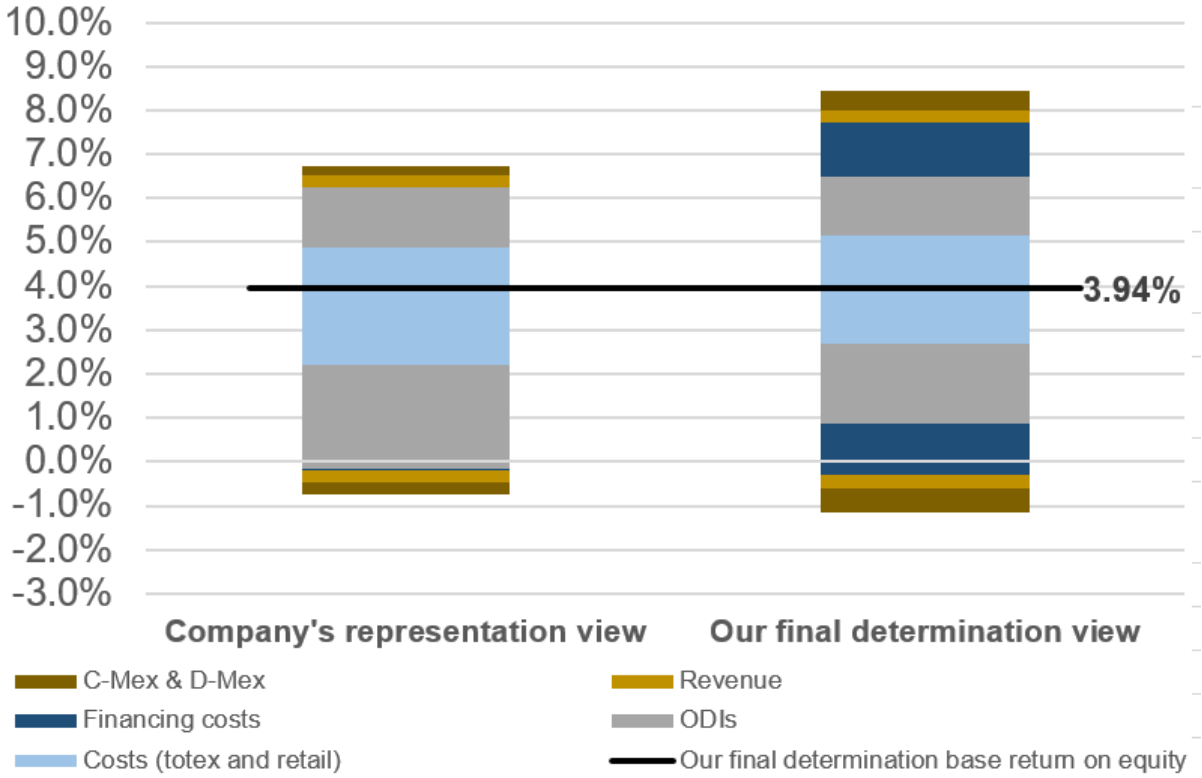
We asked companies to update their risk ranges in their representations. We state those risk ranges in table 5.1 against the cost allowances and base return on regulatory equity in our final determinations. These risk ranges are not fully comparable with our final determination ranges as they take account of company views of the cost efficiency and outcome delivery incentive stretch in our draft determinations which we revise for the final determinations.

### Table 5.1: Northumbrian Water final determination risk ranges

| | Range implied in company representation | | Final determination ranges | |
|---|---|---|---|---|
| Base RoRE | - | | 3.94% | |
| **Risk ranges** | **Lower bound** | **Upper bound** | **Lower bound** | **Upper bound** |
| Totex | -1.42% | 0.79% | -1.10% | 1.05% |
| Outcome delivery incentives | -2.34% | 1.34% | -1.54% | 1.36% |
| Financing costs | -0.03% | 0.01% | -1.16% | 1.23% |
| Retail costs | -0.33% | 0.16% | -0.15% | 0.15% |
| C-MeX and D-MeX | -0.25% | 0.23% | -0.56% | 0.47% |
| Revenues (includes Retail) | -0.29% | 0.26% | -0.30% | 0.26% |
| Total | **-4.66%** | **2.80%** | **-4.81%** | **4.52%** |

Note we calculate the company's range based on the resubmitted ranges the company states in its representation that are in monetary terms. As we have calculated the ranges in the financial model used for the final determination we have not stated the company's view of the base equity return.

