

December 2019

PR19 final determinations

**Delivering outcomes for customers policy
appendix**

PR19 final determinations: Delivering outcomes for customers policy appendix

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Amendment	Date
<p>Page 162 – Correction made that the number of companies which earned neutral or net outperformance payments is 12 and had been stated as 13.</p> <p>Page 225 – Correction made to clarify the company’s ambition for its wastewater network assets (sewer collapses)</p>	30 April 2020

1 Introduction

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. The outcomes approach sharpens companies' focus on delivering what matters to customers and society, while giving them greater flexibility in how they deliver them. We have two key tools to make sure that companies deliver the right outcomes for customers: performance commitments and outcome delivery incentives.

Performance commitments are the pledges companies make to their customers and stakeholders about service levels to make progress towards their outcomes.

Outcome delivery incentives are the financial or reputational consequences for companies of outperformance or underperformance against each of these commitments.

The outcomes approach gives companies the freedom to innovate and explore to find the most cost-effective way of meeting these valued outcomes.

Outcomes-based regulation was one of the most significant innovations we introduced at the 2014 price review (PR14). Alongside the introduction of the total expenditure (totex) approach to cost assessment, the outcomes approach has sharpened companies' focus on delivering what matters to customers and society, while giving them greater flexibility in how they deliver them. For 2019 price review (PR19), we seek to build on the success of the outcomes framework by asking companies to:

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

This appendix sets out our approach and decisions for our PR19 final determinations regarding the outcomes framework. In this document, we set out our overall approach to sector-wide issues. The focus is therefore on common and comparable¹ performance commitments and outcome delivery incentives. Our company-specific decisions can be found on the [final determinations webpage](#).

¹ 'Comparable' performance commitments refer to bespoke performance commitments that apply to multiple companies and have the same or similar characteristics, such as the bespoke asset health performance commitments from the long list of metrics with standard definitions outlined in the PR19 methodology.

Because performance commitments are a means to hold companies to account for their service delivery, it is essential they are clearly defined. It is also important that performance commitments are stretching, because this pushes companies to innovate in order to deliver better service to their customers.

Properly calibrated, outcome delivery incentives help align the interests of management and shareholders with customers, because they directly link shareholder returns to the quality of service provided to customers. We protect customers against the risk of companies failing to deliver their commitments through underperformance payments. We use outperformance payments to encourage companies to innovate and stretch themselves, where customers' value improved performance.

1.1 Our approach

Our PR19 methodology outlines our approach for the outcomes framework. This builds on the framework introduced at PR14 and includes some changes to incentivise companies to address the future challenges that the industry faces and better aligns the interests of company management and investors to those of customers.

Components of PR19 outcomes framework

Common performance commitments: performance commitments with common definitions covering customers' key priorities and stretching performance levels.

Bespoke performance commitments: performance commitments that reflect individual companies' circumstances and customers' preferences.

Standard outcome delivery incentives: incentives associated with common and bespoke performance commitments that aim to align the interests of company management and investors with those of customers.

Enhanced outcome delivery incentives: financial incentives that aim to incentivise companies to improve performance beyond the best level currently achieved by any company to deliver benefits for all customers over the long term.

Customer protection: measures to protect customers in cases where outperformance payments are much higher than expected.

To better align the interests of company management and investors with those of customers, outcome delivery incentives should, in general, be financial rather than reputational. In addition, financial incentives should, in general, be settled annually (or 'in-period') rather than at the end of the five-year period, to bring the financial impact closer in time to the performance that generated it. This focuses management on service delivery and improves companies' accountability to their customers.

For common or comparable **performance commitments levels**, we use comparative analysis to assess how stretching company proposals are. We assess the evidence provided by companies in support of their proposals. For **outcome delivery incentives**, we assess the evidence, including customer support, provided for the type of incentive selected; for example, non-financial incentive, or outperformance and/or underperformance payments.

We use comparative analysis to assess company proposed **outcome delivery incentive rates** for common and comparable performance commitments. We consider that rates of financial incentives for the same performance commitment might be expected to vary between companies, for example because of the different values customers place on service improvement, but we do not consider that large variations that neither we nor companies can satisfactorily explain are appropriate.

Bespoke performance commitments by their nature may be unique to one company or similar across a number of companies. They may also involve new definitions. There may be a lack of historical data on performance, as well as an inability to compare across companies, which means that assessing the stretch of these performance commitments and the appropriateness of any financial incentives is challenging. In order to address these challenges, we use multiple sources of evidence to assess companies' proposals. Our starting point is the quality and strength of customer support including customers' willingness to pay for the performance commitment and any financial incentives associated with it. In making our decisions, we combine this with an assessment of the technical evidence supporting the performance commitment, including any sector comparators or similar performance commitments, and historical evidence and precedents where available.

Enhanced outcome delivery incentives aim to encourage companies to improve performance beyond the best level currently achieved by any company, to deliver benefits for all customers over the long term. This is likely to involve innovation and risk-taking by companies as they seek to significantly improve their performance. We can then set new improved performance levels in future price controls to benefit the customers of all companies. In making decisions on this issue, we seek to balance encouraging innovation (across the sector) and who pays (the customers of one company).

We expect companies to propose approaches to **protecting customers** in case their outperformance payments turn out to be much higher than expected. In making these decisions, our principal focus is on making the appropriate trade-offs between preserving adequate incentives for stretching performance and potential impacts on the level and volatility of customer bills. However, we also consider whether there is a need to limit **company exposure** to downside risk, for example through placing collars on financially significant performance commitments. We review the package overall impact of the Outcomes decisions for each company in order to assess whether our decisions result in companies being exposed to a disproportionate level of downside risk.

We assess the quality of evidence provided by each company in relation to how its outcomes package reflects its customers' preferences. While the quality of customer engagement supporting performance commitments and outcome delivery incentives is mixed across the sector, there is evidence of good quality engagement by companies to support their proposals. Our concern with customer engagement often relates to how companies use the findings of research and how this is reflected in business plans rather than the underlying research.

Given the mix of quality of customer engagement supporting performance commitments and outcome delivery incentives proposed by companies, we use the evidence provided by companies, its quality and other sources of information (e.g. historical performance information, stakeholder views) to inform our decisions.

1.2 Our final determinations

Our decisions take into account the representations made on all our draft determinations, responses from companies to our queries and additional information provided following further engagement with companies and other stakeholders as part of the final determination process. In the interest of brevity, where no representations have been made on our draft determination proposals, we do not repeat our reasoning in all cases. Please see the [PR19 draft determinations](#) for further details.

Key sector-wide changes from draft determinations

Water supply interruptions:

Increasing the water supply interruptions 2024-25 performance commitment level 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.

Setting underperformance payment rates to be symmetrical with outperformance payment rates to provide a more balanced spread of incentives and risks.

Mains repair:

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 change in leakage reduction, allowing more flexibility in the earlier years to use proactive mains repairs to reduce leakage.

Where we intervened in mains repairs levels for a company at draft determinations since it was lagging behind the sector, we amend our intervention at final determination. We amend the base levels of mains repairs performance commitment level to an average of the best five years' performance, which provides a more representative level and ensures companies maintain good performance to improve the overall health of their assets over the longer-term.

Setting the underperformance payment rate on mains repairs for all companies to industry average to provide a more balanced spread of incentives and risks.

Compliance risk index:

Amending the deadband on the compliance risk index (water quality standards) to a score of 2.00 throughout the 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.

Internal sewer flooding:

Setting underperformance payment rates to be symmetrical with outperformance payment rates to provide a more balanced spread of incentives and risks.

Enhanced outcome delivery incentives outperformance threshold:

Amending the approach to setting the ‘frontier shift’ element of the threshold. We set a common frontier shift for all performance commitments at the level of the lowest shift estimate across the performance commitments – this is 1.4% (the result for per capita consumption). We also re-profile enhanced outperformance thresholds, in order to ensure that over the period they are consistently more stretching than companies’ standard performance commitment levels.

Customer protection:

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 the vast majority of companies have caps and collars on a common performance commitment, we apply caps and collars to all companies.

1.2.1 Fast track companies

Three companies – South West Water, United Utilities and Severn Trent Water – produced overall high-quality business plans in September 2018. These companies are categorised as ‘fast track’, and received early draft determinations of their price, service and incentive package for 2020-25 period, a financial, reputational and procedural benefit. The procedural benefit of an early draft determination for fast track companies is strengthened by early certainty on specified components of the draft determination related to outcomes and the cost allowance.

The elements of the early certainty principle were set out in our PR19 methodology and those relating to Outcomes are summarised below:

Early certainty principle

We will not change our draft determination decision related to the company's own cost claims.

We will not change bespoke performance commitment levels.

We will not change financial incentives on performance commitments².

We will not change the number of financial outcome delivery incentives.

We will not change the design of financial incentives in terms of deadbands, caps and collars.

There was no early certainty on performance commitment levels for common performance commitments and hence fast track companies are affected by changes to performance commitment levels including enhanced outcome delivery incentives (ODIs) thresholds between our draft and final determinations.

United Utilities decided to opt out of early certainty entirely. Severn Trent Water opted out of early certainty for compliance risk index (CRI), unplanned outage and supply interruptions and out of early certainty on deadbands for all common performance commitments. South West Water chose to opt in to the early certainty principle entirely.

1.3 Document structure

We provide details of our approaches and decisions for the following areas:

- Performance commitment definitions (section 2)
- Common and comparable performance commitment performance commitment levels (section 3);
- Common and comparable outcome delivery incentives (section 4);
- Enhanced outcome delivery incentives (section 5);
- Bespoke performance commitments (section 6);
- Customer protections (section 7)
- Long-term performance forecasts (section 8)

² However, to protect customers, the early certainty principle does not apply if a company's outperformance payment or underperformance payment rate was the highest or lowest, respectively, of all the companies. This is to protect customers against a company that has proposed ODI rates that are outliers compared to other companies.

2 Performance commitment definitions

Performance commitments are the pledges companies make to their customers and stakeholders about service levels to make progress towards their outcomes so it is essential they are clearly defined. It is important that performance commitments are transparent so that we, along with customers, stakeholders, other regulators and companies can understand, compare and monitor performance. This is achieved by setting performance commitments that are clear, unambiguous, complete and concise with no inappropriate exemptions. In setting performance commitments for each company we see a limited role for exclusions.

Our PR19 methodology set out that the common performance commitments that apply to all companies. An additional common performance commitment relating to supporting vulnerable customers was added in January 2019. In addition, companies propose bespoke performance commitment reflecting their circumstances. We set out certain areas that should be covered by bespoke performance commitments. These include: the different price controls; vulnerability; the environment; resilience and the abstraction incentive mechanism (AIM). We also state that the bespoke performance commitment definitions should be clear and contain no or very few exemptions.

Common performance commitments are commitments with standardised definitions that all companies must have. The definitions of seven of the common performance commitments (leakage, supply interruptions, internal sewer flooding, per capita consumption (PCC), unplanned outage, mains bursts, sewer collapses and external sewer flooding) were developed through a joint project with Water UK, which was completed in early 2018³. Three performance commitments are set out by regulators: CRI is set out by the Drinking Water Inspectorate (DWI); and treatment works compliance and pollution incidents are set out by the Environment Agency and reported as part of the Environmental Performance Assessment (EPA) published annually by the Environment Agency.

The two risk-based resilience measures (risk of sewer flooding in a storm and risk of severe restrictions in a drought) were developed in collaboration with the industry.

We introduce two new performance commitments to incentivise customer measure of experience (C-MeX) and developer services measure of experience (D-MeX), both of which were developed in consultation with the industry and customers.

³ The definitions for unplanned outage and sewer collapses were further refined in February 2019.

Definitions of all common performance commitments and the additional asset health long-list performance commitments set out in our PR19 methodology are available on our website⁴.

The common performance commitments rely on good-quality, consistent definitions so that stakeholders can compare companies and use this information to challenge companies on the ambition of their proposed performance commitment levels and on their performance throughout the period.

2.1 Our assessment approach

All the common performance commitments, except C-MeX and D-MeX and those set by and reported to the DWI and Environment Agency (CRI, treatment works compliance and pollution incidents) have been subject to shadow reporting as part of the companies' Annual Performance Reports (APR). As part of this, companies must show compliance with the definition for each performance commitment through a 'Red, Amber, Green' (RAG) rating. We use this RAG reporting as the primary means to determine the status of compliance with definitions for each performance commitment.

For the **drought risk** and **flood risk** resilience performance commitments, we assess whether the companies provide the required calculations which are detailed in the guidance documents.

Where companies had multiple amber or red ratings against performance commitment definition compliance, we required them to submit a plan of how they would be reporting in line with the definitions by 2020. In some cases, we requested intermediate calculations.

The majority of actions associated with definitional compliance were associated with **leakage**, as well as three new common performance commitments, that is, **unplanned outage** and the two **resilience performance commitments**, that have only been shadow reported on for two years. Since the unplanned outage performance commitment has financial incentives, we requested companies provide an early annual performance report submission including fully audited 2018-19 performance data for the unplanned outage performance commitment by 15 May 2019. For the two resilience performance commitments, we actioned companies to provide further information including intermediate calculations and assumptions used in the proposed performance commitment level to help us assess whether companies would be ready to report fully against the performance commitment

⁴ <https://www.ofwat.gov.uk/outcomes-definitions-pr19/>

definitions by 2020. For example, for the drought risk performance commitment, we asked companies to submit the intermediate calculation outputs and to provide further evidence to demonstrate that the risk presented is reflective of the water resources management plan (WRMP) position. For leakage, we asked companies to confirm compliance with the definition they had been shadow reporting against since 2017.

For **bespoke performance commitments**, we assess:

- that the performance commitments covered all the required areas set out in our PR19 methodology - where this was not the case, the companies were actioned to propose new performance commitments;
- whether they were clear and easily understandable and did not contain exemptions - where we found this was not the case, we challenged companies to refine the definition or remove the performance commitment; and
- company rationale for removing PR14 performance commitments – where this was not sufficient we challenged companies to either provide better evidence or reinstate the performance commitment.

2.2 Our findings and decisions

On the whole, the companies are reporting in line with the majority of common performance commitment definitions, or plan to be by 2020.

Leakage – reporting against the new definition has been part of shadow reporting since 2017. All companies state that their reporting will in line with the new guidance by 2020. The ones that were actioned during the initial assessment of plans (IAP) and draft determinations stage have set out clear plans to show how they will achieve this.

Sewer collapses – We applied an update to the definition of sewer collapses in April 2019, this was based on a request by the companies through Water UK. We accepted the majority of the changes proposed. The change in definition for PR19 results in a change in reported figures for some companies compared to the previous definition (United Utilities, Wessex Water and a smaller change for Severn Trent Water). No other companies reported a difference in its performance commitment levels due to the changes. In addition, United Utilities states that its interpretation of the revised guidance leads to it including more collapses than other companies, as they may be interpreting it differently, however the company provides limited evidence to demonstrate this and any impact it may have.

Unplanned outage – Company data for 2018-19 showed a significant improvement in compliance with the definition. Only 11% of 204 component ratings are left with red rating and 28% as amber for 2018-19 data. Those with amber ratings either already achieve green status part way through 2018-19 or identify improvements needed to achieve green status by 2019-20. Where available, companies include a supporting statement from an external auditor on compliance with reporting guidance. All companies that we identified at draft determination as at risk of not being compliant now confirm they will be reporting in line with the definition by 2020. Thames Water also submits revised levels based on a new calculation methodology and an action plan to show how it will be compliant by 2020.

Supply interruptions – Thames Water states that other companies may be using a different methodology to determine the full extent of the impact of a supply interruption and that the method it uses results in many more properties and longer durations being reported. However, the company provides no evidence to show that other companies are reporting on a different basis.

Risk of severe restrictions in a drought – The quality of company responses varies, although we consider that all companies provide sufficient information to show alignment to their WRMP as well as provision of consistent intermediate calculations.

Risk of sewer flooding in a storm – The quality of company responses varies, although we consider that all companies provide sufficient information regarding assumptions used and the intermediate steps as requested.

Priority services register – we published final reporting guidance with our final determinations (refer 'Reporting guidance – Common Performance Commitment for the Priority Services Register).

For **bespoke performance commitments**, we intervened in the following ways based on our assessment of the definition and the quality of evidence provided by companies for:

- Introducing a new bespoke performance commitment - we intervene on the individual components if we do not find them to be suitable.
- Retaining an existing performance commitment - we intervene where we find the evidence provided is not sufficiently convincing to justify retaining the performance commitment.
- Changing a performance commitment definition - we intervene if these are not clear, easily understandable or have unjustified exemptions. To change the definition, we use definitions from other related/similar performance commitments where possible.

- Discontinuing a PR14 performance commitment - we intervene to retain the performance commitment where we find the evidence provided is not sufficiently convincing to justify discontinuing the performance commitment.

For bespoke performance commitments that are similar across companies, we seek consistency of wording where appropriate in definitions to enable comparison across companies and provide transparency for customers.

3 Common and comparable bespoke performance commitment service levels

To maintain customers' trust and confidence in the outcomes policy framework it is important that they can be sure that companies' performance commitment levels are appropriately stretching, and that any outperformance payments are only available for outperformance beyond those stretching levels. Stretching performance commitment levels challenge companies to achieve both a higher level of service, and a more resilient service performance. They encourage companies to improve their services to current customers, future customers and the environment. Working together with our cost assessment tests, more stretching performance commitment levels should help drive greater efficiency in service provision.

We consider the following common and comparable bespoke performance commitments in this section:

- **common performance level measures** – supply interruptions, pollution incidents and internal sewer flooding;
- **reducing water demand** – leakage and per capita consumption;
- **statutory measures** – compliance risk index and treatment works compliance;
- **asset health measures** – mains repairs, unplanned outage, sewer collapses, external sewer flooding, sewer blockages, water quality and low pressure;
- **resilience measures** – risks of sewer flooding in a storm and severe restriction in a drought;
- **vulnerability measures** – the priority services register; and
- **customer experience** – C-MeX and D-MeX

We outline our approach and decision at a sector-level for each category of performance commitment in the table below. Further details are provided in the sections below. Graphs showing performance commitment levels for some common and comparable bespoke performance commitments are included in annex 1.

Table 3.1: Summary of approach to setting performance commitment levels

Category	Performance commitments	Approach to setting performance commitment levels
Common performance level measures	Water Supply Interruptions, Internal Sewer Flooding, Pollution Incidents	<p>Performance commitment levels are common to all companies and stretching performance is set at the forecast industry upper quartile (UQ). We assess a broad set of evidence including the historical rate of improvement to test whether forecast UQ is a reasonable expectation for the sector and set levels reflecting a stretching but achievable level of service improvement by 2025.</p> <p>For internal sewer flooding and pollution incidents we consider that the forecast upper quartile is a reasonable expectation for the sector and set levels reflecting a stretching but achievable level of service improvement by 2025. We calculate forecast upper quartile values for each year of the 2020-25 period based on all companies' September 2018 business plans and set the performance levels to reflect the values we calculate for each year of the 2020 to 2025 period. For water supply interruptions performance levels, we consider that the forecast upper quartile (three minutes) is not an appropriate expectation for the sector by 2024-25. Therefore, we adjust the 2024-25 level to five minutes, with an amended glide path in the first four years, taking account of wider evidence to calibrate the stretch of the performance commitment for an efficient company.</p> <p>We consider company-specific circumstances and allow exceptions to the common performance levels of these performance commitments if well justified.</p>
Reducing water demand	Leakage, Per Capita Consumption (PCC)	<p>We assess whether the proposed performance commitment levels are justified taking into account the following: where the 2024-25 performance level is relative to the forecast upper quartile (on leakage this is normalised by both properties and kilometres), whether the levels align as expected relative to WRMP levels unless convincing reasons are provided. For leakage, specifically, we also take into account: whether the annual percentage reduction is at least 15% from PR14 2019-20 performance commitment level, along with historical performance as well as the levels we consider should be delivered by base cost allowances. For PCC, specifically, we also take into account water resource challenges faced, rainfall, demography, and metering penetration.</p> <p>Where companies have not stepped up to our challenge, we intervene to increase performance commitment levels. Worse performers will need to make larger percentage reductions in per capita consumption to close the gap between them and the upper quartile.</p>
Statutory measures	Water quality compliance (CRI – DWI's compliance risk index) and	<p>We require full compliance with these measures. We also consider deadbands are appropriate for these performance commitments with full compliance to provide for some fluctuation in performance, whilst providing a strong incentive to minimise compliance failures. For these performance commitments, we consider deadbands should be the same</p>

Category	Performance commitments	Approach to setting performance commitment levels
	Treatment Works Compliance ⁵	across all companies. We consider company-specific arguments and allow exceptions if well justified.
Asset health	Mains Repairs, Unplanned outage, Sewer Collapses, Sewer Blockages*, External Sewer Flooding*, Low pressure*, Water quality customer contacts * (* are comparable bespoke performance commitments)	<p>Our decisions differ for those performance commitments that have a direct customer impact (external sewer flooding, low pressure, customer contacts) and for those performance commitments that do not have an immediate customer impact (mains repairs, unplanned outage, sewer collapses and sewer blockages). Our decisions also differ for those companies that are comparatively good performers and those that are comparatively poor performers.</p> <p>For the performance commitments with a direct customer impact, we consider that good performers are those which are close to industry upper quartile level. For comparatively poor performers, we push companies to achieve the closest of the upper quartile or upper quartile of the percentage improvement proposed by all companies.</p> <p>For the performance commitments that do not have a direct customer impact, we consider that good performers are those which are close to or better than industry 'good' level. To derive an expected 'good' level for the performance commitments where we have good historical data (mains repairs and sewer blockages), we extrapolate historical industry performance over 2020-25 period. For the performance commitments where we do not have good historical data we use a different approach (set out for each performance commitment in the relevant sections below).</p> <p>For the poor performers in mains repairs we set the performance commitment levels going forward using the average of their five best historical years from 2010-11 to 2018-19. Using five years provides a representative level and ensures companies maintain previous good performance to improve their overall asset health. For mains repairs we also allow an increase in the performance commitment levels by a reducing percentage, for all companies, in all years. The aim is to allow all companies flexibility to deliver a step change in leakage reduction, allowing more flexibility in the earlier years to use proactive mains repairs to reduce leakage.</p> <p>Where we do not have good historical data we use a different approach. For comparatively poor performers, we expect significant percentage reductions, based on company proposed reductions, to close the gap between them and the sector.</p>
Resilience measures	Risk of severe restrictions in a drought, risk of sewer flooding in a storm	We ensure that companies reduce customer risk over the longer term as well as improve their understanding of their resilience challenges in these areas (e.g. by increasing model coverage) in the nearer term.
Vulnerability	Priority Services Register	This performance commitment was introduced at our initial assessment of plans and our work since then leads us to amend what we expect from companies contacting customers. We levels for all companies to deliver above a

⁵ Treatment works compliance is also considered to be an asset health performance commitment

Category	Performance commitments	Approach to setting performance commitment levels
		specified level of reach as well as attempted and actual contacts.
Customer service	Customer measure of experience (C-MeX) and developer services measure of experience (D-MeX)	C-MeX and D-MeX policy decisions are outlined in 'Customer experience measure of experience (C-MeX) and developer services measure of experience (D-MeX) policy appendix'. Further information is also given on our website .