**Figure 5.1: Company representation and final determination RoRE ranges for Northumbrian Water**




Note representation view is based on Ofwat's calculation of the RoRE ranges for the company using the final determination financial model and is based on the company submission that accompanied its representation. To facilitate comparison with our final determination, we present the risk range around the base allowed return on equity for Northumbrian Water's final determination.

The final determination risk range reflects the following interventions that we make for all companies:

- The totex range is our assessment of the plausible range based on evidence of the historic sector performance and taking account of the company's cost sharing rates that apply in its final determination.
- The financing cost risk range is based on our assessment of the range for a notional water company including both embedded and new debt.
- The outcome delivery incentive risk range has been determined under our Outcomes Framework as set out in table 2.4.
- The C-MeX risk range is calculated as 12% upside and 12% downside of Residential Retail Revenue, reflecting the cap and collar limits for this incentive.
- The D-Mex risk range is calculated as 6% upside and 12% downside of developer services revenue, reflecting the cap and collar limits for this incentive.

We set out further details on the issues above in the 'Aligning risk and return technical appendix'.

Northumbrian Water had a symmetrical range for retail costs in its April business plan submission, but in its draft determination representations submitted an asymmetrical downside risk range. The company has not provided any substantive evidence to support its downside skew, therefore for Northumbrian Water's final determination we have revised the downside risk range to be symmetrical with the upside risk range.

## 5.2 Financeability

Companies in the water sector must make significant investment both to maintain and deliver required enhancements to the asset base. Therefore it is important that companies are able to access finance on reasonable terms if they are to meet their obligations and commitments to customers. In recent price review periods, almost all of the new investment in this sector has been funded by debt and retained earnings, however, there may be a requirement for direct equity investment where there is a very significant investment requirement, to ensure companies maintain good credit quality.

We must set our determinations in the manner which we consider best calculated to satisfy our duties. Our financeability assessment considers whether the allowed revenues, relative to efficient costs, are sufficient for an efficient company to finance its investment on reasonable terms and to deliver its activities in the long term, while protecting the interests of existing and future customers. In carrying out our financeability assessment, we assume that an efficient company is able to deliver a level of performance that is consistent with our efficient cost allowances.

Our financeability assessment assumes there is no out/underperformance with respect to the levels of service provided to customers. Our approach protects the interests of customers as it ensures companies and their investors bear the consequences of inefficiency and underperformance in delivery of their obligations and commitments to customers.

We carry out our financeability assessment on the basis of the notional capital structure that underpins our allowed return on capital as companies are entitled to determine the financial structure appropriate for their circumstances, provided they bear the associated risks. For example, if a company's choice of financing structure results in it incurring higher debt costs than reflected in our view of efficient allowed returns, the company will bear this cost. The approach is consistent with meeting all of our regulatory duties and with the approach we and other regulators have taken in previous reviews.

Our PR19 methodology requires companies to provide Board assurance that the business plan is financeable on both the notional and their actual capital structures and requires companies to provide evidence to support these statements, including

evidence supporting the target credit rating and that this is supported by the financial ratios that underpin the plan.

In its April business plan, Northumbrian Water provides Board assurance that its plan is financeable on notional and actual capital structures and will protect the interests of customers in both the short and long term'. The company states that its plan targets a credit rating of Baa1 (Moody's) for the notional capital structure.

Subsequently, we asked companies to provide additional Board assurance, in their representation to our draft determination, that they will remain financeable, taking account of the reasonably foreseeable range of plausible outcomes of their final determination including evidence of further downward pressure on the allowed return. Companies also took account of these issues in the risk analysis presented in section 5.1.

In its representation to our draft determination, Northumbrian Water sets out that the Board concludes it is not possible to provide assurance that the company is financeable based on the draft determination package on either a notional or actual basis. It bases 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, it provides qualified Board assurance that, under the package Northumbrian Water proposes in its representation, it is satisfied that the plan becomes financeable.

We have carefully considered the representations made by Northumbrian Water including the qualifications on the assurances provided. We have considered this in the context that the allowed return which is based on market data is lower than our draft determination and the basis on which the company provided assurance about the financeability of its plan. However we are satisfied that the market data supports our view that allowed returns are sufficient to reward investors for the risks they face in a sector that already benefits from significant risk protections[13]. We set out the revisions we are making to our performance commitments and cost allowances elsewhere in this document. We consider the revenues allowed in our final determination, which reflect our assessment of efficient allowed costs, are sufficient for Northumbrian Water to meet its obligations and commitments to customers on the basis of the notional structure. We comment on the financial resilience of the actual structure in section 5.3.

Our financeability assessment uses a suite of financial metrics based on those used in the financial markets and by the credit rating agencies. The key financial ratios are

[13] These protections include appointments that confer effective monopolies for specified geographic regions; our commitment to remunerate efficient investment in the RCV as at 31 March 2020; price limit reopeners; inflation indexation; totex cost sharing; allowances for special cost factor claims; outcome delivery incentives; and reconciliation mechanisms for wholesale revenue, the cost of new debt and tax.

primarily cash flow measures of a company's earnings, leverage and ability to service its debt interest and principal repayments. We provide further detail of the key ratios in the 'Aligning risk and return technical appendix'.

RCV growth in Northumbrian Water's final determination is less than 10%. Therefore consistent with our policy set in the 'Aligning risk and return technical appendix' we apply the base dividend yield assumption of 3.00% with dividend growth of 1.18% for Northumbrian Water. We do not consider any variation from the base dividend assumption is required for Northumbrian Water as the gearing remains broadly consistent with the notional gearing assumption of 60%.

In table 5.2 we set out some of the financial ratios provided by the company in its business plan, and in our draft and final determinations.

Our financial modelling of the notional company suggests that Northumbrian Water faces a financeability constraint. Northumbrian Water sets out in its representations that certain rating agencies look through PAYG adjustments in calculating adjusted interest cover ratios. However, consistent with the approach in the PR19 methodology, our final determination increases PAYG rates to bring forward £25 million of revenue to improve cash flows and financial ratios in 2020-25. The financial ratios stated in table 5.2 include the effect of the increase to PAYG rates.

Our in the round assessment of notional financeability is made on the basis of the financial ratios from our financial model. It takes account of the evidence that the company provides regarding the levels and thresholds of the financial ratios that underpinned its assurance statement on the notional financeability in its business plan (also stated in table 5.2). We note that the Board assurance statement that accompanied the company's representations was made in the context of the draft determination. Our assessment of notional financeability for the final determination is made in the context of changes made in our final determination. We consider that Northumbrian Water's final determination is financeable based on the allowed revenues which include a reasonable allowed return on capital. The final determination is sufficient to ensure it will be in a position to deliver its obligations and commitments to customers.

**Table 5.2: Ofwat calculation of key financial ratios – notional structure before reconciliation adjustments (5 year average)**

| | Business plan | Draft determinations | Final determinations |
|---|---|---|---|
| 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% |

The basis of the calculation of the ratios is set out in the PR19 methodology.

**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.

Northumbrian Water makes a representation that different treatment of infrastructure renewal expenditure by companies will result in companies' financeability being assessed on different bases. Our financeability assessment is an in the round assessment of evidence including all of the financial ratios set out in the PR19 methodology. However, in presenting the ratios for our final determinations we exclude the effect of differing accounting treatment of infrastructure renewal expenditure from the numerator of the adjusted interest cover ratio to improve comparability of the financial ratios between companies.

Northumbrian Water also sets out in its representations that the Ofwat financial model overstates the adjusted interest cover financial ratio due to the treatment of pension deficit recovery payments. We correct the treatment of pension deficit in the financial ratios for the final determination which lowers financial ratios compared to our draft determinations. We discuss these issues further in the 'Aligning risk and return technical appendix'.

Northumbrian Water's financial ratios in its April business plan tables for the notional company take account of reconciliation adjustments. We set out in the table the ratios excluding these adjustments consistent with our assessment of notional financeability. We verified the recalculation of the ratios with the company.

We set out the average PAYG and RCV run-off rates along with the RCV growth over 2020 to 2025 for Northumbrian Water in table 5.3. RCV growth for the final determination is lower than in the company's April plan and in the draft

determination. Overall, changes to allowed expenditure, the revised approach to determining the mix of operating and capital expenditure and the uplift to the PAYG rates means less expenditure is added to RCV. We are not amending Northumbrian Water's RCV run-off rates in our final determination.