3.1 Upper quartile performance commitments

In our PR19 methodology, we said we expect companies to propose forecasts of upper quartile performance levels for each year to 2024-25 for three common performance commitments – **supply interruptions**, **pollution incidents** and **internal sewer flooding**. This is because these performance commitments are both important to customers and supported by good quality comparative information. These performance commitments were set on an upper quartile basis in PR14 and companies were given a three year glide path to reach the upper quartile level. While we said there is no clear reason why companies should not achieve the same stretching level of performance, we stated that we would consider well evidenced company-specific adjustments.

3.1.1 Our policy approach for the final determination

Overview of our approach

In line with our PR19 methodology, we set a common performance level for all companies based on company forecasts of upper quartile performance in each year from 2020-21 to 2024-25 for these three performance commitments, against which we assess company performance.

We consider it appropriate to set a **common performance commitment level** across all companies, and undertake **comparative analysis** for these performance commitments (and other common and comparable bespoke performance commitments) to ensure that all companies have stretching performance levels. These performance commitments have standard definitions and good historical datasets to enable comparisons across companies, and we do not consider there to

be clear reasons why companies should not achieve the same stretching levels of performance.

However, in our assessment we do consider the evidence provided to demonstrate why company-specific adjustments to the performance commitment levels should be applied. These company-specific adjustments are usually factors as disproportionate effects of atypical weather events or the size of a network. We consider whether the evidence for any such adjustments is convincing and also whether the evidence quantifies the adjustment to the performance level that is proposed to address these company-specific issues. This is because we consider that for these performance commitments, significant improvements in performance can be achieved through changes in operational strategies and practices to align with most efficient companies. As a result we consider that poor performance in these measures is usually a result of ineffective operational practices rather than company-specific regional or asset related issues.

As at draft determinations, we calculate the upper quartile performance commitment levels using the **upper quartile** of the September 2018 business plan submissions. While there are other methodological options, we consider this approach takes into account that there is information asymmetry between us and companies. Forecast levels can be unrealistic in both directions (too high or too low) and there are incentives on companies to forecast performance that is worse than expected in the later years of the current period, which is why we consider the upper quartile of forecasts more appropriate than, for example, the average. Our experience at PR14 was that many companies accepted performance commitment levels based on current upper quartile performance that they outperformed in the run-up to, and the first year of, the 2015-16 to 2019-20 period. The sector has continued to outperform against PR14 levels over the first three years of the current period, and continues to forecast to do so at sector level for the remainder of the period on each of these three performance commitments.

We do not consider it appropriate to exclude any forecasts from the upper quartile calculations, for example on the view from other companies that these are unachievable or over-ambitious and that using these would result in a forecast upper quartile level that would be unachievable or over-ambitious. This is because, as set out above, we consider that there is potential for companies' forecasts to be unrealistic in both directions (either too high and ambitious or too low and under-ambitious).

However, we consider that once we have calculated the upper quartile performance levels as a starting point, we need to consider whether these levels are a reasonable expectation for the sector so that we can set levels reflecting a stretching but

achievable level of service improvement by 2025. This also addresses the concern raised by some companies that the performance levels derived from our estimation approach are unrealistic. Therefore we conduct further analysis – taking account of wider evidence – to calibrate the appropriate level of stretch of each performance commitment for an efficient company. We consider the following factors:

- the sector's past performance against PR14 levels;
- the scale of improvement over time (both in PR14 and in previous periods where historical, comparable data was available);
- the improvement required to reach the forecast upper quartile level both in the first four years of the period and in the final year 2024-25. This includes looking at the 'overnight' or first year change from 2019-20 forecast levels to the forecast upper quartile level in 2020-21. At final determination we use new data on 2018-19 performance from shadow reporting which was not available to us at draft determination.

We set out in more detail below specific considerations for the three performance commitments.

As we stated in our PR19 final methodology, we expect companies to challenge themselves to achieve at least the forecast upper quartile for each year of the price control period, as we consider this an appropriate means of ensuring continuous performance improvements for customers. Comparative data on companies' forecast upper quartile levels would not have been available to them when first engaging with customers, and therefore we use our comparative analysis as the primary tool to determine if the levels proposed by the companies are suitably stretching.

We assess the evidence provided for deadbands for these (and all) performance commitments, as deadbands reduce companies' incentives to outperform the performance levels and reduce transparency of performance commitments in revealing the full extent of underperformance. We want to ensure companies are incentivised to mitigate any risk of service failure. Where customers experience fluctuations in terms of their service, it is reasonable that the appropriate adjustments are made to bills. Where a company's in-period outperformance or underperformance payments have significant impacts on customers' bills, companies are able to manage the financial consequences as part of considering the impact of ODIs for their in-period ODI determinations, and so can protect customers from bill volatility. At final determination we do not include deadbands for any of the three upper quartile performance commitments.

Water supply interruptions

Water supply interruptions are mainly caused by mains bursts (although planned interruptions can also contribute). Once a mains burst has occurred that causes a supply interruption, it will usually be reported by a customer or a number of customers, and companies respond with investigating and solving the interruption, e.g. arranging for temporary supplies to be restored to the required pressure whilst fixing the problem. Companies have a range of options to improve performance on the duration of supply interruptions, including better management of the response time to reported interruptions, ensuring sufficient availability of teams equipped to restore supply as quickly as possible; better monitoring of the network to more quickly detect and locate pressure losses (e.g. through flow meters and pressure loggers to send live data to control centres); better connectivity by removing areas of single supply; and having mitigation plans in place with local authorities/land owners for areas where bursts maybe difficult to reach e.g. highly populated areas or difficult to reach areas (fields/countryside).

There have been significant improvements in supply interruptions over time with some of the better performing companies improving by more than 50% in the first three years of PR14. At draft determination we set the performance level at the forecast upper quartile level in 2024-25 (3 minutes), with a glide path up to this level (set from the upper quartile of companies' views of their future performance in 2019-20 and decreasing at an even rate) in recognition that the change in performance at the beginning of the 2020-25 period was very challenging.

At final determination we consider company representations that the level of stretch is too high and also reassess data on the level of stretch implied with this performance commitment level, including 2018-19 actuals from shadow reporting data which was not available at draft determination. The latter shows that performance in 2018-19 has been materially worse than forecast (around 19% on average). In particular, we:

- Assess the “overnight”, or first year, change required from 2019-20 (forecast) to reach the draft determination level at 2020-21. The average overnight change required across all companies is 35%. Whilst there are company-specific examples of improvements on this scale in individual years (usually due to recovery from a poor year), there is no historical industry average improvement on this scale. In addition, more than half the companies would require an overnight change greater than this average 35% which, combined with worse than forecast performance improvement in 2018-19, places them at a higher risk of failure.
- Conduct a trendline analysis on companies' historical performance from 2012-13 to 2018-19, projected through to 2024-25, and consider that it will be difficult for companies to achieve the three minutes upper quartile value in 2024-25 if they

continue to improve at the current rate, without radically changing how they mitigate and respond to supply interruption events in a very short timeframe.

We therefore consider that an alternative 2020-21 level is required which provides a more achievable 'overnight' target for some companies; and that the three minute level should be moved to a later year, after 2024-25, to allow operational practices to change sufficiently in order to achieve this level.

We set a common performance commitment level for all companies in the following way:

- Use the upper quartile of actual performance in the 2018-19 shadow reporting from all companies (7mins 21secs) to calculate a linear trend-line to a level of 3mins in 2029-30 (an indicative future date).
- Use the value of the linear trend-line at 2020-21 and 2024-25 (rounded to the nearest 30 seconds) to calculate a start and end point for the performance commitment levels (i.e. 6mins 30 seconds in 2020-21 and five minutes in 2024-25).
- Plot a line between these two values to calculate the performance commitment levels for the years between 2020-21 and 2024-25.

This method provides performance commitment levels that maintain stretch and address achievability concerns by allowing companies time to improve operational practices.

Internal sewer flooding

Generally, internal flooding incidents can be caused either by a blockage or collapse of a sewer, resulting in restriction in flows which floods up through a manhole, from the ground or potentially through an internal toilet. Often an external flooding event becomes an internal event as escaped sewerage from an external manhole enters the property through an opening such as door or air vent. Events can also be caused by lack of hydraulic capacity, where a sewer is effectively not large enough to cope with the amount of sewage flowing through it. The consequences from both these issues can be made worse when there is heavy rainfall. A smaller number of events can be caused by the failure of pumping stations or other assets on the network that are used to move sewage through the system.

Companies can use a range of methods to improve performance in reducing internal sewer flooding including:

- Quicker response to reports of flooding and ensuring enough teams are available and fully equipped to resolve the issues.
- Better flow monitoring of the network to identify issues before they result in flooding incidents.
- More pro-active clearance of blockages on both critical and non-critical sewers, which can be done through the identification of hotspots e.g. areas or large restaurant density or other public services.
- More CCTV surveying of critical sewers to pro-actively identify blockages and collapses.
- Better logging of incident causes to build up a profile of network condition which could be used to inform risk analyses for hot spot identification.

At draft determination we set a common performance commitment level across all companies at the forecast upper quartile performance level. We reassess whether this level is appropriately stretching for an efficient company, including new 2018-19 shadow reporting data in our assessment of the overnight change required for companies to meet the 2020-21 level from 2019-20 levels.

At final determination, we still consider the upper quartile performance level is stretching and appropriate at a sector level. Although there is some dispersion across companies in both historical performance and company forecasts for the 2020-25 period, this dispersion is less than for supply interruptions. The 41% average improvement for 2020-25 (from 2019-20 forecast levels) appears similarly challenging to longer term improvement trends from earlier periods. There is no material difference between the 2018-19 actual performance levels and forecast performance affecting the overnight change. We set companies an 11% challenge for 2015-20, based on historical upper quartile, and they achieved an average of 26% improvement from 2014-15 to 2018-19. This is greater than the average improvement required between 2020-21 and 2024-25 of 20%.

Pollution incidents

A pollution incident is defined as a discharge or escape of a containment affecting the water environment (e.g. a river or body of water such as lake), which can include sewerage and chemicals. Pollution incidents are categorised by the Environment Agency (they range from categories 1-3 for the PR19 performance commitment) to determine their severity. Water companies are required to report incidents to the Environment Agency.

Companies can reduce the likelihood of pollution incidents occurring through many of the same mechanisms as for sewer flooding, with the addition of education and collaborative working with local industry to ensure that accidental release of contaminants does not take place.

At draft determination, we set a common performance commitment level across the sector at the forecast upper quartile performance level. The exception was for Hafren Dyfrdwy, where we set the performance level at the company's proposed level. We reassess whether this level is appropriately stretching for an efficient company, including new 2018-19 shadow reporting data in our assessment of the overnight change required for companies to meet the 2020-21 level.

We do not change our approach for the final determination. We consider a common performance commitment at the forecast upper quartile is stretching and appropriate (with the exception of Hafren Dyfrdwy as described below). There is some limited dispersion across the other companies in both historical performance and company forecasts for the next period. The approximate 30% reduction proposed for 2020-25 (from 2019-20 forecast levels) is broadly consistent with longer term improvement trends from earlier periods. We set the industry a 17% challenge (based on historical upper quartile) during 2015-20 and it has achieved an average of 39% improvement in performance from 2013 to 2018 (pollution is reported in calendar years). There is no material difference between the 2018-19 actual performance levels and forecast performance, and thus we do not consider there to be a clear reason to change our draft determination.

We consider it necessary to make an adjustment for Hafren Dyfrdwy by setting its performance commitment level at its proposed level. We consider that it is not appropriate to set a performance commitment level at the forecast upper quartile level, as this would lead to the company being restricted to having very low numbers of category 3 pollution incidents in absolute terms due to the small size of its sewerage system. Category 3 pollution incidents have minor or minimal impact or effect on the environment, people and/or property whereas, for category 2, the impact is significant and for category 1 the impact is major. The company sufficiently

demonstrates that its proposed performance commitment level is stretching by proposing one of the highest improvements (39%) amongst the industry.

3.1.2 Summary of stakeholders' representations to our draft determinations and our responses

Summary of our draft determinations

At draft determination we followed a similar approach to assessing and setting performance commitment levels as at final determination, with some exceptions as detailed above. We set performance commitment levels for these performance commitments for all companies at the forecast upper quartile, as shown in annex 2 of the 'PR19 draft determinations: Delivering outcomes for customers policy appendix'.

For supply interruptions, we recognised that the change in performance required in the first year of the period is challenging and, in response, set a common glide path for all companies. The glide path was calculated using the upper quartile of companies' views of their future performance in 2019-20 and decreased at an even rate to the forecast upper quartile level in 2024-25. This is a transparent approach which closely aligns levels each year to a profile that we consider is more achievable and consistent with our approach at PR14.

We did not consider glide paths or variations to the performance levels were necessary for pollution incidents and internal sewer flooding. However, we made an adjustment for Hafren Dyfrdwy for pollution incidents, setting the performance level for this performance commitment at the company's proposed level. The company sufficiently demonstrated that its proposed performance commitment level was stretching by proposing one of the highest improvements (39%) amongst the industry.

We did not allow deadbands for performance levels for any companies. We did not consider the evidence on company-specific factors put forward by companies to be sufficiently convincing to justify deadbands. We considered that the proposed factors were either not unique to the company, or did not present a valid reason for why customers would accept a lower level of performance or did not quantify the impact on the proposed levels adequately.

We considered that the performance levels were achievable for an efficient company under base cost allowance and that companies should be aiming to continuously improve service within base cost allowances, consistent with improvement seen in other markets. We set performance commitment levels to reflect the levels that can

be achieved by an efficient company within base costs. In setting the levels, we took into account the historical rate of improvement to reflect what is achievable under base cost allowances.

Common performance commitment levels were not subject to the early certainty principle so our decisions on these performance commitment levels applied to all companies, including fast track companies.

Stakeholders' representations and our response

We present below a summary of the representations received in relation to our draft determination decisions, and our responses. These focus on overarching methodological aspects of our decisions. Our responses to company-specific representations are contained in more detail in the individual company's 'Delivering outcomes for customers final decisions' document.

Dŵr Cymru, Severn Trent Water and Hafren Dyfrdwy challenge our approach of using the **upper quartile** of companies' upper quartile forecasts to set the performance commitment levels. Dŵr Cymru states that these are not individual performance forecasts as our guidance for companies required them to set stretching performance commitment levels on the basis of their own forecasts of upper quartile industry performance. It states that in some cases companies set their forecasts on the basis of additional expenditure in their business plans, or made explicit the distinction between their Business Plan proposed performance commitment levels and their expected performance, e.g. by including deadbands. Dŵr Cymru therefore considers that the resulting levels for these performance commitments are much more likely to be 'too high' than 'too low'. Severn Trent Water and Hafren Dyfrdwy consider that the upper quartile forecasts were subject to 'optimism bias' given that the actual performance levels achieved in 2018-19 were worse than expected.

- **Our response:** As set out above, we consider that taking the upper quartile of companies' upper quartile forecasts an appropriate approach to setting target performance levels for these performance commitments. This ensures that performance commitment levels are stretching, and accounts for information asymmetry around forecasts. We do not consider there to be clear reasons why companies should not achieve the same stretching level of performance, although we do consider well evidenced company-specific adjustments. We still consider that companies may have an incentive to understate industry forecasts in order to influence more achievable performance commitment levels, such that some forecasts may have been lower than realistic (whilst others too high). In terms of the influence of deadbands, after we had set the upper quartile

performance commitment levels many companies removed their deadbands and accepted the improvement challenge, whilst some continued to challenge the achievability of the performance commitment levels. Although some companies may have based their forecasts on additional expenditure, we made it clear in the PR19 methodology that we do not expect stretching service to come at cost to customers. We stated that setting more stretching performance commitment levels does not cost customers more money in itself. If a company incurs expenditure to improve its service performance customers will bear a share of that expenditure through totex efficiency sharing, but companies have strong incentives to keep their costs down (page 56).

Whilst we recognise that 2018-19 performance was in general worse than expected across the sector, we do not consider this sufficient or convincing evidence of 'optimism bias' such that the upper quartile forecasts of companies for supply interruptions are unreasonable. The claim of optimism bias is based on a single year of data, in which performance was impacted by the after-effects of the freeze/thaw event followed by the dry summer, both of which could be considered atypical events. That said, we do not set performance commitment levels automatically at the forecast upper quartile levels. As set out in our approach above, we consider the resulting levels alongside additional checks such as the improvement required for all companies to reach the 2020-21 level from 2019-20 forecasts and 2018-19 actuals (from shadow reporting), and the improvement required to reach the 2024-25 levels, comparing these to historical performance improvements. We consider that this overall approach results in appropriate performance commitment levels that are stretching for an efficient company.

Several companies (Anglian Water, Dŵr Cymru, Hafren Dyfrdwy, Severn Trent Water, and Thames Water) state that the draft determination performance commitment levels for **supply interruptions are unachievable** and propose alternative levels. United Utilities accepts the 2024-25 target of three minutes but proposes an alternative glide path. The companies state that the percentage improvement required across the industry is unachievable and would result in excessive penalties; that only two companies have ever achieved the three minute target; and that companies should not all be required to achieve the same target.

- **Our response:** As set out in our final determination approach above, we reassess the draft determination performance levels for supply interruptions in light of company representations and new 2018-19 performance levels from shadow reporting data, and acknowledge the risk that the draft determination levels would mean for companies in this price control period. We recalculate the performance commitment levels to reflect this.

We take data (such as that provided on 'optimism bias') into account in revising the performance commitment levels for final determination and we consider that more time will be needed for the industry to adopt the necessary changes to reach the upper quartile level of three minutes.

Anglian Water states there is considerable **volatility in the supply interruptions** measure due to influences outside management control such as large isolated impacts and extreme weather. In addition to revising the performance commitment levels, Anglian Water suggests we consider adopting a consistent collar across all companies to minimise the impact of volatility.

- **Our response:** We expect companies to mitigate the negative impacts of adverse weather. However, we acknowledge that there is volatility in this measure, and accept the inclusion of collars for all companies (except South West Water) in our final determinations (as in the draft determinations). We set out our approach and final decisions regarding caps and collars for water supply interruptions in Section 7.

Thames Water states the methodology used by different companies to **calculate performance for supply interruptions** is not comparable and invalidates the target. It provides additional detail in its representation to show how it considers its methodology differs from others.

- **Our response:** All companies confirm through shadow reporting that their reporting is compliant against the standard definition. The company's representation is related to a specific detail of the methodology for data capture which is not specified in the definition. We do not consider the company provides sufficient or convincing evidence of the difference of its approach to other companies to justify a change to our approach for the company. We also would have expected it to raise this with the industry over the course of the definition development and either realign itself to others, or persuade the sector to align with it.

In relation to **internal sewer flooding**, Dŵr Cymru states it receives disproportionately more wet weather than other companies, and that our assessment of severe weather events fails to consider the impact of rainfall on 'other causes' of sewer flooding incidents, such as blockages. The company states that in wet weather a blockage is sufficient to cause flooding, and that we should consider it to be particularly affected by severe weather events.

- **Our response:** We consider that our approach adequately assesses severe weather events. In our PR19 sewer flooding guidance, we set out a section on

severe weather which demonstrates that any individual incidents (including those triggered by 'other causes') could be classed as severe weather where the company provides robust rainfall evidence in accordance with the above criteria. Severe weather events are included in the performance commitment definition for all companies, so this is reflected in the forecast upper quartile. We do not consider the company to receive disproportionately more wet weather, and set this out in our response in the company's 'Delivering outcomes for customers outcomes final decisions' document.

Dŵr Cymru challenges our approach to setting a **common performance commitment level for pollution incidents**. While the company accepts that the methodology of 'normalising by km of sewers' is appropriate for public reporting, it does not accept this methodology for the purpose of setting fair and stretching performance commitment levels across companies, and deriving an upper quartile level of performance as a benchmark. Reasons the company gives for this are differences in companies' operating environments, the use of forecast upper quartile and issues around deliverability compared to cost allowance, as set out in its earlier representation on the upper quartile approach. The company considers that the performance level should be set on the basis of the asset data available to enable an accurate comparison across companies based on a more sophisticated modelling approach. The company proposes a methodology taking into account the numbers of treatment works, pumping stations and other relevant assets, as well as length of sewer. The performance of each asset would be evaluated by examining the number of pollution incidents from a given asset relative to the number of those assets.

- **Our response:** Our approach to measuring this performance commitment is aligned to the Environment Agency and Natural Resources Wales measures on the Environmental Performance Assessment. We value consistency with the Environment Agency and Natural Resources Wales and consider normalising by km of sewers a suitable method for setting appropriate and stretching performance commitment levels (e.g. looking at historical performance on pollution incidents across the sector, foul sewers account for the largest number of pollution incidents, and we consider this further reason to normalise with the length of sewer). We understand that the Environmental Performance Assessment is currently being reviewed. We will consider the outcomes of the review when it is completed. We also consider that the reporting of pollution incidents has a history, which makes it relatively transparent and easy for customers to understand. The company indicates that the current approach favours those companies with a small number of assets and is unfavourable to those with a large number of assets. Other companies highlighted in the company's representation as having a relatively large asset base, specifically Anglian Water and South West Water, accept our performance commitment

levels and do not make representation on our methodology at draft determination. The methodology the company proposes calculates performance scores by comparing the upper quartile target level of incidents and the actual number of incidents. Our assessment of the results of this proposed methodology is that it does not deliver better performance for the sector and is less transparent for customers to understand. As such, there are limited benefits to either the sector or customers in changing our final determination methodology.

Some companies raise a number of **company-specific factors** which they state would prevent them from achieving the proposed performance levels, namely Dŵr Cymru and Thames Water for supply interruptions, Dŵr Cymru and Yorkshire Water for internal sewer flooding, and South West Water for pollution incidents.

- **Our response:** Based on our assessment of the evidence provided, we do not consider that the company-specific factors are sufficiently and convincingly evidenced, account for other relevant factors that may have an opposite impact on performance levels, or are unique to that company. We do not consider that the evidence provided sufficiently quantifies the impact of these factors on the forecast upper quartile level. Therefore we do not adjust performance levels in light of company-specific factors except for Hafren Dyfrdwy for pollution incidents as explained above. Our detailed responses to the company-specific representations are included in the individual company's 'Delivering outcomes for customers final decisions' document.

Other stakeholders' representations on our draft determination for **supply interruptions**:

Bristol Water Challenge Panel notes how the 'company is currently the worst performer in industry and that a 75% improvement in performance is required to reach industry upper quartile'.

The Consumer Council for Water (CCWater) notes how SES Water is currently a 'strong performer on water supply interruptions, although it indicates that it is 'concerned that the company may be able to achieve considerable ODI outperformance payments in this area by simply maintaining current performance (or even deteriorating slightly as it is currently above the industry upper quartile)'. It suggests that we ensure 'any ODI payments the company is able to achieve are appropriate and only reward exceptional performance'.

Anglian Water Customer Engagement Forum notes how on 'the level of performance, it would appear inevitable that the methodology, which required each company to estimate the upper quartile threshold, would result in discrepancies', and

that it was reasonable for Ofwat to propose greater consistency of approach, as proposed in the draft determinations, through a performance commitment level and glide path.

- **Our response:** We welcome the comments from these stakeholders. We agree that setting a common performance level addresses discrepancies in estimates between companies, and that there are benefits of setting a common level across all companies in terms of moving the sector to providing a common service to customers. We also do not consider there to be clear reasons why companies should not aim for the same stretching performance commitment levels. However, we assess the ODI rates for all companies to ensure they are set appropriately.

In relation to **internal sewer flooding**, other stakeholders comment as follows:

The Anglian Water Customer Engagement Forum agrees with Anglian Water's acceptance of the performance commitment level, whilst noting it is less challenging than that originally proposed. The Anglian Water Customer Engagement Forum states it would 'advocate an approach to societal valuation that is more consistent earlier in the price review process to avoid the emergence of inconsistency between the scale of rewards and penalties being used during an asset management plan (AMP), and locally derived valuations from well conducted customer engagement conducted in good faith.'

The Environment Agency notes how companies need to make a 'step change in how they deal with internal sewer flooding', through an 'appropriate mix of mitigation, hydraulic solutions, and sustainable solutions in their business plans to remove surface water from the sewer network.' The Environmental Agency specifically references Northumbrian Water, Yorkshire Water and Wessex Water as leaders in this area and ask that this is recognised in the final determinations.

- **Our response:** We welcome the comments from the Environment Agency and agree that companies should be stretching their performance using a range of appropriate solutions in order to meet upper quartile performance commitment levels. We have used this view when assessing company representations to our draft determination. Of the companies regulated by the Environment Agency, Wessex Water and Anglian Water are sector leaders based on 2018-19 actual data, while Yorkshire Water and Northumbrian Water have made significant improvement from their 2017-18 performance levels.

We also welcome the representation from the Anglian Water Customer Engagement Forum. Our approach to setting financial incentives is set out in Chapter 4 of this

document, including our consideration of customer evidence. We consider it necessary to review the overall impact of performance commitment packages once all assessments of target levels and ODIs have been conducted (as described in our approach to assessing performance commitment packages in Chapter 4), which by definition comes later in the price review.

In relation to **pollution incidents, other stakeholders'** comment as follows:

Anglian Water Customer Engagement Forum welcomes the acceptance by Anglian Water of the common performance commitment level, although it proposes 'further dialogue between Ofwat, Defra and the Environment Agency about the appropriateness of rewards for companies improving performance in this aspect of their activity'.

The Consumer Council for Water notes how it was disappointed that Yorkshire Water's PR19 plans for some key performance commitments 'showed a lack of ambition and would not improve sufficiently to avoid being an industry outlier'. The Consumer Council for Water notes how it 'supports Ofwat's intervention to set targets to bring Yorkshire Water in line with other water and sewerage companies' for specific performance commitments, including pollution incidents.

The Environment Agency acknowledges that most water companies have accepted the upper quartile challenge for pollution incidents. This will result in a 34% reduction from the 2024-25 predicted baseline. It commends the Northumbrian Water ambition to reduce its pollution incidents and asks Ofwat to include it in our final determinations. The Environment Agency also notes concern that the pollution incident performance incentive mechanism counters their position on rewards for reducing pollution incidents.

- **Our response:** We welcome the comments from these stakeholders. We note Anglian Water Customer Engagement Forum's and the Environment Agency's comments about the appropriateness of rewards in relation to pollution incidents, and discuss this issue in Chapter 4 on ODI rates. We acknowledge that Northumbrian Water proposes a very stretching upper quartile level that equates to a 43% reduction, above the sector level reduction. However, in order to have consistent and appropriate service levels across the sector, we retain our calculated upper quartile levels for Northumbrian Water in line with our methodology.

3.2 Leakage⁶

We are concerned that previous approaches to leakage reduction have not driven sufficient efficiency improvements or innovation. In our PR19 methodology we challenged companies to deliver at least a 15% leakage reduction based on annual leakage levels and achieve forecast upper quartile performance (in relation to leakage per property per day and leakage per kilometre of main per day) or justify why this is not appropriate.

3.2.1 Our policy approach for the final determination

Performance commitment definition

We set leakage performance commitment levels as **three-year average percentage reductions** compared to the 2019-20 actual three-year average performance outturn value.⁷ We consider there is a case for leakage (and per capita consumption, as set out below) performance commitment levels using a three-year average to smooth variations due to weather. Using three-year averages enables comparison of the trends in leakage and PCC performance rather than annual changes.

The measurement definition for the leakage performance commitment has changed since PR14 and, from 2020-21, all companies are required to report leakage using the same estimation methodology for all elements of the leakage calculation. Although companies have been shadow reporting against the new measure for the last three years, not all companies are yet compliant with it. We therefore consider that it is appropriate to base the performance commitment levels on a percentage change relative to the **outturn value for 2019-20**, as opposed to the forecast value for 2019-20 (i.e. the performance commitment level for the end of the 2015-20 period), which may not consistently take into account the new definition. We consider that setting the performance commitment levels as a percentage reduction from baseline of 2019-20 three-year average, as opposed to absolute levels, ensures that the performance commitments relate to actual performance achieved in the 2020-25 period and not to changes in methodology or data quality.

We acknowledge that setting the baseline to the actual performance at the end of the previous period rather than to the forecast levels may be considered to penalise companies that attempt to make an early start on progressing towards their stretching performance commitment levels for the 2020-21 to 2024-25 period, by

⁶ The leakage performance commitment applies to total distribution system leakage, including customer-side leakage.

⁷ Our approach to using a three-year average for leakage and PCC performance levels is outlined in appendix 2 of our PR19 methodology.

improving performance already in 2019-20. However, companies' 2015-20 performance is incentivised according to the PR14 final determinations. If 2019-20 forecast levels are used as the baseline against which performance is reported and incentivised in 2020-25, then companies who improved their performance before the start of the 2020-25 period would be rewarded twice for the same volumetric reduction, both in the 2015-20 period and in the 2020-25 period.

There is a risk that some companies' actual performance in 2019-20 does not meet their 2019-20 forecasts. We have added a provision to each company's performance commitment definitions to amend the 2019-20 baseline if their actuals are very different from their performance commitment levels for that year. We will apply this amendment if the company does not clearly explain the reasons for differences or if the forecast 2019-20 service level is not met due to reasons which we consider to be within the company's control. As a minimum, if, using the PR14 calculation of leakage set out in the PR14 performance commitment, a company does not meet its 2019-20 leakage performance commitment level (specified in our PR14 final determinations), the company's actual level for 2019-20 will, for the purposes of setting the baseline for the 2020-25 period, be adjusted downwards by one third of the difference between the value derived from the PR14 2019-20 performance commitment level and the actual level for 2019-20.

Assessment of performance commitment levels

We do not set a common performance commitment level across all companies, but assess company performance commitment percentage reductions in the following way:

- We compare the companies' **normalised forecast upper quartile levels** for 2024-25 in relation to leakage per property per day and leakage per kilometre of main per day. We consider these two metrics are the most appropriate as they are accepted normalised metrics used by the UK industry, and reflect the fact that both the joints and connections, and aging pipes are the 'weak' points in the network that cause leaks and that used together they give the full picture of performance. We consider that other leakage metrics, in particular leakage as a percentage of distribution input, are not as robust. This is because an increase in consumption, for example because of a sustained hot, dry period, will appear to lead to an improvement in leakage levels while there has not been any reduction in the volume of water lost. Likewise, a successful water efficiency campaign will reduce the amount of water used and leakage will appear to increase. On this basis, the metric is considered volatile. We consider that **cross-company comparisons** are valuable to identify company performance levels that are outliers. This is because this performance commitment measures the same

performance and uses a common methodology to assess it, and we consider that a comparative analysis is one of the drivers of performance improvements.

- We consider whether companies demonstrate consideration of **appropriate approaches** in setting the proposed levels: cost benefit analysis, comparative information, minimum improvement, maximum level attainable, historical information and expert knowledge. In line with our PR19 methodology, we expect all of these approaches to have been taken into account. We consider whether companies provide sufficient and convincing evidence that the proposed levels are stretching and supported by their customers. This is demonstrated by considering:
 - how the proposed reduction compares with achieved historical reductions and best ever levels achieved,
 - quality of customer engagement and the feedback from the companies' Customer Challenge Group (CCG), and
 - demonstration of understanding of the societal benefits of reduced leakage.
- We consider whether the companies provide well justified reasons supported by their own empirical evidence that achieving greater reduction than proposed is not attainable. The evidence should explain specific challenges the company faces in reducing leakage that cannot be overcome during one five-year period.
- We assess whether the companies achieve **at least 15% reduction** in leakage by 2024-25, defined as a reduction in leakage of 15% on an annual average basis (rather than three-year average basis) compared to 2019-20 performance commitment levels as specified in our PR14 final determinations. We undertake analysis of data provided by companies in September 2019 – this covers performance commitment levels and percentage reductions both in annual and three-year averages based on companies' latest views. We compare leakage reduction using this latest company-provided data (2017-18, 2018-19, 2019-20) to the performance commitment levels for the 2015-20 period less 15%. This shows whether the proposed performance commitment levels we are considering for final determination would result in a percent reduction greater than a 15% improvement on its performance commitment levels for the 2015-20 period.
- Where companies propose leakage reductions of **greater than 15%** by 2024-25, we consider whether these reductions are deliverable within base funding and adjust performance commitment levels to be less stretching where we consider them to be too challenging

For most companies we set performance commitment levels which we consider to be achievable within base funding. For Anglian Water, Bristol Water, SES Water and South East Water we allow enhancement expenditure because their forecast performance levels exceed our enhancement funding threshold (see 'Securing cost efficiency technical appendix' for more information). Our approach to setting ODIs to recover this enhancement funding is set out in Section 4.5.

We consider each company's proposed levels individually to assess whether they meet these expectations and are stretching.

Our final determination

Our decision whether or not to set the leakage performance commitment levels at the levels proposed by companies is based on our assessment against the above considerations. We summarise our final determination decisions below.

- We are satisfied that all the **above criteria are met** for these companies: Northumbrian Water, SES Water, South Staffs Water (Cambridge region), Severn Trent Water, South West Water, Dŵr Cymru and Wessex Water.
- We align the performance commitment levels of three companies to the **additional funding** they have received to achieve more stretching leakage reduction levels. For Anglian Water, Bristol Water and South East Water this results in an increase in their performance commitment levels to deliver the same volumetric reductions, up to their WRMP levels, for which we allow enhancement funding. SES Water's performance commitment percentage reductions does not need to be amended to align with its WRMP.
- One company, Thames Water, lags the sector significantly. We set its performance commitment level at a **20.4% reduction** on a three-year average basis using the actual 2019-20 level baseline, which is expected to deliver at least a 15% improvement on PR14 levels and is broadly consistent with its section 19 undertaking under the Water Industry Act 1991.
- There are four companies that we consider are likely to deliver significantly **more than 15% reduction from their PR14 2019-20 performance commitment level on an annual average** basis. We consider whether these reductions are consistent with the wider sector challenge to reduce leakage with base cost allowances. These companies can earn outcome delivery incentives if they improve performance beyond these stretching levels to fund further service improvement including water resource management plan levels where these go beyond the performance commitment levels.
- For Yorkshire Water we accept its August representation proposal of a 15% reduction on three-year average basis.

- For Portsmouth Water we set its leakage percentage reductions to its September business plan proposal of a 15% reduction on three-year average basis.
- For United Utilities we set its performance level at a 10.8% reduction on a three year average basis. This is based on September business plan proposals for 15% annual average leakage reduction amended to ensure continuous improvement over the period.
- For South Staffs Water (South Staffs region) we set its performance level at a 15% reduction on a three-year average basis.
- For Affinity Water we retain our draft determinations decision accepted by the company to set its performance level at a 20% reduction which was less stretching than the company's April 2019 revised business plan proposal of 23% reduction but is consistent with the wider sector challenge to reduce leakage with base cost allowances. We note the company's poor 2018-19 performance and our performance commitment level is consistent with our expectation to deliver at least a 15% improvement on PR14 2019-20 performance commitment levels. The company can earn outcome delivery incentives if it improves performance beyond these stretching levels to fund further service improvement including water resource management plan levels where these go beyond the performance commitment level.
- For Southern Water and Hafren Dyfrdwy we accept the performance commitment levels proposed by the company because, based on these companies' 2019-20 forecasts, they would deliver at least a 15% improvement on PR14 2019-20 performance commitment levels and are not lagging behind the sector. However, we note their poor 2018-19 performance and the possibility that the companies may not achieve their 2019-20 forecasts. We consider that having a provision in each company's performance commitment definitions to amend the 2019-20 baseline if companies' actuals are very different from their performance commitment levels for that year as referred to above is appropriate.

3.2.2 Summary of stakeholders' representations to our draft determinations and our responses

Summary of our draft determinations

At draft determination we followed a similar approach to that set out above. The key change at final determination is the analysis using the latest company data comparing the percentage reductions implied by the proposed performance commitment levels with a 15% reduction in performance commitment levels from the 2015-20 period. This analysis has enabled us to revise our view of the achievability of proposed performance commitment levels for final determinations. Another is

changes in the levels of allowed funding which impacts on performance commitment levels for some companies.

We intervened at draft determination for Thames Water to set a more stretching performance level of a 25% reduction, based on the highest percentage improvement proposed by all other companies, on the basis that Thames Water has significantly worse performance than other companies.

We intervened to reduce the proposed levels for Affinity Water and Yorkshire Water to achieve 20% reductions, which we considered sufficiently stretching and suitable to be covered by base cost allowances. We welcomed Yorkshire Water's and Affinity Water's ambition to go beyond the stretching level covered by base service, and noted that companies can earn outperformance payments for delivering beyond stretching performance levels.

We removed the proposed deadbands by Anglian Water and Yorkshire Water. For Anglian Water, we considered its customers were not given sufficient technical information by the company to make an informed judgement. For Yorkshire Water, we intervened to reduce its leakage reduction to that which is covered by base funding which was its rationale for the deadband. We accepted the removal by Bristol Water of its proposed deadband.

Summary of stakeholders' representations and our responses

We receive a number of representations from companies and other stakeholders. We summarise our responses to the representations related to our methodological approach. Our responses to company-specific representations are set out in the individual company's 'Delivering outcomes for customers final decisions' document.

Northumbrian Water challenges the use of actual 2019-20 performance as the baseline for setting the three-year average percentage reduction level rather than forecast performance. It considers this penalises companies who improve performance before the start of 2020-25 period.

- **Our response:** In line with our final determination approach set out above, we consider it appropriate to use actual rather than forecast 2019-20 performance as a baseline. This ensures that if companies' actual 2019-20 performance exceeds their forecast they are not rewarded twice through the incentives from PR14 and PR19. If companies perform worse than expected in 2019-20 we reserve the right to adjust their performance commitment levels if they do not clearly explain the reasons for differences or if the forecast 2019-20 service level is not met due to reasons which we consider to be within the company's control.

Thames Water and SES Water challenge our approach of comparing companies in relation to the forecast upper quartile normalised on l/prop/day and per km of main/day. Thames Water considers that using an alternative metric (leakage as a percentage of total distribution input) shows them not to be an outlier, and SES Water considers that normalising on only a per property basis is more robust (it considers properties a better driver of leakage than length of mains) and would show it to be in the upper quartile.

- **Our response:** As set out in our approach above, we consider comparing companies in relation to the upper quartile normalised on both l/prop/day and per km of main/day the most appropriate as these are accepted UK water industry metrics and reflect the fact that both the connections and aging and poor condition pipes are 'weak' points in the network that cause leaks and bursts and should be considered together to give an overall view of performance. Note that we change the leakage funding approach so that the enhancement threshold is now based on the geometric mean of both leakage metrics rather than expecting upper quartile performance in both. This provides a better balance between the two normalisation metrics for determining enhancement funding (see 'Securing cost efficiency technical appendix' for more information). As set out above we do not consider leakage as a percentage of distribution as a valid comparative metric as it is volatile and not fit for purpose.

Anglian Water, SES Water and South Staffs Water challenge the performance commitment levels and associated funding decisions at draft determination, stating they cannot achieve the leakage reductions set without additional funding. Anglian Water states that our leakage policy fails to recognise the higher costs of maintaining its current leakage performance and to reflect the costs of improving from this strong base.

- **Our response:** For most companies we set performance commitment levels which we consider to be achievable within base funding. We consider our approach of comparative assessment appropriate to ensure stretching levels are set across the industry, and undertake additional analysis to assess the appropriateness of each company's performance commitment levels in relation to the implied percentage reduction from 2015-20 performance commitment levels. Where companies have been granted additional funding to achieve leakage levels greater than the upper quartile, we adjust the performance commitment levels where necessary to align with this (including for Anglian Water, Bristol Water, SES Water and South East Water). We consider Anglian Water's challenge in our response to its company-specific representation and have adjusted its performance commitment levels and ODI rates to take into account its current frontier leakage performance and the additional funding we allow at

final determinations. We are also making a £50 million uplift to Anglian Water's base allowance, where leakage is a significant variable driver of this uplift for the company (see 'Anglian Water - Cost efficiency additional information appendix' for more detail). This also addresses the company's view of the higher costs of maintaining its current leakage performance. We further discuss our approach to making a funding allowance in the 'Securing cost efficiency technical appendix'.

We also receive representations from Bristol Water, Anglian Water and Yorkshire Water relating to adjusted performance commitment levels and 2019-20 baselines. Our responses are set out in the individual company's 'Delivering outcomes for customers final decisions' document.

3.3 Per capita consumption

In our PR19 methodology we highlighted the importance of per capita consumption (PCC) and said that when assessing performance commitment levels we would pay particular attention to the level of ambition that companies have shown, including in relation to customer participation, and how they have reflected government policy and expectations in this area. We expected the companies to explain how their five-year performance commitment levels and long-term projections for leakage relate to their WRMPs.

PCC applies to household customers only, and the performance commitment levels are set as three-year average values, as with leakage, to smooth annual variations due to weather.

3.3.1 Our policy approach for the final determination

We set the performance commitment levels for companies as a percentage reduction from the 2019-20 actual level (as with leakage). We consider that setting the level as a percentage reduction relative to a baseline ensures that the performance commitment relates to actual performance changes and not to changes in measurement methodology.

As with leakage, we consider that using **actual 2019-20 performance values** for the baseline is appropriate, so that companies that perform better than their forecasts are not rewarded twice for the same volumetric reduction, both in the 2015-20 period and in the 2020-25 period. We acknowledge that this generates some uncertainty over the end of period forecast in absolute terms, which makes it difficult to compare it against specific targets such as companies' WRMP targets.

There is a risk that some companies' actual performance in 2019-20 do not meet their 2019-20 forecasts and we expect companies to explain the reasons for any differences in their actual performance values and their business plan forecasts.

Assessment approach

We assess companies' proposed PCC performance levels against a range of criteria. This assessment takes into account cross-company comparisons and company-specific factors such as metering penetration. We consider that cross-company comparisons are valuable to identify company performance levels that are outliers, and a valuable means of driving performance improvements. We recognise that company-specific factors are also relevant and therefore do not use the cross-company comparisons deterministically in assessing or intervening in PCC performance commitments.

Our assessment considers the following:

- Whether the performance commitment level is better than the WRMP target for PCC. Companies have considered PCC as part of the WRMP process and closing the supply demand balance deficit, and hence we consider companies should have good reasons for having PCC levels that are higher than those set out in their WRMPs, particularly as the PCC levels in WRMPs are defined differently to our performance commitment levels. WRMP PCC levels are based on a dry year annual average basis specifically for planning purposes (i.e. how much water does a company need to supply in a dry year) and they may not reflect a stretching level of performance. More details of differences between WRMP levels and performance commitment levels are set out in our responses to stakeholders' representations below.
- Whether the performance commitment level is worse than the upper quartile absolute level of 128.6 litres per person per day in 2024-25, since we consider this a stretching benchmark against which to measure companies.
- Whether the proposed reduction is at least upper quartile percentage reduction of 6.3%, which we consider to be a stretching benchmark against which to measure whether companies are challenging themselves to improve performance on PCC.
- The consistency of a company's proposed levels with neighbouring or similar companies.
- Whether the company has a supply/demand deficit in its region. We consider this a relevant factor to take into account when setting PCC performance commitment levels because companies with supply/demand deficits should adopt a twin-track approach for closing the deficit, which would involve reducing PCC. We consider that a supply/demand deficit in any water resource zone in the company region will require some action from that company, even if there is no deficit in other

water resource zones. This means we assess PCC at the company level, which is appropriate as the performance commitment measures the overall performance across a company's entire household customer base.

- Other company-specific factors such as demography, historical PCC, total percentage reduction across PR19 and metering penetration (as metering is a key means of reducing PCC). We also assess companies' future positions for example plans for trading with neighbouring companies or supply dominant investment in WRMPs, as we consider the need for reducing demand taking into account the regional context within which each company operates in addition to its individual circumstances.
- Whether the company provides well-justified reasons, supported by its own empirical evidence, that achieving greater reduction than proposed is not attainable. The evidence should explain specific challenges the company faces in reducing consumption that cannot be overcome during one five-year period.
- We also consider if the company's 2020-25 performance commitments fit in with longer term forecasts (see Annex 2), although this is not a significant factor in determining interventions.

Intervention approach

Our decision on whether or not to intervene on companies' proposed performance commitment levels for PCC is based on our assessment against the considerations above. We accept proposals from companies which forecast upper quartile performance commitment levels or better in 2024-25, or propose upper quartile percentage reduction and if their 2024-25 performance commitment level is below 140 l/h/d⁸.

We intervene where companies propose performance commitment levels that are worse than either the upper quartile absolute level or upper quartile percentage reduction, and where we assess there to be concerns relating to the other assessment criteria, in particular the supply demand balance deficits and levels of ambition shown. We expect companies with supply demand balance deficits to show more ambition and propose more stretching service levels.

In most cases we set the levels to the closer of the upper quartile absolute service level or upper quartile percentage reduction, although in a few cases we choose different values depending on company-specific factors.

⁸ In January 2018, Defra published *A Green Future: Our 25 Year Plan to Improve the Environment* which states 'We want to see water use in England fall – the average person currently consumes 140 litres per day.' (p70) This average usage is based on WRMP dry year annual average data which is typically 1% to 5% higher than the annual average method of PCC calculation used for setting performance commitments as part of business planning.

3.3.2 Summary of stakeholders' representations to our draft determinations and our responses

Summary of our draft determinations

Our approach at draft determination followed the approach set out above. We intervened to revise the performance commitment levels for seven slow track companies based on our assessment against the above criteria.