**Table 5.3: PAYG rates, RCV run-off and growth**

| | PAYG | RCV run-off | RCV growth |
|---|---|---|---|
| Company April 2019 | 49.1% | 4.84% | 12.84% |
| Draft determinations | 50.1% | 4.84% | 8.94% |
| Final determinations | 54.1% | 4.85% | 6.45% |
| The PAYG and RCV run-off rates are averages across five years and across all wholesale controls. We set out the changes we make to PAYG and RCV run-off rates along with the five year average for each control in section 4.2 and annual PAYG and RCV run-off rates in the 'Northumbrian Water - Allowed revenue appendix'. Changes to totex allowances and PAYG rates for individual controls can result in small changes to the average RCV run-off rates presented in the table above. | | | |

In assessing the financeability of the notional company, we consider the headroom available in the final determination to allow the company to continue to meet its annual interest costs. We estimate 5 year headroom of £167 million above an adjusted cash interest cover of 1.0 times, providing headroom to our totex downside of £83 million and outcome delivery incentives downside of £82 million calculated as 1% return on regulatory equity. We set out further detail in relation to our approach to assessing headroom within final determinations in the 'Aligning risk and return technical appendix'.

## 5.3 Financial Resilience

It is the responsibility of each company to choose and manage its financial structure to maintain financial resilience in the long term. A company's financial resilience can be impacted by its financing choices, for example, where a company chooses a structure with a high level of gearing, this can reduce available headroom to withstand cost shocks. Interest costs, levels of dividends paid and company performance in delivering obligations and commitments to customers can also impact on financial resilience.

Northumbrian Water is responsible for the financeability of the company and the maintenance of long-term financial resilience under its actual structure. We comment further on the financial resilience of the company's actual structure in figure 5.2.

**Figure 5.2: Financial resilience of Northumbrian Water's actual financial structure**

Northumbrian Water reported gearing of 66.8% at 31 March 2019. In its business plan it proposes a small increase in gearing to 68.9% in 2021 and 69.7% in 2025. It proposes to maintain gearing below 70% through 2020-25 by flexing the payment of dividends.

At the time of our determination it had a credit rating of Baa1 (negative) from Moody's and BBB+ (negative) from S&P.

The company provided Board assurance that the company is financially resilient under its plan. In its representation the Board set out that it was not able to provide further assurance about its financial resilience under the draft determination or under the scenario of a further downward reduction in the cost of capital.

As stated in section 5.2 we consider the company to be financeable on the notional basis and there is a need for companies to ensure that that they are also financially resilient under their actual structures.

However, we have not accepted all of the company's representations and the allowed return is lower in the final determination reflecting market expectations on the cost of finance. The company may need to take further steps to improve its financial resilience.

It is the company's responsibility to maintain its financial resilience under its actual financial structure and as set out in section 7, the company will need to reduce its base dividend yield for 2020-25 in the context of the allowed return and our final determination.

Northumbrian Water may need to take further steps to improve its financial resilience. We will closely monitor changes in levels of the company's gearing, credit ratings and other key financial metrics during 2020-25 to test that financial resilience is being maintained.

In its future reporting, we expect the company to explain clearly in its long-term viability statement how the Board has identified and assessed the potential risks to its financial resilience and the mitigating actions it is taking to address those risks. Northumbrian Water has committed to assess its financial resilience beyond 2025 in its next long-term viability statement.

# 6 Affordability and bill profile

**Key changes from the draft determination**

The key changes made to the affordability elements of the draft determination are:

- We revise Northumbrian Water's average bill profile from a large reduction upfront followed by flat real terms prices, to have a smaller reduction upfront, followed by a gradually falling real price over 2020-25.

## 6.1 Bill profile

Northumbrian Water proposes an average bill profile with a 21.3% reduction. Our bill profile contains a significantly greater reduction of 25.6% over 2020-25. Northumbrian Water's August 2019 representation does not include additional evidence on bill profiles or acceptability but states that its customers favour additional expenditure which is not included in its draft determination. Northumbrian Water's customer challenge group supports the company's view, stating that customers have shown they want to see cost savings reinvested in enhancement projects rather than a bill reduction beyond what they have given support for. We do not accept these representations for the following reasons;

- Our models and assessments allow for efficient expenditure where there is sufficient evidence of need. Northumbrian Water's customers were not asked whether they preferred the expenditure, bills and outcomes in its plan versus the efficient expenditure, bills and outcomes in our draft determination;
- Equally, Northumbrian Water's customers were not asked whether they preferred the expenditure, bills and outcomes in its plan versus the expenditure, bills and outcomes that will be delivered by other companies. This would be a more valid way for them to gain an understanding of the true support for their plans;
- Our approach ensures customers only pay for efficient costs. Northumbrian Water does not provide sufficient evidence to demonstrate that its customers are willing to pay for inefficient costs. Shareholders are able to fund the additional expenditure required to bring the company to required service levels if they wish or the company may be able to increase efficiency to obtain reasonable levels. If Northumbrian Water had provided sufficient evidence to justify higher efficient investment, then we would have included this in its final determination.