We also set out that, given the increasing importance of making best use of precious water, there is a case for going further than the proposed draft determination interventions. The leading reductions in the sector at draft determination, proposed by Affinity Water of 12.5% and Yorkshire Water of 8.9%, suggest that more ambitious reductions are deliverable by the sector. International comparison suggests that water consumption in England and Wales is high relative to other European countries, many of which achieve water consumption levels below 120 litres per person per day. We therefore invited stakeholders to consider the case for requiring companies to deliver a 10% reduction over the 2020-25 period or forward-looking upper quartile performance.

Summary of stakeholders' representations and our response

We receive a number of representations from companies and other stakeholders. We summarise our responses to the representations related to our methodological approach. Our responses to company-specific representations are set out in the individual company's 'Delivering outcomes for customers final decisions' document.

Dŵr Cymru, Welsh government and Natural Resources Wales challenge us to justify a deviation from the company's WRMP agreed target, on a more robust basis than simply applying an upper quartile industry comparison. In particular, the Welsh government expressed the view that water efficiency needs to be tackled in the round, and that all stakeholders who have a role to play in water efficiency do so within an agreed framework. South Staffs Water's Water Customer Panel stated that the target we set in our draft determinations for PCC reduction is not aligned with what is in its WRMP.

- **Our response:** As set out in our approach above, we consider there are valid reasons for potential deviations of our performance commitment levels from companies' WRMPs. This is because PCC forecasts in WRMPs are developed for planning purposes and are based on forecast dry year annual average demand, when demand for water is at its highest before water use restrictions are imposed. In contrast, our PCC guidance is for reporting purposes and is based

on a different methodology which accounts for weather variations through annual reporting of three year average values. As such, we typically expect the actual reported performance to be lower than the corresponding WRMP values for PCC, as on average not all three consecutive years will be dry years (as assumed by definition in WRMPs) and some can reasonably be expected to be normal years. The uplift factors from a normal to dry year are considered by individual companies when developing their WRMPs and they vary but are typically in the 1% to 5% range. There are also other reasons for differences (both up- and downward) with WRMPs:

- some are based on a different definition of PCC;
- some companies have moved closer towards the common definition and have used re-stated data for their proposed performance commitment levels; companies have more up-to-date data now which underpins performance commitment levels whilst WRMPs are based on older information (at least 12 months out of date).

Our initial starting point in our assessment is that we expect performance commitment levels to be at or lower than WRMPs for the above reasons. This is because we consider that the WRMPs set out how companies intend to manage their supply-demand balance for which they are funded through the price review process. We asked companies to provide us with good reasons why their proposed performance commitment levels are not aligned to their WRMPs. If a company does not provide sufficient or convincing evidence of the differences between its WRMP and its proposed performance commitment level we intervene to make it more stretching. Further, if our assessment identifies that a company is a poor performer then, dependent on other company-specific factors, we may also intervene to increase the level of stretch.

Bristol Water, Dŵr Cymru, and Portsmouth Water challenge the use of comparative analysis due to specific local circumstances.

- **Our response:** As set out above in our approach at final determinations, we consider comparative analysis as part of our approach to setting performance commitment levels appropriate, as this performance commitment uses a common methodology to measure PCC, and we consider that a comparative analysis is one of the drivers of performance improvements. We include company-specific factors in our methodology, such as companies' own WRMP PCC forecasts, consistency of a company's proposed levels with neighbouring or similar companies, a supply/demand position, and metering penetration. We are not stretching companies to same level but are considering both the absolute level

and percentage reduction to promote changes and decide what a stretching performance commitment level is.

South East Water challenge the use of company-level PCC as a robust means by which to measure the level of stretch, and proposes an analysis based on water resource zones. Dŵr Cymru and United Utilities challenge the use of supply/demand deficit criterion in our approach as it does not take regional aspects into account.

- **Our response:** As set out in our approach above, supply-demand deficit is a relevant factor to take into account when setting PCC levels because companies should adopt a twin-track approach for closing the deficit, which would involve reducing PCC. We therefore assume that a supply-demand deficit in any water resource zone in the company region will require some action from that company. In addition, assessing PCC at a company level is reasonable as this performance commitment measures the overall performance across its entire household customer base for the company. The presence of water resource zones with a lower than average PCC does not detract from the need for a company to take action in other areas, which should in turn reduce its overall company-level PCC. We address company-specific aspects of these representations in the individual company's 'Delivering outcomes for customers final decisions' document.

Anglian Water states that PCC performance commitment levels have been set as an upper quartile percentage reduction at draft determination, which was not sign-posted in the methodology.

- **Our response:** Our PR19 methodology, and draft determination approach, stated that we use comparative information and that companies should challenge themselves to upper quartile performance when setting performance commitment levels. We considered forward-looking upper quartile and historical upper quartile in order to encourage improvements. We also stated in our PR19 methodology that we expect companies to use information on their best past performance. However, we did not use the upper quartile deterministically to set performance commitment levels, and in cases where we considered upper quartile was not achievable for a company we considered company-specific factors if intervening on the performance commitment levels. Using this assessment methodology we set Anglian Water's PCC performance commitment level at the upper quartile absolute service level.

Affinity Water challenges the use of percentage reduction as the measurement unit for the PCC target rather than litres per person per day.

- **Our response:** As set out in our policy approach at final determinations, we consider that whilst using absolute values offers an apparent tangible performance commitment level, we consider that percentage reduction relative to a baseline ensures that performance commitment relates to actual performance changes and not to change the methodology.

Waterwise stresses the importance of having confidence that 2020-25 performance commitment levels are stretching but achievable and highlights that achievement could rely on factors outside the water companies' control, such as government action on mandatory water labelling and minimum standards for water fittings in new and existing homes.

- **Our response:** We agree that the levels should be stretching but achievable. Companies do not include new policy or regulatory options in their WRMPs as these are generally screened out early as too uncertain in the short term; the options included in their WRMP19 preferred plans are therefore options within the companies' control for the 2020-25 period. We consider that the upper quartile reduction proposed by all companies for the 2020-25 period is stretching but achievable at an efficient level of cost, and evidenced by historical reductions achieved in PR09 and PR14 to date.

CCWater supports the efforts to reduce PCC through stretching performance commitment levels, but expresses concern that Portsmouth Water 'hasn't successfully evidenced how it will reach its PCC target; particularly as it is unable to compulsorily meter on a universal basis, under legislation related to seriously water-stressed areas.' CCWater notes that 'a significant cultural change will be required in the Portsmouth area, encouraging customers to value water, as the prevailing view is that there is plenty of water and therefore no need to reduce consumption.'

- **Our response:** We see a reduction in PCC as a key step in ensuring the resilience that is needed for the future. We consider that a cultural change is within a company's control to engage with its customers and encourage a reduction in consumption.

The South Staffordshire and Cambridge Water Customer Panel ('the Panel') reiterates that in its report of September 2018 it expressed anxiety about the over-dependence of a supply/demand deficit in the Cambridge area on assumptions about factors outside the company's control, especially population growth, and PCC. The Panel considers that the latter is least subject to influence by the company, as demographic or economic factors like population growth are entirely external. The Panel states that in its demand forecast the company correctly followed the method set out in WRMP guidance and notes that in the draft determination we adopted

different growth forecasts, taken from the Office of National Statistics (ONS). The Panel's previous concerns about supply/demand balance in Cambridge are exacerbated by both the low ONS prediction and the use of inconsistent data between the WRMP and our final determination.

- **Our response:** We did not carry out an independent population or demand forecast exercise for the purpose of setting the PCC performance commitment levels, and our assessment is based on the company's own population forecasts and its WRMP, such that the business plan and WRMP are not based on inconsistent data. We address the issue about alignment of performance commitment levels with WRMPs in our response to a previous representation above.

We also receive representations from Bristol Water, Dŵr Cymru, Portsmouth Water, United Utilities, Wessex Water and five other stakeholders relating to performance commitment levels, the submission of new data and our consideration of company-specific factors. Our responses are set out in the individual company's 'Delivering outcomes for customers final decisions' document.

In response to our consultation on a forward-looking upper quartile reduction of 10%, responding companies unanimously do not support this level of reduction for the 2020-25 period. The views and our response are summarised in the table below.

Table 3.2: Views on upper quartile reduction level

	Reasons given and our response
1	<p>A 10% reduction represents a major change to WRMP which has been through consultation process.</p> <p>Our response: We agree that for the majority of companies a performance commitment level of 10% reduction would represent a significant deviation from their WRMPs. We do not consider that a full alignment is required or, for some companies, even possible for valid reasons. However, we do not consider that to go significantly below WRMPs is appropriate at this time.</p>
2	<p>The target does not consider factors such as metering e.g. Defra's policy on compulsory metering. PCC performance commitment levels should apply proportionately to different parts of the country.</p> <p>Our response: We agree that performance commitment levels should take into consideration relevant factors and we have described the factors which we consider relevant in our final determination approach. We continue to consider they are valid and we agree that the same target for all companies is not likely to be suitable for this reason.</p>
3	<p>Short term reduction performance commitment levels risk losing the potential for long term improvements. Delivering a step change in PCC can only be achieved through collective stakeholder action.</p> <p>Our response: We welcome the consideration of long-term reduction. We agree that there is a need for ambition in reduction and a national, regional and local roadmaps for achieving sustainable short-term and long-term reductions. However, we view the water sector as having a key role in achieving these improvements because water companies have statutory obligations to promote water efficiency and sustainable water use practices.</p>
4	<p>Water consumption trends cannot be seen in isolation from other cultural trends and 10% reduction over PR19 is highly unlikely to be deliverable given the significant behavioural change this would require from customers.</p> <p>Our response: We recognise the challenge and consider that companies should show leadership in providing a quality service to their customers, part of which is providing support in managing their consumption, but that the performance commitment levels should be stretching but achievable. We note that Affinity Water is committing to deliver a 12.5% reduction.</p>
5	<p>Ofwat presented no evidence for the selection of the performance commitment level t and setting PCC performance commitment level goes beyond economic regulation.</p> <p>Our response: We consider that given the increasing importance of making best use of precious water, there is a case for going further than the proposed interventions. The leading reductions in the sector, proposed by Affinity Water of 12.5% and Yorkshire Water of 8.9% suggest that more ambitious reductions are deliverable by the sector.</p> <p>Companies are funded through the price review process for their statutory requirement to maintain their supply-demand balance. We therefore reconsider that setting stretching performance commitment level is part of the price review process.</p>

3.4 Performance commitments relating to statutory measures

The DWI regulates compliance with statutory obligations in relation to drinking water quality for companies across England and Wales. Compliance with statutory

obligations relating to wastewater discharge quality is regulated by the Environment Agency and Natural Resources Wales for England and Wales respectively.

The two common measures used to monitor compliance with the statutory obligations are the **compliance risk index (CRI)**, which measures water quality across the asset base, and **treatment works compliance**, which measures the ability of the company to treat effluent effectively. CRI is defined and calculated/reported by the DWI. Treatment works compliance is defined and calculated/reported by the Environment Agency and Natural Resources Wales.

3.4.1 Our policy approach for the final determination

We set the performance commitment levels for CRI and treatment works compliance for all companies at the statutory compliance levels. This is a level of 0 for CRI and 100% for treatment works compliance. This was also our approach at draft determination, which all companies accepted.

Due to the performance level being set at the full compliance value, we set a standard deadband for all companies to allow for some fluctuation in performance, whilst providing a strong incentive to minimise compliance failures.

Common performance commitment levels are not included in early certainty for fast track companies, so our decisions on these performance commitment levels apply to all companies, including fast track companies. We describe in more detail below the application of our final decision on deadbands for fast track companies with early certainty.

Compliance risk index

We set the deadband for CRI to 2.0 for the whole 2020-25 period across all companies.

This reflects a change from our approach at the initial assessment of plans and our draft determination. At the initial assessment of plans we set the CRI deadband at 1.50 for the period 2020-25, on the basis of the observed upper quartile performance in 2017 and forecast upper quartile deadbands proposed by companies. At draft determination we revised this to a glide-path of 2.0 for the first two years and 1.50 for the last three years of the period. This reflected the residual impact from the metaldehyde on the water quality following a ban on its use being implemented from June 2020 (i.e. to allow some flexibility for the legislation to be fully implemented before expecting performance levels to reach full compliance).

Following our draft determination decision, the metaldehyde ban has been overturned in the High Court. We have also received another year's data on compliance levels (2018) with which to test possible deadband levels. Based on our analysis of the medians for 2016-18 CRI data and taking into consideration uncertainty over the metaldehyde ban, we consider that a deadband of 2.0 across all years of the 2020-25 period is appropriate. This is broadly in line with the median industry performance levels for the 2018-19 period, and we consider it will appropriately incentivise companies to improve their performance should the metaldehyde ban not be reinstated during the period.

Our final decision applies to all companies, including those with early certainty (South West Water). This is because our initial assessment of the deadband at IAP and draft determinations included the impacts of the metaldehyde ban. Because the overturning of the ban in the High Court is a legislative change, the revised deadband should be applied to companies with early certainty.

Treatment works compliance

We consider that the deadband should allow for some fluctuation in performance, whilst providing a strong incentive for companies to minimise compliance failures.

We set the deadband at 99%. This is calculated as the upper quartile of the forecast deadbands from all companies based on September 2018 business plans. It is also in line with the Environment Agency guidance, where performance less than 99% is considered not acceptable and attracts an Amber rating. This was also our approach at draft determination, which all companies accepted.

This deadband applies to all companies with the exception of Hafren Dyfrdwy, for whom we set the deadband at 97.9%, equal to a single failing site. This is in recognition of the fact that, as a small company with fewer than 100 sites, a deadband of 99% would be disproportionate in comparison with other companies as it would not allow the company any variation around the target (failure at a single site would result in a CRI score worse than 99%).

3.4.2 Summary of stakeholders' representations to our draft determinations and our responses

We summarise below stakeholders' representations to our draft determination, and our responses. We focus on the representations that have broad methodological implications. We address company-specific aspects in the individual company's 'Delivering outcomes for customers final decisions' document.

We did not receive any representations on treatment works compliance.

Compliance risk index

Ten companies make representations on the deadband for CRI: Anglian Water, South East Water, SES Water, South West Water, Southern Water, South Staffs Water, Thames Water, Dŵr Cymru, United Utilities and Yorkshire Water. South Staffs Water's CCG also make a representation.

Overturing of the metaldehyde ban. Anglian Water, South East Water and Yorkshire Water state that the over-turning of the ban creates uncertainty around the expected benefits of pesticide compliance, on the basis of which the draft determination deadband was set. The deadband is now too stretching.

- **Our response:** We consider that the overturning of the ban does have an impact on the deadband level. We take this into account in our final decision to increase the deadband level to 2.0, as described in the section above.

CRI is a new, volatile measure. Anglian Water, Dŵr Cymru and Yorkshire Water state that the CRI performance commitment is a new measure and the deadband should account for volatility in CRI performance.

- **Our response:** We consider that CRI does not reflect a new obligation, but a different way to express performance against the longstanding statutory obligation to supply drinking water that is 100% compliant 100% of the time. We consider that the existing performance data does not suggest unexplained volatility. There are some extreme values reported as a result of companies undertaking improvement work at treatment works and pesticide failures at larger treatment works. The median performance is steadily falling, and is now around 2.1 in 2018/19, with most volatility relating to poor performers. We do not consider this to be sufficient to warrant a wider deadband. We take account of the skewed distribution in CRI data by using median values to inform our deadband.

The tight deadband will have unintended consequences. Anglian Water, South West Water and United Utilities consider that the deadband is too tight which will result in many companies incurring underperformance payments, which will negatively impact public perception of water quality.

- **Our response:** As companies are required to be fully compliant with the water quality compliance level of 0, public perception regarding their performance against the CRI performance commitment target and any underperformance payments incurred is more a matter of how the performance is communicated to

customers (as with or without the deadband the company would still not be fully compliant unless it reached the level of 0). We consider the final determination deadband of 2.0 stretching yet achievable, and that companies should focus on their customer communication to manage perception.

Aspects impacting the measure are outside of management control. Anglian Water, Dŵr Cymru and Yorkshire Water state that CRI is impacted by factors outside of management control such as poor hygiene control at a customer tap and illegal fire hydrant use.

- **Our response:** We consider that the factors highlighted are to some extent within management control, and that the performance commitment should incentivise companies to mitigate these through improved customer engagement and putting in place innovative solutions for securing their network. We do not consider that these factors should be taken into account when setting the deadband.

Impacts of the structure of the measure. Dŵr Cymru, South Staffs Water, SES Water and South East Water state that the structure of the measure means that smaller companies could be disadvantaged, as a single failure for a small company owning a small number of larger treatment works would contribute disproportionately to the CRI score.

- **Our response:** We investigate whether CRI disadvantages large or small companies as part of the development of our PR19 methodology, and do not find evidence that was clearly the case. We do not consider that company size is a convincing reason to change our approach to setting the CRI deadband. In addition the DWI requirement is for 100% compliance and there are no exceptions, therefore the performance commitment reflects this expectation. However, as noted above, we recognise that for Hafren Dyfrdwy, as a small company with fewer than 100 sites, a deadband of 99% would be disproportionate in comparison and we set its deadband at 97.9%.

DWI expectations of industry performance. Anglian Water and United Utilities make reference to the DWI's response to our Water 2020 consultation from 2017 ("companies aspire to continuous improvement and results of at least at a level that is equal to or below the national average") as a rationale for adopting an industry average as the CRI deadband.

- **Our response:** We have been in discussion with the DWI subsequent to 2017, in particular in developing our final decision on the CRI deadband. In addition, the median performance, which is an average is 2.1 in 2018-19, suggests that 2.0

may be a reasonable estimate of the average in the 2020-25 period, given compliance is improving.

Exclude metaldehyde from the definition. Thames Water considers that metaldehyde should be excluded from the definition of the CRI performance commitment as it is extremely volatile.

- **Our response:** We do not consider it appropriate to exclude metaldehyde from the definition of the CRI performance commitment, which has been set after collaborative work between the industry and the regulator. We are also concerned that this may set a precedent for future exclusions along with disincentive for companies to look for innovative solutions and continuous improvements in their operations and assets. We however consider the impact of metaldehyde following the overturning of the ban in our final decision on the CRI deadband, as set out above.

3.5 Asset health performance commitments

Asset health is a key area of network and service resilience. It focuses on the ability of assets to provide services now and into the future for the benefit of current and future generations. In our PR19 Methodology, we said that we expect companies to include four common asset health performance commitments, as well as additional bespoke performance commitments⁹ reflecting their own asset health challenges. We expected companies to engage with their customers on asset health performance commitments to protect current and future customers and the environment. We also said that we expect companies to propose stretching performance levels and that companies should aim to improve performance, historically, companies were only expected to maintain stable performance.

There are four common asset health performance commitments (two for water and two for wastewater). They are **mains repairs** (also known as mains bursts), **sewer collapses**, **unplanned outage** and **treatment works compliance** (the latter is covered in the section above). Several companies also selected four of the asset health long-list comparable bespoke performance commitments (using the standard definitions) outlined in our PR19 methodology. These performance commitments are **external sewer flooding**, **sewer blockages**, **low pressure** and **customer contacts** (both taste and odour; and discolouration).

⁹ These additional bespoke performance commitments could be selected from a long list of metrics with standard definition, or others, not on the list. The standard asset health metrics provide comparable information for the companies that select the same metrics.

3.5.1 Our policy approach for the final determination

Overview of approach

Asset health performance commitments can be categorised into two types. The first category comprises the asset health performance commitments that reflect the actual performance of the asset and in most cases do not have an immediate direct customer impact when failures occur ('non-customer facing' performance commitments). Those performance commitments are mains repairs, sewer collapses, unplanned outages, treatment works compliance and sewer blockages. The approach to setting performance commitment levels for treatment works compliance is set out above and not repeated here. The second category comprises performance commitments where performance can be as a result of asset issues/failures and they have a direct customer impact. These are the bespoke performance commitments of external sewer flooding, customer contacts and low pressure.

For all the performance commitments discussed in this section, common definitions are used by companies so we are able to undertake comparative analysis as part of our assessment of proposed levels to inform our decisions on setting performance commitment levels.

Non customer facing asset health performance commitments

Asset health is central to the delivery of service to current and future customers. It is vital that customers have confidence that companies are maintaining assets in high quality condition. For the asset health performance commitments that, in most cases, do not have a direct immediate impact on customer service (i.e. mains repairs, sewer collapses, and sewer blockages), we carry out a comparative analysis by assessing companies performance against a 'good' level of performance. The 'good' level for each performance commitment is provided in table 3.2 below.

The 'good' level of performance is used to aid the comparative analysis i.e. as an indication of what constitutes good performance.¹⁰ We consider it is important to use comparative data to assess the performance commitment levels proposed by companies. We use 'good' performance levels to identify which companies are comparatively poor performers.

¹⁰ We do not exclude any companies or reporting years from the average calculation, as we consider any impacts of external influences such as extreme weather could occur in the future and therefore should be taken into account when determining the projection. It also does not take into account any future influences that may impact performance.

Customer facing asset health performance commitments

For the asset health performance commitments that have a direct customer impact (external sewer flooding, customer contacts and low pressure), we use the upper quartile values of the 2024-25 forecasts as the 'good' level of performance. This is in line with the direct service-related measures discussed in previous sections such as supply interruptions and internal sewer flooding and leakage. We do not require upper quartile performance on asset health i.e. the 'good' performance level is a first filter as to whether or not to intervene. Nor do we require common level for all asset health performance commitments across companies as asset health will reflect historical investment as well as management and operating practices. For the customer facing asset health performance commitments we then use upper quartile of improvement levels as basis of intervention.

For customer contacts, we undertake comparative assessment that combines the two separate performance commitments i.e. the two customer contact performance commitments are 'taste and odour' and appearance.

Decisions on asset health performance commitment levels

We decide whether to **intervene** on companies whose proposed performance commitment levels are comparatively poor (i.e. worse than the good level) based on:

- whether a company has provided convincing evidence that its forecast service level is appropriate; or
- whether a company is already proposing a significant improvement compared to historical or current performance.

The **approach to setting performance commitment levels** for all asset health performance commitments depends on the quality and availability of historical performance information and the gap the company has to close to be performing at the good level. In addition, in setting the levels and profile of improvement, we consider how companies can improve performance, noting that in some cases, improvements in performance can be made through changes to operational practices. In other cases e.g. mains repairs, performance improvements require capital expenditure.

A summary of our approach to assessment including the intervention methods is set out in the following table and explained in the following sections:

Table 3.3: Summary of assessment approach and decisions

Performance Commitment	Calculated 'good' level	Historical data completeness (% of missing data points)	Approach to intervention
Mains repairs – common performance commitment	122 repairs per 1000km	100% complete 2011-18	Base level based on the average of five years of best historical performance from 2011-2018. Plus leakage allowance
Sewer collapses – common performance commitment	8.0 collapses per 1000km	70% complete from 2013-18	An improving profile from 2020-2025 based on the UQ percentage reduction proposed by other companies. Company-specific approaches applied in some cases
Sewer blockages – bespoke performance commitment	98 blockages per 10,000 connections	95% complete from 2013-18	An improving profile from 2020-25 based on the maximum percentage reduction proposed by other companies, which is 16.7% (from 2019-20 to 2024-25)
Unplanned outage – common performance commitment	2.34% - median level of 2024-25 forecasts	Only 2 years	An improving profile from 2020-21 to the median level of 2.34% for companies that proposed performance is worse than 2.34 in 2024-25. A flat profile at 2.34 for companies whose 2019-20 forecast is better or equal to 2.34. Company-specific changes applied in some cases.
External sewer flooding – bespoke performance commitment	15 incidents per 10,000 connections (upper quartile)	NA – historical data not used to determine 'good' level	An improving profile from 2020-25 based on the UQ percentage improvement from 2019-20 to 2024-25 proposed by all companies, which is 25%.
Customer contacts (combined measure) – bespoke performance commitment	0.67 contacts per 1,000 population (upper quartile)	NA - historical data not used to determine 'good' level	An improving profile from 2020-25 based on the UQ percentage improvement from 2019-20 to 2024-25 proposed by all companies, which is 34%.
Low pressure – bespoke performance commitment	0.55 properties per 10,000 connections (upper quartile)	NA - historical data not used to determine 'good' level	An improving profile from 2020-25 based on the UQ percentage improvement from 2019-20 to 2024-25 proposed by all companies, which is 29%.

3.5.2 Mains repairs

This performance commitment is designed to incentivise companies to appropriately maintain and improve the asset health of the infrastructure and below-ground water mains network and demonstrate their commitment to asset stewardship responsibility. It measures the number of repairs on the water mains network per 1,000 km. It is a proxy measure for the number of mains bursts and covers both reactive and proactive mains repairs.¹¹

Our policy approach at final determinations

Companies have to conduct a certain amount of repairs to maintain stable performance of the network to manage supply interruptions and leakage. They also conduct mains renewal or replacement programmes to help achieve these targets. An increase in the number of mains repairs over time can indicate a deterioration in the health of the network and underinvestment in or poorly targeted mains replacement and renewal. There may be a considerable lag between underinvestment in the network and the impact on mains repairs, so this makes it important that the performance commitment holds companies to account for delivery of stable and improving performance over time. It is therefore important for customers that the performance commitment levels ensure the appropriate levels of mains repairs are undertaken.

Our approach to setting performance commitment levels for mains repairs includes consideration of a range of factors including:

- how to calculate the 'good' level of performance to undertake a comparative assessment of the performance levels proposed by companies;
- how to set the performance commitments levels when companies' proposals do not meet the 'good' level of performance (i.e. 'intervention' approach); and
- the relationship between leakage reduction activities and main repairs.

Calculating the 'good' level of performance

For draft determinations, the 'good' level of performance was calculated by using the average of all companies' historical performance to project forecast performance. This resulted in a 'good' level of performance for 2024-25 of around 120 repairs per 1000km of mains. The projection was done using a logarithmic trend line. The comparative assessment is used to determine whether there is a need to intervene

¹¹ Reactive repairs are those where an unplanned response is required to repair a burst main (for example: a customer contact to report a visible leak). A pro-active repair is one that that is carried out due to planned maintenance (for example: as a result of leakage detection activity).

on the performance levels proposed by companies. Our approach is where companies do not propose performance levels that were better than this 'good' level, we intervene to set an improved performance commitment level. We also intervene where companies proposed a deterioration in performance (even if it was better than 'good') and do not provide sufficient evidence to demonstrate why. For all other companies (i.e. those companies that propose levels better than the good level of performance), we set the performance commitment level at the level proposed in business plans. We retain our approach to determining the 'good' level of performance from draft determinations.

Intervention approach

Where a company does not propose a performance level that is better than our 'good' level of performance, we intervene to set a better level of performance. Our approach to intervention for draft determinations was to set a flat profile for the 2020-25 period based on the average of three years of best historical performance from 2011-2018.

We considered that using the best three years provided a stretching level of performance based on the company's own historical performance e.g. it has achieved that level at least three times in the last seven years, so it is reasonable to assume that level can be achieved again.

We consider the evidence included in representations (outlined below). Some companies state that choosing three years with the lowest recorded number of mains bursts from the available dataset does not take weather impacts into account and tends to include the more years where weather was more benign.

We acknowledge that using a wider range of years would give a more representative figure for setting the performance commitment levels. We amend the 'base' levels of mains repairs (before the leakage allowance, described below, is added) to an average of the best five years' performance for those companies where we intervened at draft determination. The impact of this change in approach leads to an upwards adjustment of performance commitment levels, in comparison with three best years by up to 6% depending on the company.

The companies affected by this change are Affinity Water, Anglian Water, Bristol Water, Dŵr Cymru, South East Water, Severn Trent Water, United Utilities, Wessex Water and Yorkshire Water.

Relationship between leakage reduction and main repairs

In relation to leakage, at draft determinations we stated that there is historical evidence to show that proactive repairing of mains results in a leakage reduction. However the evidence provided by companies was insufficient to support their claims that maintaining lower levels of leakage must require a higher number of mains repairs. We also note that there are many other leakage reduction solutions that are proven (such as pressure management, transient event identification and removal, targeted mains replacement and renewal, communication and customer side leakage activity). Companies identify other emerging capabilities (such as smart networks, 'calm networks' and innovative repair techniques) which could prove to be highly beneficial. We asked companies to provide further evidence.

In the evidence provided, some companies demonstrate (statistically) that increasing pro-active mains repairs reduces overall leakage levels, we acknowledged this evidence at draft determinations. There is also evidence to show reactive mains repairs reduce at the same time offsetting the increase from pro-active repairs. Some companies have chosen not to present any evidence on the impact on reactive repairs. There is varying evidence as to the expected (future) impact of proactive mains repairs on leakage in terms of mega litres per day reduction, with many not presenting any evidence on this key relationship at all. It is therefore apparent that a number of companies consider there will be an impact on leakage reduction, but cannot robustly quantify how much. In some cases, there is evidence that some companies do not anticipate an increase in mains repairs due to leakage reduction.

Although the evidence from companies could not allow us to set levels precisely, we are sufficiently convinced that there is a link between mains repairs and leakage level and therefore we allow some leeway in the first few years of the performance commitment to account for this. We increase the performance commitment levels for mains repairs by a reducing percentage, for all companies, in all years. The additional allowance for leakage reduction is 8% in 2020-21 with a declining linear profile reducing by 1.5% a year leading to a value of 2% in 2024-25¹². This uplift in the performance commitment level was calculated by taking the difference between our revised 'base' level of main repairs performance commitment (which is the equivalent of the best five years historical average performance for those companies where there was a draft determination intervention and the draft determinations levels for the other companies) and the company proposed performance commitment levels in their April business plan submissions. We set a declining

¹² This provides the following profile: 2020-21 = 8.0%, 2021-22 = 6.5%, 2022-23 = 5.0%, 2023-24 = 3.5%, 2024-25 = 2.0%.

profile for this uplift in order to provide companies with an incentive to use alternative methods to reduce leakage.

This change in approach affects the mains repairs performance commitment levels for all companies as the uplift is applied to all companies.

Summary of stakeholders' representations and our response

We present below a summary of the representations received in relation to our draft determination decisions, and our responses. These focus on overarching methodological aspects of our decisions. Our responses to company-specific representations are contained in more detail in the individual company's 'Delivering outcomes for customers final decisions' document.

We receive representations on the following three methodological aspects:

- Our approach does not recognise that there are links between an increased level of proactive mains repairs and leakage reduction.
- The use of three best historical years to set the performance commitment levels does not consider variations in performance due to weather.
- Our approach is not consistent with the objective to maintain stable serviceability and not to improve.

In relation to the **relationship between leakage reduction and main repairs**, we receive representations from Anglian Water, Severn Trent Water, Thames Water, United Utilities, Wessex Water, Affinity Water, South East Water, Anglian Water Customer Engagement Forum and CCWater. In general, the representations state that evidence demonstrates proactive repairing of mains results in a leakage reduction. The representations state that the main method of reducing leakage is, and will continue to be, "find and fix", which requires the company to repair mains.

Affinity Water explains it no longer takes the relationship between mains repairs and active leakage control (ALC) into account when setting its target. The company states it already operates a calm network and has extensive pressure management. It notes the evidence provided by other companies and expects leakage reduction activity to increase mains repairs, but accepts the challenge to the ambition set by Ofwat.

CCWater states that a leakage reduction strategy should include other activities such as mains relining and replacement, as well as repairing bursts, and would like to see any initial 'spike' in the mains repairs performance commitment target reduce over

time as the network becomes more stable and, in the longer term, other activities to achieve a leakage target are undertaken.

- **Our Response:** As set out in our methodology, our objective with mains repairs is to incentivise companies to minimise the number of mains repairs to provide confidence that the underlying health of the assets is stable and improving. Minimising the number of mains repairs has a positive impact on vehicle and pedestrian delays, disruption to public and businesses, noise pollution, as well as additional carbon produced during traffic delays. Alongside this, we want companies to use the full range of activities/measures to reduce leakage. As outlined above, we consider the evidence provided and we changed our approach to setting performance commitment levels to reflect that there is a link between increasing pro-active mains repairs and reducing leakage. We increase the performance commitment levels for mains repairs by a reducing percentage, for all companies, in all years. The aim is to allow all companies the flexibility to deliver the improvement in leakage reduction, allowing more flexibility in the earlier years to use proactive mains repairs to reduce leakage.

In relation to the **use of three best historical years to set the performance commitment levels**, we received representations from Affinity Water, Anglian Water, Bristol Water, South East Water, Severn Trent Water and Thames Water which said that external factors such as extreme weather impact performance and that using the best three years of recent historical performance to set levels going forward is not representative as it only considers years when there was benign weather.

- **Our Response:** The majority of the evidence provided by the companies demonstrates the impact of weather on the rate of mains repairs at general level. However, no company provides evidence to show why the impact at a regional level taking into account regional specific issues and how that places them at a disadvantage compared to others.
- We accept at a general level there is a relationship between atypical weather and the rate of mains repairs, but there is insufficient evidence available to make company-specific adjustments. Nevertheless, in light of the evidence provided by these companies (and discussed above) we change our approach from using the best three years for setting the performance commitment levels when we intervene. We amend the base levels of mains repairs (before the leakage allowance is added) to an average of the best five years performance. We consider the use of best five historical years to set the base level provides a more representative performance commitment level (than three years) and incentivises companies maintain good performance to improve the overall health of the assets over the longer-term.

In relation to the **consistency with the objective to maintain stable serviceability**, we received a representation from South Easter Water which says that requirement to significantly reduce the number of mains repairs as a service outcome is no longer consistent with the objective that regulated activities are carried out economically and efficiently as it goes beyond what is reasonably necessary to maintain networks assets and perform statutory duties.

- **Our Response:** We said in the PR19 methodology¹³ that we would treat asset health performance commitments the same as all other common measures. We also said there is scope for companies to improve their asset health performance, given the improvements that we have seen across the sector since privatisation. We consider that improvements can be achieved through more effective and efficient operational practices, better strategic asset management and through development and adoption of advanced technologies and new innovations.

3.5.3 Unplanned Outage

This performance commitment is designed to incentivise companies to appropriately maintain and improve the asset health of non-infrastructure or above ground assets and demonstrate their commitment to asset stewardship responsibility. Unplanned outage reflects a temporary loss of supply leading to a risk of customer impact. Only outage events which exceed 24 hours in duration are included in this measure, and the longer an outage lasts the higher the risk of coincident outages (for example planned outages) or issues that further increase the risk of the customer having an impact. It is reported as a percentage of the company's peak week production capacity.

Our policy approach for the final determinations

Our approach for this performance commitment is to set a performance commitment level that is common for all companies in 2024-25. This level is based on the 'good' level performance which is calculated as the median value of the 2024-25 forecasts proposed by companies which is 2.34%. We use the median value as this eliminates the impact of outliers on the average. We note that there were a wide variety of proposed reductions in company business plans.

At draft determination, where companies proposed performance levels that were better than this good level, we set the performance commitment level at the levels proposed by the companies. For the final determination, we change our approach for

¹³ Delivering Water 2020: Our methodology for the 2019 price review Appendix 2: Delivering outcomes for customers page 57.

companies that have forecasts better than the 'good' level. We set the performance commitment levels to the standard level in all years.

We consider that a standard performance level in 2024-25 is appropriate as it recognises the current maturity of the metric and the limited historical dataset against which to set stretching levels.

In addition, if we do not consider the 2019-20 forecast to be reflective of current (2018-19) performance, we set the performance commitment level to 2.34% in all years. For both Severn Trent and Portsmouth Water we do not consider that their 2019-20 forecast is reflective of current performance and therefore set their level to 2.34% in all years to incentivise stretching performance.

For draft determinations, where companies do not propose performance levels in line with the median level of 2.34% in 2024-25, we intervened to set either an improving profile from their proposed 2019-20 value or a flat profile (at 2.34) if their proposed 2019-20 value is near to 2.34. The exceptions to this approach is Southern Water where we consider the level of stretch proposed by the company to be sufficient. We retain this approach for final determinations;

Summary of stakeholders' representations and our response

We present below a summary of the representations received in relation to our draft determinations, and our responses. These focus on overarching methodological aspects of our decisions. Our responses to company-specific representations are contained in more detail in the individual company's 'Delivering Outcomes for customers final decisions' document.

Thames Water, United Utilities and South East Water state that the measure is too immature to allow for comparative analysis and we should not be using that analysis to set performance commitment levels. United Utilities states that there needs to be more time to establish whether companies' data are comparable. This means that differences in performance levels may be attributable to measurement rather than real differences in performance.

- **Our Response:** As outlined earlier, we consider comparative assessment a key tool to inform the setting of performance commitment levels where there is sufficiently comparable data available to undertake this assessment. Our analysis of performance data from 2017-18 and 2018-19 demonstrates a convergence, with 2018-19 values showing a smaller divergence in performance. We consider that shows increasing reliability of data and reflects the industry's progress in the adoption on the common definition. We consider that our approach of setting a

‘good’ level at the median level recognises the newness of the measure. We therefore do not change our methodology and retain our approach of using a comparative analysis against the median level.

United Utilities and Yorkshire Water state that different levels of outage may be appropriate. The more spare capacity a company has, and the more inter-linked the network, the higher the marginal cost of reducing outages. United Utilities, Yorkshire Water and Thames Water challenge the lack of link to service impact while they have alternatives to maintain supplies (such as Thames Water’s London ring main and both United Utilities and Yorkshire Water having integrated networks). Wessex Water also states that it that its supply network is highly interconnected, and so the impact of an unplanned outage is minimal, as another treatment works can supply customers whilst maintenance is performed.

- **Our Response:** We consider that the primary purpose of the performance commitment is to measure the health of the assets as a proxy for risk to service. The PR19 definition states: ‘This measure is to be used as a means of assessing asset health (primarily for non-infrastructure – above ground assets), for water abstraction and water treatment activities’. If the number and duration of unplanned outages increases, the risk to service increases, regardless of the existing mitigations or redundancies in the company’s system. The unplanned outages measures hold companies to account for maintaining availability of critical plant. While we accept that interconnection of networks may reduce risk of customer outage, this is reflected in other performance commitments such as supply interruptions.

3.5.4 Sewer collapses

This measure is designed to incentivise that the asset health of below-ground wastewater assets is being appropriately maintained and improved and that the company is committed to its asset stewardship responsibility. It is reported as the number of sewer collapses per 1,000 kilometres of all sewers.

Our policy approach for the final determinations

For sewer collapses, three companies re-submitted forecast data for this performance commitment as part of their representations to draft determinations. The data resubmission was due to definitional changes made after the submission of the September business plans. The companies did not resubmit historical data based on the revised definition. These data re-submissions mean that there is not a

sufficiently robust dataset for historical performance to set a 'good' level of performance.

Taking account of the revised data, we modify our approach to determining the 'good' level of performance from that used for our draft determinations. The 'good' level of performance used at draft determinations was determined using a forecast trendline based on historical performance. For final determinations, we base the 'good' level of performance on the forecast 2024-25 median value (based on April revised business plan data and resubmitted data). This results in a performance level of 8 collapses per 1,000 kilometres of sewers. Based on the resubmitted data and our comparative analysis, United Utilities and Yorkshire Water are the two clear outlier companies that lag other companies.

Where companies do not propose to meet this performance level by 2024-25, we intervene to set the performance commitment levels based on the upper quartile percentage improvement (19%) of those companies that proposed an improvement. This is a change from the draft determination where the performance commitment level was set on the basis of the highest percentage reduction (28%) proposed by other companies. After taking into account further evidence, we now consider that using the upper quartile percentage improvement (which is 19%) is a more suitable level for an outlier company in a comparatively poor position. We consider that significant improvements can be made through the adoption of best practice operational methods, to better pro-actively identify and repair collapses before they are reported, and that large scale capital investments may not be required. We set an improving profile over the period.

The exception to this approach is:

- Severn Trent Water, where we set the performance commitment level equal to the 'good' level in all years, because application of 19% improvement would take it beyond the 'good' level, therefore we cap its improvement at this level.
- South West Water as it proposes a greater improvement than the 19% improvement, so we have not intervened.

Summary of stakeholders' representations and our response

We present below a summary of the representations received in relation to our draft determination decisions, and our responses. These focus on overarching methodological aspects of our decisions. Two companies make representations in relation to methodological aspects for this performance commitment.

United Utilities states that comparative assessment is not appropriate given the change in definition.

- **Our response:** We consider that all companies state they are compliant with the definition, therefore comparative analysis of current and forecast performance levels is valid. The company does not provide sufficient evidence to show that others are reporting using a different methodology.

Yorkshire Water states that the performance commitment levels are too stretching.

- **Our response:** At the final determination, we reduce the level of performance improvement due to the change in approach to setting performance commitment levels discussed above. We consider that for this performance commitment, significant improvements can be made through improvement in operational practices and do not always require capital expenditure solutions.

3.5.5 Sewer blockages

The purpose of this performance commitment is to incentivise the company to reduce the number of sewer blockages, which is a significant contributing factor to sewer flooding. A blockage is an obstruction in a sewer which causes a reportable problem such as flooding, discharge to a watercourse, unusable sanitation and odour. It is reported as the total number of sewer blockages on the company's sewer network (including sewers transferred in 2011).

Our policy approach for the final determinations

We carry out a comparative analysis by assessing companies' performance against a 'good' level of performance. The 'good' level of performance is determined by using the average of all companies' historical performance to project forecast performance. The projection is done using a logarithmic trend line since we consider the rate of change in the data is likely to decrease over time. This data is normalised on the basis of 10,000 connections for all companies. This is a change from our draft determination approach which normalised on the basis of 1,000km of sewers. This change in approach reflects that the number of connections can impact performance as the cause of blockages i.e. sewer misuse by customers disposing of fats, oils and non-flushable wipes are reflected best by number of connections. This resulted in a 'good' level of performance for 2024-25 of around 98 blockages per 10,000 connections.

Where companies do not propose to meet this performance level, we compare the proposed level against historical performance and the percentage reduction the companies propose. Blockages is a performance commitment where performance can be improved through changes in operational activity. This is demonstrated through analysis of historical performance which shows that performance can significantly improve from year to year (i.e. around a 10% improvement over the last 5 years on average). Given this, where companies' proposed levels do not meet the 'good' level of performance, the performance commitment level was set on the largest (maximum) percentage reduction proposed by all companies, which is 16.7% for this performance commitment (from 2019-20 to 2024-25).

Based on our comparative analysis using the revised normalisation, only Thames Water remains worse than the 'good' level. The change in approach to normalisation for determining the 'good' level of performance does not result in any changes to our draft determination decisions for performance commitment levels, except for Hafren Dyfrdwy (see below). All other companies are aligned to better than the 'good' level using the metric.

Summary of stakeholders' representations and our response

We receive a representation from Hafren Dyfrdwy on this performance commitment raising some company-specific and overarching methodological aspects of our decisions. The methodology aspect raised by Hafren Dyfrdwy relates to the approach to normalisation. The company states that the appropriate normalisation approach for this performance commitment is per 10,000 connections.

- **Our response:** As outlined above, we change the approach to normalisation for the final determination. We accept the methodology representation from Hafren Dyfrdwy and we accept the performance commitment levels it proposes. Further details of our responses to the issues raised in this representation are outlined in the 'Hafren Dyfrdwy - Delivering outcomes for customers final decisions' document.

3.5.6 External sewer flooding

This performance commitment incentivises companies to reduce the number of external sewer flooding events. It is reported as either the absolute number of external sewer flooding incidents or incidents per 10,000 connections per year. External flooding is defined as flooding within the curtilage of a building normally used for residential, public, community and business purposes. It includes flooding from public sewers including incidents on sewers transferred under the Transfer of

Private Sewers Regulations 2011 and pumping stations transferred in 2016. It also includes severe weather events.

Our policy approach for the final determinations

We consider it appropriate to assess companies' performance against the upper quartile level since poor performance directly impacts customers. We use upper quartile percentage reduction challenge in order to close the gap between poor performing and high performing companies, noting that the upper quartile is based on performance levels proposed by companies. Some companies have shown large improvements in performance are possible for this performance commitment with operational changes and management focus. We calculate:

- the upper quartile absolute value for 2024-25 (from all companies), and
- the upper quartile percentage reduction in number water quality contacts from 2019-20 to 2024-25 (from all companies).

To set the performance commitment levels for companies that have performance worse than the upper quartile level and did not propose a suitably stretching level we set the level at the absolute upper quartile value (15 incidents per 10,000 connections) or use the upper quartile percentage improvements proposed by all companies (25% improvement from 2019-20 to 2024-25). The starting point of the improvement determined whether the performance commitment level was set to achieve the upper quartile value or the upper quartile percentage improvement. If the upper quartile level is reached before 25% improvement can be achieved, then the improvement is capped at the upper quartile level for the subsequent years. If a company proposes a performance commitment level at or better than 15 incidents per 10,000 connections by 2024-25 or an improvement of at least 25% by 2024-25 from its 2019-20 position, we set the performance commitment at the level proposed by the company.

We retain the policy approach from our draft determinations for this performance commitment.

Summary of stakeholders' representations and our response

We did not receive representations on overarching methodological aspects of our decisions for this performance commitment. Our responses to company-specific representations are set out in the individual company's 'Delivering outcomes for customers final decisions' document.

3.5.7 Customer contacts

The purpose of these two performance commitments is to incentivise companies to reduce events of discolouration and taste and odour at customers' taps. It is reported as the number of times the company is contacted by consumers due to the taste and odour of drinking water, or due to drinking water not being clear, reported per 1,000 population.