We are changing our approach to setting average bill profiles from draft determinations, where the majority of companies were set profiles that included

upfront bill cuts followed by flat real terms profiles, which would increase in nominal terms once inflation is taken into account. Northumbrian Water's bill profile changes to a gradual reduction to provide customers with as much stability as possible in what they actually pay, post inflation (i.e. nominal bills). We set bills in this way for the following reasons;

- Research shows customers prefer consistent, predictable bills;
- Flat nominal bills will help households, particularly those who are financially vulnerable, to plan their finances;
- Profiling in this way is easy to understand and communicate to customers;
- Profiling bills in this way has extensive support from stakeholders including water companies, customer challenge groups and the Consumer Council for Water;
- Company revenues fall less sharply in 2020 with a gradual bill reduction, reducing impact of any step change in allowances.

Due to deteriorating financial ratios at the end of the period, unlike for some other companies we have not been able to model a completely flat nominal bill for Northumbrian Water. The company still has a gradual real terms bill reduction over the period but Northumbrian Water's average bills will go up by a modest amount year-on-year when inflation is added. We note that this increase will be below that which would have occurred under the company's draft determination bill profile.

**Table 6.1: Average bills (2017-18 CPIH deflated)**

| | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|---|---|---|---|---|---|
| Company April 2019 | £429 | £350 | £346 | £343 | £340 | £337 |
| Draft determinations | £429 | £319 | £319 | £319 | £319 | £319 |
| Final determinations – before reprofiling | £429 | £324 | £323 | £322 | £323 | £323 |
| Final determinations | £429 | £326 | £325 | £323 | £321 | £319 |

Throughout the price control we have put a strong emphasis on companies planning for the long term, both in terms of their goals and their bills. Following actions we set out at initial assessment of business plans, nine companies (Northumbrian Water was not one of these companies) undertook additional customer testing on their long-term bill profiles with several making adjustments as a result. We expect companies to continue to pay attention to this issue, taking customer views into account and planning in a way that ensures they control costs into the future.

Northumbrian Water asked us to show an estimate of separate bills for its two regions (Northumbrian Water, and Essex and Suffolk). We use the company's method to estimate the average bills for each region in table 6.1a, based on our final determination.

**Table 6.1a: Estimated average bills, by region (2017-18 CPIH deflated)**

| | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|---|---|---|---|---|---|
| Northumbrian Water (North East) | £393 | £305 | £304 | £302 | £300 | £298 |
| Essex and Suffolk | £245 | £205 | £204 | £204 | £202 | £200 |

## 6.2 Help for customers who are struggling to pay

Our draft determinations for Northumbrian Water will deliver a real terms reduction to the average bill between 2020 and 2025.

In addition, Northumbrian Water commits to:

- increase the number of customers that receive support through social tariffs and WaterSure from 34,000 in 2020 to 95,000 by 2024-25;
- increase its social tariff cross-subsidy to £2.85 and either gain customers' support for or self-fund any extension necessary to meet its goals in this area;
- introduce a new payment app to offer customers flexibility to adjust their payment frequency and the amount that they pay; and
- reduce the number of complaints about its priority services register to zero by 2025.

Northumbrian Water has seven bespoke performance commitments on affordability and vulnerability, which will require it to:

- improve customer views of value for money;
- reduce the percentage of its customers who are in water poverty to 6.32% by 2024-25;
- improve satisfaction among customers receiving non-financial vulnerability assistance and increase awareness of this support;
- improve satisfaction among customers receiving financial support and increase awareness of this support; and
- Achieve and maintain the British Standards Institution standard for accessible services throughout 2020-25.

Companies will be reporting their performance against the Priority Services Register (PSR) common performance commitment and their bespoke affordability and vulnerability performance commitments to us and their customers on an annual basis during the price control period. In addition, companies put forward in their business plans further measures for addressing affordability and vulnerability issues. We expect companies to report periodically to their customers on their progress in addressing affordability and vulnerability concerns. We will also be considering how we will scrutinise and report on companies' progress in this important area, including working with other stakeholders in the water sector and beyond.

## 6.3 Total revenue allowances and k factors

Table 6.2 summarises the allowed revenue for each control. This is expressed in a 2017-18 CPIH price base so that this can be compared with the rest of this document.