Our policy approach for the final determinations

We consider it appropriate to assess companies against the upper quartile level on this performance commitment since poor performance directly impacts customers. Our comparative analysis shows that there are many companies that are not performing well for the performance commitment (which has been in place during the current period). We use upper quartile percentage reduction in order to close the gap between poor performing and high performing companies, noting that the upper quartile is based on performance levels proposed by companies. Improvements in performance for this performance commitment can be made by operational activities and targeted customer engagement. We recognise it would be unrealistic to expect all companies to move to the forecast upper quartile in five years.

Based on April revised business plan data, we use the combined discolouration and taste/odour performance commitments for all companies. We calculate:

- the upper quartile absolute value for 2024-25 (from all companies), and
- the upper quartile percentage reduction in number water quality contacts from 2019-20 to 2024-25 (from all companies).

We set the performance commitment level at the absolute upper quartile value (0.67 number of customer contacts per 1,000 population) or, where this would require greater improvement than the upper quartile percentage reduction of 34%, we set the performance commitment level to deliver a 34% reduction from 2019-20 to 2024-25 with a linear profile i.e. evenly distributed for five years. If the upper quartile level is reached before the end of the period (when applying a 34% improvement), then we cap the improvement at the upper quartile level. If a company proposes a performance commitment level at or better than 0.67 customer contact per 1,000 population by 2024-25 or an improvement of at least 34% by 2024-25 from its 2019-20 position, we set the performance commitment at the level proposed by the company.

We retain the policy approach from our draft determination for this performance commitment.

Summary of stakeholders' representations and our response

We did not receive representations on overarching methodological aspects of our decisions for this performance commitment. Our responses to company-specific representations are set out in the individual company's 'Delivering outcomes for customers final decisions' document.

3.5.8 Low pressure

The purpose of this performance commitment is to incentivise companies to reduce the number of customers that experience their water supply having a low pressure. It is reported as the total number of properties in the company's area of water supply which, at the end of the year, have received, and are likely to continue to receive, a pressure or flow below the reference level.

Our policy approach for the final determinations

We consider it appropriate to assess companies against the upper quartile level on this performance commitment since poor performance directly impacts customers. We seek to close the gap between the small number of poor performing companies and rest of the industry. We note that most of the industry has significantly improved performance on this performance commitment so it is reasonable to expect the minority of poor-performing companies to improve.

In order to undertake our comparative assessment, we normalise the data per 10,000 connections and calculate the:

- the upper quartile absolute value for 2024-25 (from all companies), and
- the upper quartile percentage reduction in number water quality contacts from 2019-20 to 2024-25 (from all companies).

We set the performance commitment level to industry upper quartile (0.55 per 10 000 connections) or upper quartile percentage improvement (29%) where companies' proposals do not meet any of these expectations. If a company is forecasting its performance at or better than 0.55 number of properties per 10,000 connections by 2024-25 or an improvement of at or more than 29% by 2024-25 from its 2019-20 position, we set the performance commitment at the level proposed by the company. However, where a company's proposed performance commitment level is worse than the upper quartile value and does not show an improvement of at least 29% by 2024-25 from its 2019-20 position, we set the performance commitment level as a 29% reduction from 2019-20 position to 2024-25 with a linear

and improving profile based on improvements evenly distributed across the five year period.

We retain the policy approach from our draft determinations for this performance commitment.

Summary of stakeholders' representations and our response

We did not receive representations on overarching methodological aspects of our decisions for this performance commitment. Our responses to company-specific representations are set out in the relevant company's 'Delivering outcomes for customers final decisions' document.

3.6 Resilience performance commitments

3.6.1 Sewer flooding in a storm

This performance commitment requires companies to measure the percentage of population in their area that is at risk of being flooded in an extreme 50 year rainfall event. The performance commitment requires that companies use hydraulic models, where available, to quantify the risk. The metric has been designed with a view to assessing existing and future resilience to an extreme wet weather event causing sewers to flood based on the percentage of population at risk in a 1-in-50-year storm event. We expect all wastewater companies to use this common performance commitment because the potential for sewer flooding in a storm is important to customers.

Our policy approach for the final determinations

We have three aims with this performance commitment:

- To progress toward a common way of assessing risk across the industry.
- For companies to develop models of each catchment to improve understanding of the risk of sewer flooding in a storm. Companies can improve performance by developing a better understanding of risk by developing and using catchment modelling.
- To incentivise companies to improve service to their customers at risk of sewer flooding by making changes e.g. to surface water drainage.

We consider good performance is high model coverage, decreasing risk and using robust techniques (e.g. 2D modelling).

Companies, Water UK and Ofwat have worked intensively to finalise the definition of this performance commitment. Companies calculate their performance commitment levels using our guidance. In assessing companies' proposed performance levels we check they are following our guidance. We accept proposed levels where companies have followed our guidance, unless we identify another reason for intervention in our assessments.

Our assessment approach

We asked companies that did not provide model coverage / intermediate calculations to provide this information as part of their response to their draft determination.

We follow a two-stage approach in assessing the companies' proposed performance commitment levels:

- Model coverage – do sewer models exist for catchments at risk, and what proportion of the population are covered by the models? We use the model coverage of companies to inform our assessment of whether companies should improve their performance over the 2020-25 period. If there is limited scope for model improvement then interventions are more difficult, costly and may only be able to be implemented over a longer period of time.
- Level of risk – what is the proportion of the population that is estimated to be at risk, calculated from models or estimated by an alternative method. What is the company's long-term forecast of the level of risk and is it improving? We use the percentage population at risk to inform our assessment of whether companies should improve their performance over the 2020-25 period. We consider the risk profiles each company provides for the 2020-25 period together with the associated model coverage as part of this two stage assessment process.

As this a new performance commitment that is measuring long-term resilience we do not consider that a performance commitment level implying a reduction of risk over the 2020-25 period is necessarily required. For companies with a high percentage of models we consider that companies should show consideration of improvement in the longer term.

However, in the case of companies that do not appear to understand the resilience in their catchments well (i.e. they do not have many relevant models) we consider that companies should be aiming to take measures to both improve model coverage and reduce the level of risk by 2024-25 at the latest.

In any event, we do not consider that increasing customer risk over the 2020-25 period is appropriate.

Our intervention approach

We consider intervention as follows:

- If a company has a risk that is increasing over time we intervene irrespective of model coverage, and set a flat profile over the 2020-25 period.
- If a company has a risk that is flat over time, we consider intervention if the company has under 70% model coverage and the company has a relatively high risk (greater than 12% population at risk), if the company does not have a plan to improve model coverage, and/or if the risk is not reducing over the long term. This is because we consider that below 70% the company is more likely to not sufficiently understand the risks; and that a proportion of the population at risk greater than 12% is (a) too high and (b) at these levels of risk there are likely to be more options available to the company for reducing risk.
- If a company has a decreasing risk over time we assess whether this reduction is sufficient considering the company's potential to decrease based on model coverage and level of risk. We intervene where we consider that the company has potential for more significant improvements (i.e. if the company has very low model coverage and is targeting only a small reduction in risk we).

The exact values of the performance commitment levels following our intervention are based on each company's proposal and our assessment of its model coverage and risk percentage.

As the principle of early certainty does not cover performance commitment thresholds, our assessment and intervention approaches apply to all companies including fast track companies that opted for early certainty.

Summary of our draft determinations

At draft determinations, we accepted the performance levels proposed by 15 of 17 companies. The exceptions were Yorkshire Water, where we did not accept an increasing risk profile and intervened to set a flat profile at the 2019-20 forecast level, and Thames Water, where we intervened to set annual target levels (as opposed to a single end-of-period target) in line with all other companies.

We requested additional information from companies to confirm alignment of their proposals with the guidance.

Stakeholders' representations and our responses

We receive only one representation in relation to our decisions at draft determination. Wessex Water requests a change to its target performance commitment levels based on new information.

- **Our response:** We accept the company's proposals, as the company has high model coverage and a low percentage of its population at risk. We change our draft determination decision and accept the new target levels as they result from improved information and compliance with the guidance.

We also change our draft determination decision for Severn Trent Water. At fast track draft determination we said that we would review the model coverage and supporting information and make a decision at final determination regarding whether or not to intervene. The company provided additional information in its February submission that included the relevant tables and the level of 2D and 1D modelling. We consider that the information provided by the company is not sufficient or convincing, in line with our final determination approach set out above, and shows poor model coverage. Our final determination decision is to increase the performance commitment levels to a 2024-25 target of 25.9% with a straight-line glide-path to 2024-25 from its starting levels, with all annual performance commitment levels adjusted accordingly. Further details of our response are included in the company's 'Delivering outcomes for customers final decisions' document.

We receive additional data and information from other companies in response to our request at draft determination for evidence that they were aligned with our guidance on setting the performance commitment levels. These companies are Anglian Water, Northumbrian Water, Southern Water, Thames Water, Yorkshire Water, and Dŵr Cymru. This additional information does not provide any reason for us to change our draft determination decisions.

Our assessment of this information and responses to the companies is included in the individual company's 'Delivering outcomes for customers final decisions' document.

3.6.2 Risk of restrictions in a drought

This performance commitment measures the percentage of the customer population at risk of experiencing severe restrictions (e.g. standpipes or rota cuts as part of Emergency Drought Orders) in a 1-in-200 year drought, on average, over 25 years.

The population is considered to be 'at risk' if the supply-demand balance calculation in each water resource zone (as used for water resource planning) for the 1-in-200 year drought event results in a shortfall (deficit). This will occur when the theoretical deployable output minus outage allowance (available supply) is less than the dry year demand plus base year target headroom (demand plus uncertainty). The data and assumptions used for this metric should be consistent with those forecast and reported for the WRMPs.

This is a new, non-financial common performance commitment for PR19, and we expect all water companies to use this common performance commitment because it is important to customers and a good measure of future resilience. The design of this measure aims to give a comparative view of companies' drought resilience and is more comparable across companies than the levels of service that are used for water resources planning. This was one of two forward-looking measures looking at the future risk to customers. The other is the risk of severe flooding in a storm discussed above.

The aim of this performance commitment is to show the forward-looking risk (average risk over the next 25 years) for customers of experiencing restrictions, incorporating actual delivery rather than forecast delivery of improvements i.e. company performance is only considered to change for this performance commitment if companies actually deliver improvements rather than planning to deliver. Companies can improve their performance by altering the supply demand balance of their water resource zones (providing extra capacity earlier or in greater volumes than planned). This can be done by reducing demand (e.g. reducing leakage or PCC) or increasing supply (e.g. building a new reservoir).

Alignment with water resources management plan 2019 (2020-25)

A water resources management plan (WRMP) is used for planning purposes to set out how a company intends to maintain the balance between supply and demand, ensuring a secure and sustainable supply for water during the planning period (at least the statutory minimum period of 25 years).

The data and assumptions used for this metric should be consistent with those forecast and reported for the WRMPs, which have their own technical guidance issued by the Environment Agency and Natural Resources Wales in collaboration with Defra, the Welsh Government and Ofwat.

Companies' forecasts should include the impacts of less severe restrictions, e.g. temporary use bans (TUBs) or non-essential use bans (NEUBs), on the supply demand balance input components at a frequency as stated in their WRMPs. This

may include drought orders and permits where these are likely to be permitted (consistent with WRMPs) and where the benefits reflect those that would be considered reasonable in a 1-in-200 year drought.

Our policy approach for the final determination

As this is a new performance commitment that is measuring long-term resilience we do not consider that a performance commitment level implying a reduction of risk over the 2020-25 period is necessarily required. However, we consider that companies should show consideration of improvement in the longer term.

Our approach at final determination follows the approach we adopted at draft determination. We consider company performance commitment levels forecast to 2040, the comparison with the specific company's WRMP and the intermediate calculations for the forecast level. We assess all information provided by companies in their September 2018 and April 2019 business plans, as well as additional evidence provided by companies following the draft determination. Our approach is to:

1. Require starting risk levels to align with WRMP levels with the intention of intervening if these do not (this does not apply to any companies).
2. Accept levels where the quality of evidence provided sufficient, by which we mean evidence which shows alignment to the company's WRMP as well as provision of consistent intermediate calculations.
3. Intervene where there is low quality evidence provided and no planned improvement by 2030. Since this is a long-term performance commitment, we consider 2029-30 (at the end of two price control periods) is an appropriate date by which schemes should be in place.
4. Intervene where starting risk does not align with WRMP.

Summary of our draft determinations

At draft determinations, we followed a similar assessment approach set out in our final determination approach, with the exception that a number of companies had not provided detailed evidence of their intermediate calculations to support their proposed levels such that the extent of our information assessment was more limited.

We intervened for Bristol Water as the evidence provided by the company was low quality and there was no planned improvement in the performance commitment level by 2030 (i.e. over 10 years). We set the performance commitment level at the

forecast 2019-20 level for the first four years of the period, reducing to zero in 2024-25.

Southern Water, Affinity Water and South East Water all forecast non-zero risk in 2019-20 dropping to a performance commitment level of zero in the first year of the period. We considered these proposed levels may be unachievable or inaccurate but we accepted them in the absence of convincing evidence to the contrary as the proposed performance commitment levels are stretching.

Common performance commitment levels are not included in early certainty for fast track companies, so our decisions on these performance commitment levels applied to all companies, including fast track companies.

We asked all companies to provide updated information on intermediate calculations and other data as part of their response to their draft determination.

Stakeholders' representations and our responses

Companies' representations consist of providing additional evidence to support their proposed levels and intermediate calculations. Of the companies for whom we found no issues and did not intervene on at draft determination, the following provide additional evidence which we assess and consider that no change to our draft determination decisions is necessary: Anglian Water, Hafren Dyfrdwy, Northumbrian Water, South Staffs Water, Thames Water, Wessex Water, and Yorkshire Water.

Dŵr Cymru, Portsmouth Water, SES Water, South West Water and United Utilities do not provide additional evidence, and we retain our draft determination decision to accept their proposed levels in line with our methodology.

Southern Water, Affinity Water and South East Water all provide additional evidence that support their proposals in line with our methodology, and we retain our draft determination decision to accept their proposals.

Bristol Water provides new performance commitment levels and additional information to support its proposals in line with our methodology, so we change our draft determination decision and accept its new proposed performance commitment levels. Severn Trent Water proposes new performance commitment levels which align to its final WRMP rather than draft WRMP as previously submitted, along with sufficient evidence in line with our methodology. We therefore change our draft determination decision and accept the company's new proposed levels.

The Environment Agency note the importance that WRMP, including the company's justification of need for drought resilience and security of supply options, are all included.

- **Our response:** With regard to performance commitment levels we confirm alignment with the WRMP for all companies.

3.7 Measures of experience – Customer measure of experience (C-MeX) and developer services measure of experience (D-MeX)

3.7.1 Our policy approach for the final determination

In our PR19 methodology we decided to replace the Service Incentive Mechanism (SIM) with new financial and reputational incentives on water companies to provide an excellent customer experience to residential and developer services customers. These new incentive mechanisms are called the customer measure of experience (C-MeX) and developer services measure of experience (D-MeX). Details of our final decisions are outlined in 'Customer measure of experience (C-MeX) and developer services measure of experience (D-MeX) policy appendix'.

3.8 Priority services register performance commitment

Our PR19 methodology did not include a common performance commitment relating to vulnerability. At IAP, we decided to introduce a common performance commitment for a priority services register (PSR) as there was wide variation across companies on the proposed level of PSR reach in September 2018 business plans. The PSR is a reputational (non-financial) performance commitment.

3.8.1 Our policy approach for the final determination

We set the following performance commitment thresholds across all companies for PSR. Companies must:

- Have a minimum level of 7% of households on the PSR by 2024-25.
- Make actual contact with 17.5% of households on the PSR in the first year of the 2020-25 period (based on one year's data) and 35% of households on the PSR every two years for subsequent years of the 2020-25.

- Attempt to make contact with 45% of households on the PSR in the first year of the 2020-25 period (based on one year's data) and 90% of households on the PSR every two years for subsequent years of the 2020-25 period.

We consider it appropriate to separate the 'contact' measure into attempted contacts (i.e. an outbound contact that has not received a response) and actual contacts (i.e. updates to data based on contact with the customer), as this strikes the right balance between stretching companies to make efforts to contact customers, whilst recognising that factors beyond their control may affect their ability to make actual contact.

The thresholds are informed by our comparative analysis of response rates to previous water company campaigns to update PSR data and similar requests made to customers by energy networks, as well as information received by companies in their representations on our draft determination decisions. At draft determination we set the level at 50% for actual contact, as this was at the high end of what electricity networks have achieved, and was also the second highest level any water company had achieved over the previous two years prior to submitting their business plans. However, the evidence used to inform this target was not extensive. Given the sufficient and convincing representations received following draft determination, from companies and other stakeholders, that a target of 50% is unachievable and based on a very small sample, we set the target at 35%. We consider this to be a stretching target that will encourage companies to be ambitious in their approaches.

We set the level at 90% as the target for 'attempted' contacts as, while it is in the company's control to contact all of its customers, we want to reflect that contact may not be desirable in all cases and some customers may wish to opt-out of the exercise.

We retain the approach from draft determinations to set the minimum level of households on the PSR at 7% based on our analysis of data submitted by companies in their September 2018 and April 2019 business plans. We consider it represents a stretching and realistic benchmark but would emphasise that it is a minimum and that companies should go further if that is the right thing to do for their customers.

We publish a guidance document for this performance commitment, 'Reporting guidance – Common performance commitment for the Priority Services Register' alongside our final determinations. This document provides guidance on the definitions, reporting and other requirements associated with this performance commitment, and has been updated following stakeholders' responses to our draft determinations.

3.8.2 Summary of stakeholders' representations to our draft determinations and our responses

We receive representations to our draft determination decisions from six companies (Anglian Water, Bristol Water, South Staffs Water, South West Water, Thames Water and Dŵr Cymru) and two other stakeholders – the Consumer Council for Water and National Energy Action.

We summarise here the representations and our responses, grouping these by methodological issue. Our guidance document makes clear our position on these issues. Further detail of our company-specific responses are included in the individual company's 'Delivering outcomes for customers final decisions' document.

Table 3.4: Summary of representations on priority services register

Issue	Our Response
Dŵr Cymru states that as it does not directly register customers to PSRs all cases, it will only report attempted and actual contacts for those customers it places on the register itself.	Our reporting guidance states companies can have third parties fulfil the data checking measure of the PSR performance commitment. However, commensurate with other regulatory obligations to customers, we consider a company needs to take responsibility for ensuring the target is met and for reporting against the target, taking steps to ensure itself of processes and policies of third parties should they be involved and reporting their performance alongside with its own.
South Staffs Water notes it is not clear on whether it is permissible to include customers who are receiving support as part of affordability schemes as counting toward their household target.	While we understand the benefits to companies of having internal lists for priority services/affordability schemes managed on the same basis, this performance commitment is intended to measure customers registered for non-financial vulnerability support. The two types of support target different populations, therefore it is in customers' interests for companies to report and consider their interests separately, and not to include customers who are only receiving support as part of affordability schemes as counting towards the household target for the PSR performance commitment.
South West Water states that our definition of attempted contact makes it likely it would need to re-contact customers who had already updated their details with the company to make the target.	Our reporting guidance states 'at the point at which a customer responds to a request, that household can be counted as both an 'attempted' and 'actual' contact, regardless of the approach used.' This includes reactive contact (particularly as the origin of such contact is unknown and could well be as a result of the company's efforts).

Issue	Our Response
<p>Bristol Water considers that our actual contact target should be based on individuals, not households.</p>	<p>There are practical difficulties in measuring priority services on a customer-by-customer basis, particularly as the majority of companies currently register services on a household basis. However, we encourage companies to submit information at an individual level where it is available. Our guidance document makes clear that companies are free to collect and publish actual contact figures on an individual basis, should the information be available.</p>
<p>Anglian Water, Bristol Water, Thames Water, Thames Water's Customer Challenge Group and the National Energy Action consider that our 50% target for actual data checking is unrealistic. Based on liaison with energy networks, they consider a target of between 25% – 35% is a more realistic aspiration.</p>	<p>Given this performance commitment is unique in terms of the specific emphasis it puts on companies to check data, it is reasonable to expect success rates that are greater than what has been achieved to now.</p> <p>However, we acknowledge that our draft determination target was based on a small sample size. Given the evidence provided in representations on this issue we reduce the target to 35%, as described in our policy approach above.</p>
<p>Thames Water states that since this is a new measure, an industry check-in facilitated by UK Water should be held at an appropriate point to benchmark how companies are doing, and to assess whether the performance commitment needs to be reset based on this learning.</p>	<p>We do not agree with the need for an industry check-in. We will monitor performance via the APR process as with other performance commitments.</p> <p>We consider that the non-financial nature of this performance commitments mitigates some of the risk inherent in a new measure based on limited empirical information.</p>
<p>The National Energy Action states that the target of 7% of household coverage is low given the imminent arrival of the data sharing agreement between water and energy companies, particularly as energy companies have a higher volume of registrants than water companies.</p>	<p>Our level was selected after of examining existing data and proposed levels, and we consider it to be stretching but achievable. We emphasise that this is a minimum level, which companies can exceed if this is the right thing for their customers.</p> <p>As the data-sharing agreement has not yet begun it is difficult to predict its impact on the number of PSR registrations. There are two possible factors that could limit the number of registrations it enables companies to obtain (a) the data shared will be forward-looking initially, so the volume of records shared will not reflect the entire populations on the PSR and (b) positive consent is required from water customers to sign them up to the PSR so this is an extra step water companies have to take. We will monitor sign-up to registers and engage with companies that are significantly out- or underperforming the target.</p>

Issue	Our Response
<p>CCWater considers that companies should have measures of satisfaction and awareness for vulnerability support. The fact the PSR performance commitment is based on increasing numbers could lead to companies offering a lower quality of service in pursuit of higher volumes.</p>	<p>We consider that there are mechanisms to mitigate the risks associated with this performance commitment. Companies could be incentivised to sign up those customers easiest to do so, rather than those most in need of support. CCWater's plan to monitor the type of customers signed up offers some mitigation here. In addition, we consider the strong focus we have placed on quality of services for vulnerable customers (for example through BSI Standard and customer satisfaction related PCs) are sufficient to safeguard this aspect of PSR delivery for customers.</p>

4 Outcome delivery incentives

Outcome delivery incentives (ODIs) provide an incentive to companies to deliver on their performance commitment levels and to go further where it is in customers' interests by aligning a company's interest with its customers. In our PR19 methodology we set out our expectation that companies set their ODI rates on a bottom-up basis using evidence of customer valuations for service increments and the forecast efficient marginal cost of delivering them. The outperformance payment rate formula means that customers cannot be worse off, and will be better off, if a company can deliver its service improvements at a lower cost than customers' incremental benefit. The underperformance payment rate formula means that customers are compensated for forgone marginal benefit and if a company fails to deliver its performance commitments, less the share of cost savings generated from underperformance. For non-customer facing performance commitments, as discussed below, we place less reliance on customer valuations and more weight on the incremental costs of service improvements. In proposing ODIs, companies were expected to engage with customers on the ODI type and the size of the financial incentive.

We undertake a range of assessments of companies' ODI rates, described below, to ensure these are appropriate to avoid underperformance and incentivise strong outperformance – companies may have an incentive to understate underperformance rates, or to put the largest outperformance rates on services areas where they are good performers and most likely to outperform performance commitment levels.

This section covers ODI types, ODI timings and ODI rates for common and comparable bespoke performance commitments. Our responses and final decisions for individual companies are set out in the companies 'Delivering outcomes for customers final decisions' documents.

4.1 ODI types

This section covers our policy approach to assessing and intervening in the ODI types proposed by companies for common and comparable bespoke performance

commitments, covering both customer facing performance commitments and non-customer facing asset health performance commitments.¹⁴

ODI type refers to whether an ODI incentive is financial (associated with underperformance and/or outperformance payments) or non-financial. Non-financial incentives can provide a reputational incentive on companies.

4.1.1 Our policy approach for the final determination

At PR19 we are sharpening the incentives on performance commitments, placing a greater onus on financial incentives. The expectation is that ODIs should be financial rather than reputational as a default, and that companies should justify, with supporting evidence, whenever a performance commitment is not supported by a financial ODI. Reasons might include where there is clear evidence that customers do not support financial incentives for a performance commitment, where the reputational impacts are sufficiently strong as to drive performance, or where there is another similar performance commitment which has a financial incentive. We expect companies to have underperformance payments on common asset health performance commitments.

For any performance commitment where there is a financial incentive, we expect that it should include at least an underperformance rate, and meet certain criteria for an outperformance payment to be appropriate:

- be proposing a stretching performance commitment level so that outperformance payments are for genuine outperformance;
- demonstrate there are benefits from improved performance; and
- have customer support for its proposed outperformance payment.

For asset health performance commitments, we allow outperformance payments for to encourage improvement in asset health over the long-term, but only where companies demonstrate customer support for them.

Assessing companies' ODI types

For **customer facing** common and comparable bespoke performance commitments we consider a company's proposal for an outperformance incentive appropriate if:

¹⁴ Non-customer facing performance commitments for the purposes of ODI rates are: CRI, treatment works compliance, mains repairs, low pressure, sewer collapses, sewer blockages and unplanned outage. Customer facing performance commitments are supply interruptions, internal sewer flooding, pollution incidents, leakage, PCC, external sewer flooding and customer contacts.

- The performance commitment has a stretching level of performance – we assess whether performance levels are stretching as part of the performance commitment levels assessment covered in section 3. Where we consider performance levels to be not stretching we adjust the performance levels, rather than automatically intervening to remove the outperformance payment.
- The company has demonstrated customer benefit from an outperformance incentive – we assess customer benefit as part of the ODI rate assessment covered in section 4.3. This is because companies typically demonstrate customer benefit through their customer willingness to pay research used to set their ODI rates. Where evidence of customer benefit is not shown, we intervene to remove the outperformance incentive.
- There is customer support for outperformance payments – we assess evidence on customer support for outperformance incentives directly. Where we consider evidence demonstrates that customers support outperformance payments, we accept outperformance payments, provided the first two criteria are met. Where we consider evidence demonstrates that customers do not support outperformance payments, we reject outperformance payments, regardless of whether the previous two criteria are met. This is because we place greatest weight on direct customer views about their lack of support for outperformance payments, compared to indirectly sourced evidence from willingness to pay research. Where we consider evidence for customer support is unclear, we undertake additional checks to avoid rejecting outperformance incentives outright and causing undesirable consequences, such as lost customer benefit resulting from reduced incentives for companies to outperform, or unduly skewed incentives for companies. If past performance or forecast performance levels are considered good (in the upper quartile of industry performance) then we accept outperformance payments where evidence for customer support is unclear. Where past or forecast performance is not good (not in the upper quartile) then we either reduce or reject outperformance payments where customer support is unclear, depending on the extent of the issues. The rationale for this is that customers of companies with poor past / forecast comparative performance are more exposed to the risk of unwarranted outperformance payments for improvements in poor performance levels the company should have already undertaken. The evidence for customer support in these cases therefore needs to be high.

Where non-financial incentives are proposed by the company, we consider both customer support and company performance on the basis that if a company is a poor performer, underperformance payments can protect customers from poor service. Where appropriate, our assessment of all the evidence may override customer support for non-financial incentives, as we consider it important to protect customers who may not have access to full information, e.g. relating to the company's poor

performance, when making their choices around financial incentives, to include financial incentives.

To determine if the evidence for proposed outperformance payments for **asset health (non-customer facing) performance commitments** is sufficient and the outperformance payment justified we apply a similar approach, adapted for the fact that demonstrating customer benefit is more challenging for non-customer facing performance commitments, and apply the following criteria:

- The performance commitment has a **stretching level of performance** – we assess whether performance levels are stretching as part of the performance commitment levels assessment covered in section 3. Where we consider performance levels to not be stretching, we adjust the performance levels, rather than automatically intervening to remove the outperformance payment.
- Whether the company has engaged specifically with its customers on support for the outperformance element of the ODI, whether the engagement is of sufficient quality and whether customers support this given the potential impact on their bills. If a company does not meet this criteria, we intervene to remove the outperformance incentive. If the company shows **customer support** for outperformance payments we consider keeping it depending on the outcomes of the next two checks.
- If the company has any **past performance or past delivery** issues which have not been addressed, we consider further whether to remove the outperformance payment to ensure that companies are not rewarded for improvements on poor performance that should already have been undertaken. To make our decision we look at historical performance and whether funding allowed has been efficiently used to deliver increased performance.
- A check to ensure there is **no double counting** of outperformance incentives between asset health and service-related performance commitments, so that the company might be rewarded twice for an improvement to asset health.

Two common asset health performance commitments are underperformance payment only by definition of the performance commitment. These are CRI and treatment works compliance. These are both statutory measures where full compliance is required. The performance commitment level is set at 100% compliance and there is therefore no scope for outperformance payments.

We require all **common asset health performance commitments** to have underperformance incentives. Reputational incentives for bespoke asset health performance commitments may be appropriate if the company provides a convincing reason to have reputational only incentives (e.g. that a non-financial incentive is in

the interests of customers, that the measure is new and too unreliable, or too volatile for financial incentives).

Where non-financial incentives are proposed by companies for asset health performance commitments we either intervene directly to introduce an underperformance financial incentive (for common performance commitments) or assess the customer engagement evidence for bespoke performance commitments and intervene to introduce a financial underperformance incentive where the evidence is not convincing.

4.1.2 Summary of stakeholders' representations to our draft determinations and our responses

Summary of our draft determinations

At draft determination we intervened in three customer facing common performance commitments, based on our approach to assessing ODI types set out in the 'PR19 draft determinations: Delivering outcomes for customers policy appendix'. Where there is a lack of customer support we removed the outperformance rate. Where we considered evidence for customer support was unclear for an ODI-type, we either removed the ODI outperformance rate or reduced the rate to levels we consider customers would support.

- For pollution incidents we reduced the outperformance rate for Southern Water and Dŵr Cymru, and removed the outperformance rate for Thames Water due to a lack of convincing customer support.
- For leakage we reduced the outperformance rate for Southern Water, Affinity Water and SES Water due to a lack of convincing customer support.
- For PCC, we adjusted the outperformance rate for Southern Water and South Staffs Water due to a lack of convincing customer support and removed the rate for SES Water. We also changed Dŵr Cymru's non-financial ODI for PCC to a financial underperformance only ODI due to insufficient customer support.

For asset health performance commitments, we intervened to change reputational ODIs to financial (underperformance) for Thames Water's CRI performance measure and Anglian Water's mains repairs performance measure. We intervened to remove outperformance payments for SES Water and Thames Water for unplanned outage.

Summary of stakeholders' representations and our response

Four companies (Affinity Water, Anglian Water, Thames Water and Dŵr Cymru), as well as Dŵr Cymru CCG, CCWater and the Environment Agency make representations regarding our draft determination decisions. We record our response here where the representation has implications for our broader methodology.

Where stakeholders make specific representations to change our draft determination decisions, we assess these in light of our final determination approach described above, and in light of the nature of the stakeholder's representations. We change our draft determination decisions where the evidence provided by stakeholders is sufficient and/ or convincing (including evidence previously submitted to which the company referred in its representation) and consistent with our methodological approach.

The CCWater considers that our draft determination allows outperformance payments for several companies – Dŵr Cymru, Hafren Dyfrdwy, Northumbrian Water, Portsmouth Water, South Staffs Water, Thames Water, Wessex Water and Yorkshire Water – where it considers there is insufficient evidence of customer support for such payments. It particularly highlights sewer collapses for Thames Water and per capita consumption for Dŵr Cymru as performance commitments where it does not consider that the companies should have outperformance payments.

- **Our response:** As set out in our approach above, we consider that customer support is necessary to allow outperformance payments. For customer facing performance commitments where support is unclear, we consider past and forecast performance criteria. We address this on a company by company basis. For the instances where CCWater states there is no, or inconclusive, evidence of customer support we review the results of our assessments from IAP and draft determinations regarding evidence of customer support for the outperformance payments (either for the company in general, or for specific performance commitments). This includes a consistency check across companies and performance commitments.

The Environment Agency reiterates its view expressed in the PR19 draft methodology consultation that there should not be outperformance payments attached to reducing pollution incidents, and that our performance incentive mechanism is not consistent with its position that reducing pollution incidents should not be rewarded.

- **Our response:** We maintain that outperformance incentives are appropriate where there is customer support to incentivise service improvements, and where there is genuine outperformance (i.e. not to reward companies for simply

performing at levels already expected of them). We consider that companies should be able to propose outperformance payments for pollution incidents if this reflects evidence of customer preferences and priorities and they are combined with stretching performance commitment levels. We consider this to be an effective way of reducing pollution incidents and so is in customers' interests and is beneficial to the environment. For example, during PR14, a number of companies made significant reductions in the number of their pollution incidents, which were linked to financial incentives available for both outperformance and underperformance. Furthermore, where customers support companies going beyond stretching levels of performance to further reduce pollution incidents, we consider there to be no reason to restrict outperformance payments to zero and so limit funding of further improvements to the environment.

Anglian Water states that our approach to determining ODI type builds in asymmetry towards underperformance payments, partly through the use of underperformance-only ODIs.

- **Our response:** Only two common performance commitments are defined as underperformance only (Compliance Risk Index and Treatment Works Compliance). These are statutory compliance requirements, with performance commitment levels of full compliance. Outperformance is not possible as companies cannot exceed 100% compliance. For other performance commitments, we consider our approach to only allowing outperformance payments where there is sufficient and/or convincing evidence of customer support and evidence of stretching performance commitment levels appropriate, such that companies are rewarded for strong outperformance and customers are not required face unsupported bill increases. We note that prior to 2015, there were no outperformance payments or equivalent in previous price reviews. We consider underperformance payments key to dis-incentivise performance deteriorations. As such, we do not consider a methodology change is required.

Dŵr Cymru's CCG highlights customer research on ODIs which indicates that the company's customers do not support financial incentives for unplanned outages and per capita consumption (our draft determination set both of these ODI types to underperformance only), and expresses its hope that the final determination reflects consideration of this customer evidence as part of the proposed changes to ODIs. Dŵr Cymru also considers that financial incentives are not appropriate for per capita consumption, but states that it accepts our draft determination decision to set an underperformance rate.

- **Our response:** In assessing whether non-financial incentives are appropriate, we consider both customer support and company performance on the basis that if a

company performs poorly, underperformance payments protect customers from poor service. We consider it is appropriate to set underperformance only incentives for these two performance commitments given Dŵr Cymru's relatively poor past performance and insufficient evidence of customer support for non-financial incentives. Further detail is included in 'Dŵr Cymru - Delivering outcomes for customers final decisions'.

Affinity Water, Anglian Water and Thames Water request changes to our draft determinations on ODI types for specific common and comparable bespoke performance commitments, requesting either to add or remove under- and/or outperformance payments. We consider these requests in the individual company's 'Delivering outcomes for customers final decisions' document.

4.2 ODI timing

ODI timing refers to when ODI payments are incurred by the company. These can be in-period (i.e. ODI payments that are paid after each year's performance) or end of period (payments settled at the end of a price control period).

4.2.1 Our policy approach for the final determination

We consider in-period ODIs to be more appropriate than end of period ODIs as they bring payments closer to the time to when customers receive the service performance. In-period ODIs sharpen the focus of company management on service delivery whilst also resulting in customers being compensated more quickly for poor performance by the company.

For these reasons, we adopt the following criteria when assessing companies' proposals for ODI timing:

- We consider that companies should adopt in-period ODIs as a default for all their ODIs, unless they can justify why an in-period ODI is not appropriate, for example under considerations of present versus future customers; or where annual incentives are not considered beneficial e.g. where annual incentives could distort efficient delivery of long-term objectives.
- All the **common performance commitments** should have in-period ODIs attached to them, with the exception of the two resilience common performance commitments (because these are at relatively early stages of development and subject to some uncertainty).

- Companies must explain their **overall balance** between in-period and end-of-period ODIs in their business plans or representations to us.
- Companies must set out how they propose to manage **bill volatility** over the period. We do not consider that bill smoothing in general is a legitimate reason for end-of-period ODIs since this can be done through the in-period ODI determination, e.g. by applying the payments over several years. However, if a company has a very large incentive rate that would significantly impact bills, then we consider the evidence relating to whether this should be end-of-period, for example in order to limit bill volatility.
- Any end-of-period ODIs proposed by companies should be **linked to revenue** rather than the Regulatory Capital Value (RCV) by default as this brings outperformance and underperformance payments closer in time to the performance that generated them. Adjustments to the RCV can take more than 20 years to have a full financial effect on a company. This means that the impact of current performance is felt far in the future, when the customer base will have changed considerably.

4.2.2 Summary of stakeholders' representations to our draft determinations and our responses

We receive two representations – from South Staffs Water and its CCG – regarding our draft determination interventions on its ODI timing, where we intervened to set all of the company's performance commitments to in-period.

The company states that its proposals for end-of-period ODIs is based on evidence that its customers prefer a flat nominal bill over the period, and that bill volatility caused by in-period ODIs goes against customer preferences. It however accepts our interventions on ODI timing. The CCG states that the research undertaken by the company in its April business plan reinforces the evidence that its customers prefer end-of-period adjustments, and that it believes that greater weight should be given to customer views than to the economic theory of in-period payments.

- **Our response:** We do not consider that the company's research on bill smoothing is sufficient and convincing enough to accept the company's use of end-of-period incentives for its common and comparable outcome delivery incentives. We consider that, where the company's in-period outperformance or underperformance payments have significant impacts on customers' bills, the company will be able to smooth bills over the period through in-period adjustments, to prevent significant bill volatility. Further detail of our response to the representations is contained in the individual company 'Delivering outcomes for customers final decisions' documents.

4.3 ODI rates

This section covers two types of performance commitments:

Customer facing performance commitments, including:

- Common PCs: leakage; per capita consumption; water supply interruption; pollution incidents; internal sewer flooding
- Comparable bespoke performance commitments: water quality contacts (combined measures) and external sewer flooding.

Non-customer facing asset health-type performance commitments, including

- Common: Compliance Risk Index; mains repairs; sewer collapses; unplanned outage; treatment works compliance; and
- Comparable bespoke performance commitments: sewer blockages and low pressure.

We separate these performance commitments to assess ODI rates due to the different methodologies required. We place less weight on willingness to pay values in setting ODI rates for the non-customer facing performance commitments as there are challenges in ascertaining robust willingness to pay information from customers, though we do require customer evidence to support outperformance payments. We therefore use a variation of the customer facing methodology for non-customer facing ODI rates, which we describe in the following sections.

4.3.1 Our policy approach for the final determination for customer facing performance commitments

We set out below our final determination policy approach, including where we have changed our approach since draft determinations.

Assessing companies' ODI rates

Companies were expected to set their ODI rates on a bottom-up basis using evidence of customer valuations for service increments and the forecast efficient marginal cost of delivering them. We consider it important that companies set their performance incentives consistent with evidence of customer preferences and hence we place a high weight on the extent and quality of companies' customer engagement and willingness to pay research. However, where we have concerns over the quality of this research or companies' use of it in calculating ODI rates, we

use other relevant evidence to inform our view of appropriate incentive rates (for example on past performance) or wider concerns about the overall impact of companies' incentive packages we investigate further and intervene if necessary.

At IAP and draft determination we found substantial variation in ODI rates (both normalised by number of households and in absolute terms) across companies for the same increments in performance. We are not opposed in principle to variation in ODI rates, provided this variation is both explainable and due to legitimate factors such as differences in customers' underlying preferences for service improvements. Our concern arises because our analysis of the available data does not find an explanation for the variation in ODI rates from potential underlying drivers, and as such there is potential that this variation is driven by factors which do not reflect differences in customer preferences (such as differences in research methodology or inappropriate triangulation). Graphs of the reasonable ranges are provided in Annex 1.

We therefore conduct a series of checks across the companies' ODI rates for common and comparable bespoke customer facing performance commitments. The purpose of these checks is to provide a systematic way of assessing ODI rates to identify potential concerns and to form the basis of possible interventions. These checks are presented in the table below.

Table 4.1: Overview of tests applied to proposed customer facing ODI rates

Check	Description	Rationale
Reasonable range check	Do companies' proposed rates differ materially from industry average (as defined by September or April business plan ranges which we refer to as a reasonable range, described below)?	Identifies whether proposed rate is an outlier which requires further investigation.
Willingness to pay/ triangulation check	Does our deep-dive of company's marginal benefit values raise any concerns around the quality of willingness to pay evidence or triangulation?	Assesses whether company has derived marginal benefit component of ODI rate appropriately. Assesses the quality of triangulation and underlying valuations research.
Past performance check	Has the company under- or outperformed on its equivalent performance commitment during the 2015-20 period?	Identifies whether the company has a credible incentive to under- or overstate the marginal benefit or cost components of its ODI rates given the likelihood of it out- or underperforming.
Symmetry check	Are underperformance rates at least as large as outperformance rates?	Checks that outperformance rates are not higher than underperformance rates.
Performance commitment	Is the degree of stretch implied by the 2024-25 performance commitment level, relative to	Identifies whether the company has a credible incentive to under- or overstate the marginal benefit or cost components of its

Check	Description	Rationale
level stretch check	current performance, above or below industry average?	ODI rates given the likelihood of it out- or underperforming.
2015-20 rate cross-check	Is the proposed underperformance (outperformance) rate lower (higher) than equivalent rate for 2015-20 period, in absolute terms?	Identifies whether company is proposing a materially lower level of customer protection against incremental underperformance relative to the 2015-20 period.
Overall quality of companies' customer valuation evidence and triangulation.	What is the overall quality of the company's valuations across its ODI package?	We can in general attach more confidence to a company's proposed rate if it has been judged to have carried out high quality research and triangulation across its entire package of ODIs.

Given the assumptions underlying each of these tests we do not apply them deterministically in deciding whether an intervention is required. Instead we arrive at an assessment for each company's ODI rate taking into account the following factors:

- the confidence we have in the results of each check (based on data quality, comparability of data and strength of assumptions required) - this varies by check for each performance commitment and company;
- how coherent the conclusions of each check are with each other, i.e. do they all point in the same direction;
- the number of tests failed; and
- the potential harm arising from intervening/not intervening given the specific tests failed.

The exception to the above is with respect to the willingness to pay/triangulation check, for which we consider intervention is justified in itself where we identify that the company has not appropriately derived the marginal benefit component of its ODI rates.

The reasonable range

This check entails setting a benchmark against which to conduct an initial comparison of companies' proposed ODI rates. As stated, we are not opposed to variation if there are good reasons, such as high quality willingness to pay research demonstrating varying customer preferences. However, without such justification we would expect companies' ODI rates to be broadly comparable within a range. To mitigate the risk of methodological differences leading to ODI rates which depart significantly from underlying customer preferences, we develop a reasonable range and use it as part of our assessment checks. This is based on the premise that a

range based on data across the sector will reduce the risk of methodological variance in a single company driving ODI rates.

We do not use the reasonable range mechanically in assessing (or intervening) in companies' ODI rates, and we place a high weight on companies' customer research through our checks. An ODI rate being outside of the range does not automatically lead to an intervention (similarly an ODI rate being inside the range does not automatically mean we accept it). If we identify no issues with the company's willingness to pay research, and no other checks indicate problems then we do not intervene even when the ODI rates are outside of the reasonable range.

We set a reasonable range of ODI rates based on **variation around the industry mean or median** of ODI rates proposed in companies' September business plans. This range was published at IAP and companies were requested to provide additional supporting evidence where they proposed rates outside this range. Following IAP there was some convergence of proposed rates around this range; we also used these ranges to inform some of our draft determination interventions. We therefore consider it appropriate to continue to use the reasonable range based on September business plan data in our final determinations to avoid having a range based on later data that has already been revised towards the initial range. The exception is for customer (water quality) contacts, where we consider using April business plan data to construct the reasonable range is more appropriate. This is because we did not publish a reasonable range at the IAP and thus the concern around revising the range is not relevant. The rates also changed considerably between September and April business plans (including the removal by one company of its rate). This is consistent with the treatment of asset health performance commitments where we use April business plan data in cases where we did not publish any ranges at IAP.

We define the reasonable range for the majority of performance commitments as ± 0.5 standard deviations around the industry mean, as the use of the arithmetic mean and standard deviations is a common approach used to set intervals in a wide variety of settings. However, there are circumstances where using the median and interquartile range is more appropriate, such as where there are small sample sizes, there are different approaches used by companies to derive their rates, and where there are very different values for the mean and the median. To determine whether there was a case for not using the simple arithmetic mean as the basis for the reasonable range, we assessed the ODI rates for each performance commitment across the following metrics:

1. The difference between the mean and median.
2. The sample size.

3. The proportion of data points based on marginal benefit values (we consider that ODI rates based on marginal benefit are more reliable data points as they are generally based on customer willingness to pay).
4. The standard deviation as a percentage of the mean (a larger standard deviation as a percentage of the mean suggests that the data is more dispersed and therefore the mean may be skewed by the presence of outliers).

We further investigated those ODIs where there was potentially a case for not using the simple arithmetic mean to determine whether using the median and interquartile range was more appropriate. We considered:

1. Whether there are any key outliers skewing the data which significantly impact the difference between the mean and the median.
2. Whether it would be appropriate to exclude outliers given the sample size.
3. Whether the outliers are of low quality (for example, not based on marginal benefit values).

Based on our assessment of the ODI data for each performance commitment we consider that the median and inter-quartile range is the most appropriate approach in three cases due to data skew and presence of outliers: low pressure, sewer blockages and sewer collapses (all asset health performance commitments). This represents a change from our draft determinations where we used the mean as the basis for the reasonable range across all performance commitments. We consider that the mean approach is still appropriate for the customer facing performance commitments, based on our data analysis.