**Table 6.2: Allowed revenue by year (£ million, 2017-18 prices)**

| | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | Total |
|---|---|---|---|---|---|---|
| Water resources | 77.7 | 76.7 | 75.4 | 73.9 | 72.4 | 376.1 |
| Water network plus | 306.2 | 307.3 | 307.9 | 306.0 | 304.4 | 1,531.9 |
| Wastewater network plus | 217.9 | 218.7 | 219.5 | 221.8 | 224.4 | 1,102.3 |
| Bioresources | 22.4 | 21.7 | 20.9 | 20.2 | 19.6 | 104.7 |
| Residential retail | 52.0 | 51.7 | 51.3 | 50.8 | 50.4 | 256.2 |
| **Total** | **676.2** | **676.1** | **675.0** | **672.8** | **671.1** | **3,371.1** |

The water resources, water network plus and wastewater network plus controls are in the form of a percentage limit (inflation plus or minus a number that we determine for each year of the control (the 'K' factor)) on the change in allowed revenue (R) from the previous charging year (t-1). This is based broadly on the formula:

$$R_t = R_{t-1} \times \left[1 + \frac{CPIH_t + K_t}{100}\right]$$

Table 6.3 sets out the K factors in each year for each of these three controls. For the first year, we have set a 'base' revenue which will be used as the starting revenue for calculating 2020-21 allowed revenues.

**Table 6.3: Base Revenue and K factors by charging year (2017-18 prices)**

| | Base (£m) | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|---|---|---|---|---|---|
| Water resources | 77.7 | 0.00% | -1.31% | -1.63% | -2.10% | -2.03% |
| Water network plus | 306.2 | 0.00% | 0.39% | 0.28% | -0.61% | -0.54% |
| Wastewater network plus | 217.9 | 0.00% | 0.41% | 0.44% | 1.10% | 1.18% |

In addition to these controls, we have set a modified average revenue control for bioresources. We recognise that a proportion of bioresources costs are fixed, so we allow for this in setting the average revenue control. The revenue control ensures that where sludge production varies the incremental change in revenues that arises is aligned to incremental costs. The 'modified average revenue' control includes a revenue adjustment factor, which applies if there are differences between the forecast and measured quantities of sludge.

To ensure companies' allowed revenues reflect their costs, we are intervening to implement a standard approach across companies to this classification. We have set out our methodology and our reasons for intervening in the appendix 'Our methodology for the classification of bioresources costs and revenues'. Further details of how we have applied the methodology to Northumbrian Water is set out in the 'Bioresources revenue to remunerate fixed costs – Northumbrian Water' model.

Table 6.4 sets out our view of the share of revenue to remunerate fixed costs.

### Table 6.4: Classification of proportion of revenue to remunerate fixed costs and variable costs for bioresources

| | Company view | Draft determination | Final determination |
|---|---|---|---|
| **Part 1: Revenue to remunerate fixed costs £ million 2017-18 FYA CPIH deflated prices (2020-25)** | | | |
| Total return on capital | N/A | 20.1 | 16.7 |
| Total run-off | N/A | 53.4 | 50.8 |
| **Revenue to service RCV** | **N/A** | **73.5** | **67.4** |
| Local authority and Cumulo rates for both treatment and disposal | N/A | 6.8 | 6.8 |
| Fixed share of other direct costs of treatment and disposal | N/A | 15.4 | 9.1 |
| Fixed share of other indirect cost of treatment and disposal | N/A | 4.7 | 2.8 |
| **Fixed PAYG revenue** | **N/A** | **27.0** | **18.7** |
| Fixed share of revenue to cover tax | N/A | 0.0 | 0.0 |
| Pension deficit repair contributions | N/A | 1.3 | 1.3 |
| **Other fixed costs** | **N/A** | **1.3** | **1.3** |
| **Revenue to remunerate fixed costs** | **98.7** | **101.9** | **87.4** |
| **Part 2: Variable revenue (£/TDS) 2017-18 FYA CPIH deflated prices (2020-25)** | | | |
| Unadjusted revenue (£m) | 109.3 | 131.6 | 104.7 |
| Revenue to remunerate fixed costs | 98.7 | 101.9 | 87.4 |
| **Revenue to remunerate variable costs (£m)** | **10.6** | **29.7** | **17.3** |
| Forecast volume of sludge (TDS) | 371,100 | 371,100 | 371,100 |
| **Variable revenue (£/TDS)** | **28.5** | **80.1** | **46.5** |

The modified average revenue in each year is calculated by a formula that we set out in the 'Notification of the PR19 draft determination of Price Controls for Northumbrian Water'. which includes some components set now in this determination and some components which relate to out-turn performance (such as the actual volume of sludge in future years).

### Table 6.5: Bioresources control

| | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2020-25 |
|---|---|---|---|---|---|---|
| Unadjusted revenue (£m) | 20.5 | 20.7 | 20.9 | 21.2 | 21.4 | 104.7 |
| Forecast volume of sludge (TDS) | 72,700 | 73,500 | 74,200 | 75,000 | 75,700 | 371,100 |
| Variable revenue (£/TDS) | N/A | N/A | N/A | N/A | N/A | 46.5 |

# 7 Putting the sector in balance

**Key points**

- Northumbrian Water reported gearing of 66.8% as at 31 March 2019 and forecasts that its level of gearing (68.9% by 2021 and 69.7% by 2025) will be close to the level that triggers sharing payments under the gearing outperformance sharing mechanism in 2020-25, as set out in the 'Aligning risk and return technical appendix'. We are updating the gearing outperformance sharing mechanism to introduce a glidepath to the gearing level that the triggers sharing payments as set out in the 'Aligning risk and return technical appendix'.
- Consistent with the lower allowed return on equity in our final determination, we are revising our calculation of the dividend yield as a guide to the reasonable base dividend yield in the absence of out/underperformance in 2020-25. We set out that the acceptable level of base dividend yield can be expected to vary depending on the scale of a company's RCV growth in 2020-25 and future investment needs.
- We expect the company will need to reduce its proposed base dividend yield for 2020-25 to take account of the lower allowed return in our final determination and our revised expectations for a reasonable base dividend yield that we set out in the 'Aligning risk and return technical appendix'.
- Our current assessment of the company's proposed dividend policy shows that the company is falling well short in a number of areas with too much focus on distributions to shareholders and insufficient weight given to customers interests and we expect greater transparency from the company when reporting on dividends paid over 2020-25 in the annual performance report.
- On executive pay, Northumbrian Water falls short of the 60% alignment to delivery for customers we identify as current good practice. We retain our expectation of the company that it will ensure its dividend and performance related pay policies demonstrate substantial alignment with the customer interest, underpinned by stretching performance targets throughout 2020-25.

In July 2018 we published our 'Putting the sector in balance: position statement'. The position statement sets out the steps we expect companies to take to demonstrate they strike the right balance between the interests of customers and their investors. In summary, we expect that:

- company dividend policies for actual financial structures and performance related executive pay policies show appropriate alignment between returns to owners and executives and what is delivered for customers[14];
- companies with high levels of gearing share financing gains from high gearing with customers; and
- companies provide assurance and supporting evidence to demonstrate their long-term financial resilience and management of financial risks for the actual financial structure, taking account of their future investment needs.

We also encourage companies to adopt voluntary sharing mechanisms, particularly where, for example, companies outperform our cost of debt assumptions.

In our final determinations, we have amended our gearing outperformance sharing mechanism to contain a glidepath. We explain this in the final determination 'Aligning risk and return: technical appendix'.

Our assessment of Northumbrian Water's proposals is in table 7.1. We comment on the financial resilience of Northumbrian Water in section 5.2.

**Table 7.1: Our assessment of Northumbrian Water's proposals to balance the interests of customers**

| Our assessment of the company's proposals to balance the interests of customers |
|---|
| **Gearing outperformance benefit sharing mechanism**<br>The company has confirmed it would implement our default gearing outperformance mechanism within its business plan. The company expects appointed gearing to remain at or below 70% in 2020-25. |
| **Voluntary sharing mechanisms**<br>Northumbrian Water proposes a voluntary sharing mechanism relating to £50 million of funding it received via customer bills for a tax liability which has not materialised. The company proposes to share the 'notional interest' earned on this figure as calculated by reference to the overall interest rate it receives on its cash investments. The company proposes sharing payments will be used to fund initiatives to support its customer goal of eradicating water poverty, and linked to this the company also proposes to make company contributions to a social tariff and payment matching scheme over 2020-25. |
| **Dividend policy for 2020-25**<br>Northumbrian Water does not confirm that it is committed to the expectations on dividend policy as set out in our 'Putting the sector in balance' position statement and under our current assessment it falls well short in a number of areas as set out below. The company states that the Board makes decisions on dividend payments 'in the round' and not by reference to a base or target dividend yield, but has indicated a base dividend yield of 4.52% for 2020-25 for financial modelling purposes. We expect the company will need to revise its proposed base dividend yield for 2020-25 to take account of the lower allowed return in our final determination and our revised expectations for a reasonable base dividend yield that we set out in the 'Aligning risk and return technical appendix'. |

[14] We explain more fully our expectations in the 'Aligning risk and return technical appendix' that accompanies this draft determination.

## Our assessment of the company's proposals to balance the interests of customers

The company's dividend policy refers to all the areas included in the 'Putting the Sector in balance' position statement (out/underperformance & benefit sharing, employee interest & pension obligations, actual capital structure, need for future investment and financial resilience), but as set out below, insufficient detail is provided in a number of areas.
The company confirms that when setting dividend levels, it will fully consider whether obligations and promises to customers have been met but provides insufficient detail on the specific obligations and commitments to customers that will be considered. The company has not confirmed that the level of performance delivery considered will be as set out in the final determination.
The revised base dividend yield is in our view reasonable for a company performing in line with its price determination but the company has not indicated that dividends may be either increased or lowered from the base depending on the actual performance of the company and provides insufficient detail on how performance delivery will impact on dividends paid.

Consistent with the lower allowed cost of equity in our final determination, we have revised our calculation of the dividend yield that we consider to be reasonable for assessing the base dividend for water companies in 2020-25. We consider the acceptable level of base dividend yield is up to 4% but this can be expected to vary depending on the scale of a company's RCV growth and future investment needs. We set out further details in 'Aligning risk and return: technical appendix'.

The company commits to transparent disclosure of its dividend policy in its Annual Performance Report each year and will clearly highlight for stakeholders any changes made to the policy.

We expect Northumbrian Water to be transparent when explaining its dividend policy and reporting on dividends paid over 2020-25 to demonstrate how it has delivered on the commitments in relation to its dividend policy and to ensure it meets the expectations we set out in 'Putting the sector in balance' as updated in the final determination 'Aligning risk and return: technical appendix'.

Specifically, the company should provide further transparency on:

- the specific obligations and commitments that will be considered under the policy,
- how it has delivered against performance levels as set out in the final determination and elsewhere; and,
- how performance delivery has impacted on the dividends paid.

### Performance related executive pay policy for 2020-25

In our 'Aligning risk and return technical appendix' we identify that 60% alignment to delivery for customers is current good practice among the companies that we regulate. Based on our calculations, Northumbrian Water's measures that are directly aligned to customer delivery falls short of good practice, and therefore we consider there is scope for it to improve this position. We expect Northumbrian Water's policy on performance related executive pay to demonstrate a substantial alignment to the delivery of service for customers throughout 2020-25.

Northumbrian Water states that its current strategy, which is reviewed annually, has been in place for a number of years and that its meets our expectations, as set out in our 'Putting the sector in balance' position statement. However, we have challenged the company throughout the PR19 process to clearly demonstrate how its policy meets our expectations. In response, the company sets out the policy for 2020-25 has been amended to include:

- short term bonus based on 50% customer focused measures (10 metrics with a weighting of 5% each including for example C-Mex, interruptions, water quality, leakage and pollution incidents) and 50% competitiveness (25% earnings before interest and tax and 25% shareholder distributions)
- long-term bonus based on 50% RoRE and 50% shareholder distributions.
- targets set by reference to performance levels which are industry leading, or leading outside the sector, rather than be constrained by their business plan.
- the remuneration committee having responsibility for setting the targets for both schemes each year, taking into account what industry leading performance looks like, and for reviewing performance against the policy and determining the awards for both schemes.

| Our assessment of the company's proposals to balance the interests of customers |
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| • full reporting of the details of the policy in the annual performance report, including any changes to the policy and the underlying reason for the change.<br><br>The company states that the revised policy will take effect from 2020, and has been approved by the remuneration committee.<br><br>We expect the company's remuneration committee to ensure there is on-going rigorous challenge as to how the policies are applied and to ensure that only truly stretching performance is rewarded. In so doing, we expect it to be equipped with the appropriate powers to carry this out, including for example, the use of withholding periods, clawback arrangements and underpin / gateway arrangements.<br>We expect Northumbrian Water to be transparent when explaining and reporting against its performance related executive pay policy in 2020-25, to ensure it meets the expectations we set out in 'Putting the sector in balance' as updated in the final determination 'Aligning risk and return: technical appendix'. |

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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