The reasonable ranges for each performance commitment are constructed from companies' ODI rates **normalised across the number of households and the relevant unit of measurement** (i.e. £ per household per normalised unit). This reflects our starting position that, all else equal, a household should attach a similar value to an equivalent increment in performance. This approach also controls for the aggregation effect that is present in companies' raw ODI rates (such that all else equal a company that serves more households should have a greater ODI rate).

For the majority of common and comparable bespoke performance commitments, the performance commitment levels are already expressed in normalised units. However, for the external sewer flooding and water quality contacts performance commitments it is necessary to convert the ODI rates into normalised units in cases where companies have expressed the performance commitment in terms of absolute performance levels. This is to control for the fact that absolute performance levels

represent different degrees of improvement in performance across companies.¹⁵ We also compare leakage ODI rates on a £ per household per percentage reduction basis, rather than £ per household per megalitre per day basis. We assess companies' performance commitment levels on a percentage reduction basis given the uncertainty regarding the 2019-20 forecast values. We also consider this most appropriate as it represents a proportional level of improvement relative to a company's current absolute level of leakage.

Intervening on companies' proposed rates

Where our overall assessment leads us to conclude that a company's proposed rate is not appropriate, we intervene to amend the company's rate. The specific nature of the intervention depends on the nature of the concerns identified. Our interventions to ODI rates for customer facing performance commitments are designed to balance the company's own PR19 customer research with other credible estimates of customer preferences, taking into account research quality, company incentives and performance. This is achieved through appropriate triangulation. We do not apply mechanistic interventions (for example by automatically imposing the reasonable range), and incorporate companies' customer research wherever this is of high quality.

Our general approach is to re-triangulate ODI rates across some or all of the following data points (where relevant and applicable):

- Re-triangulation of rate based on the output of the company's own customer research. This is most appropriate where a company has a range of (diverging) willingness to pay inputs, and where we have confidence in the quality of the underlying research from which these inputs are derived.
- Re-triangulation of rate incorporating the company's equivalent PR14 rate. This is typically considered where we have some concern with the company's PR19 proposed values, where the company's proposed PR19 rate differs materially from its PR14 rate without sufficient explanation, and/or where the company's performance may give it a credible incentive to understate or overstate its ODI rates.
- Re-triangulation of rate using external information, such as industry average (or an appropriate point on the distribution of rates across companies). This is considered where a company does not have any primary willingness to pay values or where we have significant concerns about the quality of its valuations,

¹⁵ For example a reduction in external sewer flooding by one property affected represents a much smaller reduction in risk for a customer of a company that serves a larger number of properties (such as Severn Trent) than a company that serves relatively fewer (such as Hafren Dyfrdwy).

and/or where the company's performance may give it a credible incentive to understate or overstate its ODI rates.

As such in our interventions we seek to reflect information on the preferences of the company's own customers, sometimes approximated by the preferences of customers across the industry more widely, in setting revised rates.

Where we intervene, we set outperformance rates lower than underperformance rates in absolute terms (using a multiple of 1.2), to capture the likely diminishing returns of service improvement. This captures customer preferences and the average ratio of underperformance to outperformance suggested in companies' business plans. We only use the multiplier where we are intervening on an underperformance or outperformance rate and need to adjust the corresponding rate accordingly. Where we do not have reason to intervene then we consider that the ratio between under- and outperformance rates could be different to 1.2 for that particular performance commitment.

In assessing and calculating ODI rates we keep totex-sharing rates at 50:50, with the exception of calculating Tier 1 rates to recover enhancement funding in the event of underperformance (see Section 4.5).

We also reduce outperformance payment rates if evidence of customer support for such payments is unclear, in line with our decisions on ODI type above. Our general approach to doing this is similar to the re-triangulation described above. We reduce the outperformance rate based on our willingness to pay triangulation, using the nearest bound of the reasonable range.

Where we use PR14 ODI rates as part of our triangulation, we do not consider it necessary to adjust the ODI rates in our calculations where these were formulated in the context of deadbands. A 2015-20 ODI rate applies to an incremental change in performance, regardless of the range over which the performance occurs, and therefore adjusting this rate for a scenario in which there are no deadbands is not appropriate.

Adjusting ODI rates for changes in performance commitment levels

Where performance commitment levels have increased above the level at which ODI rates were originally calibrated, it could be argued that this implies lower marginal benefit (assuming diminishing marginal returns) and higher marginal cost (assuming standard cost curves). As such, more stretching performance commitment levels could be accompanied by lower ODI outperformance and underperformance rates.

We acknowledge that there is some evidence of customer valuations for incremental service improvements falling at higher levels of service. This is discussed in Section 5 in this appendix on enhanced ODIs, where companies are looking to achieve frontier performance in the sector.

However, where companies' performance commitment levels have increased (e.g. as a result of our interventions), we have not made an automatic adjustment to their ODI rates. We consider that a standard adjustment factor (e.g. a scaling factor or elasticity) that applies in all cases would likely introduce distortion and uncertainty to the ODI rates, as the appropriate adjustment would depend on the shape of both the marginal benefit and marginal cost curves, both of which could vary considerably depending on the company and the performance commitment in question. We do not have evidence in companies' business plans, representations or underlying data that would support a particular value for a standard adjustment factor.

Unique adjustment factors for each performance commitment would also not be feasible for us to estimate with an appropriate degree of confidence. This would require visibility of the efficient marginal cost curve for each performance commitment, and a clear view of customers' marginal benefit curves. If there is uncertainty and variance in the point estimates of willingness to pay for a service increment, there is likely to be much more uncertainty and variability in estimating the entire curve. Estimating such a curve was also not the purpose of the research conducted by companies. Any unique adjustment factors that could be developed would be uncertain and could have unintended outcomes.

Therefore, whilst we recognise the potential conceptual validity of the argument of diminishing marginal returns to service improvements, we consider that it cannot be sufficiently evidenced or feasibly implemented in a way which would reliably improve outcomes.

We do consider performance commitments in the round, assessing both the performance levels and the associated ODI rates to determine whether a performance commitment package as a whole provides the appropriate incentives to companies to achieve service improvements. Our approach is described later in section 4.3.3.

4.3.2 Our policy approach for the final determination for asset health (non-customer facing) performance commitments

Assessing companies' ODI rates

For non-customer facing performance commitments, we adopt a variation on the methodology used for customer facing performance commitments to assess companies' proposed ODI rates. We consider that there are significant challenges involved in obtaining accurate customer valuations for asset health-related performance commitments. In particular, there is a risk that customer valuations are elicited in a way which does not capture the long-term impact of companies failing to properly maintain their assets. We note that many companies share this view and companies largely base their rates on marginal cost. For this reason we assess companies' ODI rates using a set of tests, which are summarised below.

Table 4.2: Overview of checks applied to proposed non-customer facing ODI rates

Check	Description	Rationale
1. Reasonable range check	Are the proposed underperformance rates materially below the lower bound of the reasonable range?	Identifies whether the proposed rate is an outlier which requires further investigation. We are concerned to ensure a minimum level of protection for customers from the failure of companies to investing in and maintain assets and as such are focused on the lower bound of the range rather than the higher bound of the range.
2. Company-specific evidence	Does the company have a convincing reason for the rate it has proposed, has it explained how that rate benefits customers?	Identifies if the rate the company has proposed takes into account a convincing company-specific reason.
3. Past performance and past delivery check	Has the company underperformed on its equivalent performance commitment during the 2015-20 and/or the 2010-2015 period? Does the company have a well-defined plan to improve performance?	Identifies whether the company requires a stronger incentive to ensure planned improvement is sustained.
4. Comparative performance/stretch check	Is the comparative performance poor (worse than the 'good' level – see section 3.5)? Is the degree of stretch implied by the 2024-25 performance commitment level relative to current performance above or below industry average?	Identifies whether the company requires a stronger incentive to improve closer to the 'good' level of performance of all other companies.

The reasonable range

The reasonable range check assesses whether companies' rates are within a reasonable range. The reasonable range is defined as ± 0.5 standard deviations around the industry mean, with the exception of low pressure, sewer blockages and sewer collapses where we use the median and interquartile range. The rationale for

this is set out in the previous section on our approach to the reasonable range for customer facing performance commitment ODIs.

We construct the reasonable ranges using ODI rate data submitted in companies' September 2018 business plans and April 2019 business plans as follows:

- For those performance commitments where we provided our view of reasonable underperformance payment rates at IAP, we use the September 2018 business plan data on a normalised basis to determine the reasonable ranges, as many companies proposed revised rates in April 2019 that aligned with the IAP reasonable range. This is for CRI, mains repairs, sewer collapses and treatment works compliance.
- For unplanned outages we use the data provided in April 2019 revised business plans on a normalised basis to set a new range, as many more companies propose financial incentives for this performance commitment in April compared to September and thus we have a more complete dataset from which to construct the reasonable range.
- For sewer blockages and low pressure we use April 2019 revised business plan data on a normalised basis since we made no suggestions on rates at IAP for these performance commitments.

As with the customer facing performance commitments, we assess all ODI rates on a normalised basis (by unit as used in setting the performance commitment level and by the number of households) to ensure comparability between large and small companies. Graphs of the reasonable ranges are provided in Annex 1.

For outperformance ODI rates, given the low number of companies proposing outperformance payments for asset health performance commitments we do not consider it feasible to create a reasonable range for the assessment. Therefore our assessment of outperformance rates entails checking whether the rate is larger than the underperformance rate (in absolute terms) and reducing it if so. We consider that outperformance rates should not exceed underperformance rates as companies should face at least as great an incentive to avoid poor performance as to improve beyond the performance commitment level. We also conduct a high level test of the overall package to ensure there is no double counting of incentives; all companies provided evidence in their IAP responses to demonstrate this.

Intervening on companies' proposed rates

As with customer facing assessment of ODI rates, we make an in-the-round assessment of whether to intervene based on the above checks. Our approach to intervening differs from customer facing performance commitments as the more

limited range of alternative data such as willingness to pay data makes any re-triangulation of rates not feasible. In general, where we assess that an intervention is required on underperformance rates, as we explain below, we use the lower bound, upper bound or average of the reasonable range to determine intervention values, depending on the results of our assessment.

We intervene where companies have rates that are lower than our reasonable range and it is not possible to justify the rate proposed based on customer evidence or convincing company-specific reasons, as we are concerned that such rates will afford low customer protection. Generally this intervention is to move the rate to the lower bound of the range or the average of the range, depending on the data spread across companies and the relative position of these rates against the range. This is to achieve an appropriate adjustment to the underperformance rate in question, as the size of the adjustment would depend on how dispersed the companies' rates are around the mean. For example, if all the rates were widely dispersed, moving a single company to the average rather than to the lower bound could be too great an adjustment.

Where companies have either past performance issues or we have concerns about comparative performance or level of stretch, even when the rate is within the reasonable range, we intervene to set it at a higher level (average or upper bound). For these companies, we are particularly concerned that the level the company proposes does not sufficiently incentivise it to maintain and invest in its assets and therefore does not adequately protect its customers.

The table below sets out the approach used in deciding on an intervention. Where a company failed checks 3 or 4 we intervened to move the rates higher within the reasonable range compared to if they failed checks 1 or 2, as we consider where there is poor or deteriorating performance higher incentives are required to ensure company behaviour is changed and greater service improvements achieved. As set out above, whether we used the lower bound or the upper bound depended on the dispersion of companies' rate for each performance commitment.

Table 4.3: Guide to interventions on non-customer facing ODI rates

Asset health performance commitment	1. Failed checks 1&2	2. Failed check 3 or 4
Compliance Risk Index (CRI)	Lower bound of range	Average of range (other water quality measures used as proxy for past performance issues)
Mains repairs	Average of range	Upper bound of range
Sewer collapses	Lower bound of range	Average of range
Unplanned outage	Average of range	Upper bound of range (check 3 only)
Treatment works compliance	Average of range	Upper bound of range
Sewer blockages	Lower bound of range	Average of range
Low pressure (only those with the common low pressure, measure called DG2)	Lower bound of range	Average of range

Given the importance for companies to be sufficiently incentivised to maintain good asset health performance, our interventions also include adding underperformance payment rates to companies that have not proposed one. We set the rate for these performance commitments at the average or median rate proposed by all other companies, depending on whether we use the mean or median as the basis for the reasonable range.

We also remove outperformance payments where there is insufficient evidence of customer support, in line with our general approach to outperformance payments. Where customers do support outperformance payments but these are greater than underperformance payment rates (or where we have intervened to reduce underperformance rates), we intervene to reduce the outperformance rates to the level of the underperformance rates. We consider that underperformance rates should be at least as great as outperformance rates in order to provide strong incentives against deteriorating service. We do not apply the 1.2 multiplier, as with customer facing performance commitments, as this was developed using data on customer-facing performance commitment ODI rates, where there were sufficient data points on outperformance rates.

4.3.3 Performance commitment package assessment and sector-wide adjustments

We conduct an overall assessment of each performance commitment ‘package’, considering both the performance commitment levels and the ODI rates. The aim of this is to ensure that the individual methodological components of our ODI rates and performance commitment level assessments result in performance commitment packages that are consistent with the overarching aims of our PR19 outcomes methodology, namely that companies face a balanced set of incentives that take account of customer priorities and companies’ financeability, and encourage outperformance whilst protecting consumers against underperformance.

Our assessment investigates three broad potential issues. We assess whether the performance commitment packages as a whole could result in distorted incentives for companies to focus disproportionately on a single or small set of performance commitments, beyond that which customers support or what we consider appropriate given the importance of the service area (for example, where willingness to pay is difficult to ascertain). We consider whether there is disproportionate downside risk such that a performance commitment package does not sufficiently incentivise outperformance which could be to the benefit of customers.

In order to assess these issues we consider the overall performance commitment packages across a number of dimensions:

- The **relative magnitude of the P10/P90 payments** across the performance commitment package for each company. This is to identify whether there is a disproportionate focus on one or more performance commitments as compared to customer priorities or what we consider appropriate. We also examine P10/P90 payments to assess whether these imply an excessive variance in risk, and examine the magnitude of the P10 payments to assess whether there is inappropriate downside skew. We also analysed the financial impact of maintaining 2018-19 performance during the 2020-25 period to assess a potential size of underperformance payments from different levels of improvement.
- We assess **customer priorities** by considering ODI rates and customer priority information provided by companies, for example ordinal ranking of priority. As described earlier in this chapter, in some cases such as asset health performance commitments, customer priorities may not reflect the full level of importance we consider should be placed on these incentives, given the difficulties customers face in valuing non-customer facing performance commitments. We may therefore consider a higher incentive weight is warranted than what is simply reflected in customers’ priorities.

- Where relevant, we also assess whether the implied risk profiles for the performance commitments are consistent with both consumer valuations (e.g. ODI rates) and the likely frequency of adverse events. For example, we would expect consumers to place a higher value on avoiding internal sewer flooding compared to external sewer flooding and thus have higher ODI rates and - potentially - a higher overall risk profile. However, external sewer flooding events are far more frequent than internal sewer flooding events, such that the overall P10/P90 values may result in more overall risk for this compared to internal sewer flooding, which is nevertheless consistent with customer priorities and the frequency of events.
- We assess the **relationship between the performance commitment level and ODI rates** for each company across each performance commitment, as well as each company's potential risk of failure to achieve its performance commitment level, to ensure an appropriate balance of stretching performance commitment levels and ODI rates.

Overall, we identify five common performance commitments which represent outliers for the companies in terms of the above dimensions for the majority of companies. These are leakage, unplanned outage, water supply interruptions, internal sewer flooding and mains repair. We combine the detailed assessment of the above mentioned checks and a consideration of the implications of an intervention to decide whether to intervene across all companies. Where we consider there is convincing evidence of each of the risk areas described above across the majority of companies that cannot be explained by customer preferences or other clear reasons, and that an intervention across all companies would reduce these risks without raising unintended consequences, we apply a sector-wide intervention as follows:

Table 4.4: Industry-wide adjustments to ODI rates

Performance commitment	Adjustment	Rationale
Supply interruptions	Decrease companies' underperformance rates by setting each company's rate symmetrical to its outperformance rate.	The performance commitment package as a whole implies an disproportionate level of downside risk (skew and variance as described above) across a large number of companies, taking into account the achievability of the performance level, the size of ODI rates and customer preferences (whilst it is an important customer priority it is not necessarily the single most important). Without an adjustment, the performance commitment is a key contributor to downside risk across the industry, with the highest sum of P10s and a negative skew with a comparatively small upside.
Internal sewer flooding	Decrease companies' underperformance rates	The performance commitment package as a whole implies an disproportionate level of

	by setting each company's rate symmetrical to its outperformance rate.	downside risk across companies, taking into account the achievability of the performance level, the size of ODI rates and customer preferences (whilst it is an important customer priority it is not necessarily the single most important). Without an adjustment, it is a key contributor to downside risk across the industry, with the 3rd highest sum of P10s.
Mains repair	Move all companies' underperformance rates to the industry average of the reasonable range.	The performance commitment package as a whole implied a disproportionate level of downside risk across companies, taking into account our interventions at draft determination, the achievability of the performance level, the size of ODI rates and customer preferences. Without an adjustment, the performance commitment is a key contributor to downside risk across the industry, with the 2nd highest sum of P10s and a negative skew with a comparatively small upside.

We do not intervene on the two other performance commitments. For unplanned outage, we do not find convincing evidence of a need to make an industry-wide adjustment to ODI rates. We also already mitigate against the uncertainty in the performance commitment level to some extent by setting a common performance commitment level at the sector median, and this performance commitment level is only a moderate contributor to downside risk across the industry. We consider whether a specific intervention is required for each of the companies affected as an outlier, and decide that the degree of risk and the actions we have already through our bottom up ODI interventions means that a further intervention is not warranted.

For leakage, we consider the interactions between leakage and mains repairs. Mains repairs includes both proactive and reactive mains repair, and we set a financial underperformance ODI on higher levels of mains repairs as this can reflect poor or deteriorating asset health. However, proactive mains repair is a means of reducing leakage, so there is a risk that imposing financial underperformance ODIs on mains repairs will reduce the incentive to reduce leakage through proactive mains repairs. We do not want to incentivise companies to undertake proactive mains repair as the *sole* means of leakage reduction, as there are other approaches we consider that companies can utilise. Conversely we also do not want to effectively rule out proactive mains repairs as a mechanism to reduce leakage through the relative magnitude of incentives.

We assess this interaction by comparing companies' ODI rates between the two performance commitments and assessing whether companies would have a credible incentive to not use mains repairs to improve their leakage performance, given the level of underperformance payments they would incur on their mains repair measure compared to leakage. This analysis indicates a risk that, if we reduce leakage

underperformance rates across the industry, some companies may face a disincentive to using mains repairs to improve leakage, although this is not the case across the industry. We therefore consider it inappropriate to make an industry-wide downward adjustment to leakage ODI rates, given the risk of unintended consequences in distorting the incentives companies face for across leakage and mains repairs performance commitment.

In some cases, our performance commitment package assessment identified issues for only a sub-set of companies. In these cases we apply company-specific adjustments to ODI rates to ensure that the overall performance commitment package results in more appropriate incentives and risks for the companies. This applies to the following companies and performance commitments:

- Yorkshire Water – pollutions incidents.
- Yorkshire Water – per capita consumption.
- Dŵr Cymru – external sewer flooding.

The details of these adjustments are contained in the individual company 'Delivering outcomes for customers final decisions' documents.

4.3.4 Summary of stakeholders' representations to our draft determinations and our responses

Companies and other stakeholders make representations concerning aspects of our draft determination methodology for customer facing and non-customer facing common and comparable bespoke performance commitments. We present an overview of our decisions and then summarise below the representations that include over-arching methodological points and set out our response. Representations focusing on company-specific details are addressed in the relevant company's 'Delivering outcomes for customers final decisions' document.

Summary of our draft determinations

For the seven **customer facing performance commitments** assessed at draft determination, we made around 50 interventions across companies to ensure the underperformance and outperformance rates were appropriate, in line with our assessment and intervention approach described in the 'PR19 draft determinations: Delivering outcomes for customers policy appendix'. We intervened across the following companies:

- Leakage – Affinity Water, Bristol Water, Hafren Dyfrdwy, Northumbrian Water, Portsmouth Water, SES Water, South East Water, Southern Water, South Staffs Water, Thames Water, Wessex Water, Yorkshire Water.
- PCC – Anglian Water, Bristol Water, Portsmouth Water, SES Water, Southern Water, South Staffs Water, Dŵr Cymru, Wessex Water, Yorkshire Water.
- Supply interruptions – Anglian Water, Bristol Water, Hafren Dyfrdwy, Portsmouth Water, SES Water, South East Water, South Staffs Water, Thames Water, Dŵr Cymru, Wessex Water, and Yorkshire Water.
- Pollution incidents – Hafren Dyfrdwy, Southern Water, Thames Water, Dŵr Cymru.
- Internal sewer flooding – Hafren Dyfrdwy, Northumbrian Water, Dŵr Cymru, Wessex Water.
- External sewer flooding – Dŵr Cymru and Yorkshire Water.
- Customer contacts – Affinity Water, Bristol Water, Hafren Dyfrdwy, Northumbrian Water, Portsmouth Water, South East Water, Southern Water, South Staffs Water, Thames Water, Wessex Water, and Yorkshire Water.

For the seven **non-customer facing asset health performance commitments** assessed at draft determination, we made around 35 interventions to ensure the underperformance rates were appropriate. The interventions follow our approach described in the 'PR19 draft determinations: Delivering outcomes for customers policy appendix'. We intervened for the following companies against the seven non-customer facing performance commitments:

- CRI – Portsmouth Water, South East Water, South Staffs Water, Thames Water, Dŵr Cymru
- Mains repairs – Affinity Water, Anglian Water, Bristol Water, Hafren Dyfrdwy, Portsmouth Water, South East Water, South Staffs Water, Thames Water, Dŵr Cymru
- Unplanned outage – Anglian Water, Hafren Dyfrdwy, Portsmouth Water, SES Water, Thames Water, Dŵr Cymru, Wessex Water, Yorkshire Water
- Sewer collapses – Hafren Dyfrdwy, Southern Water, Wessex Water, Yorkshire Water
- Treatment works compliance – Hafren Dyfrdwy, Yorkshire Water
- Sewer blockages – Hafren Dyfrdwy, Thames Water
- Low pressure – Affinity Water, Hafren Dyfrdwy, Southern Water, Thames Water

For the outperformance payments that are retained, we reduced the rate for Northumbrian Water on its mains repairs performance commitment to ensure it is no larger than the underperformance rate.

We set out **the implications of our draft determination decisions for fast track companies**. We stated that our decisions on ODI outperformance or underperformance rates would apply to United Utilities, which opted out of the early certainty principle, but not to South West Water which opted into early certainty. Severn Trent Water opted out of the early certainty principle in relation to three common performance commitments (supply interruptions, unplanned outages and Compliance Risk Index), so our decisions on ODI rates for those performance commitments would apply. Our decisions on ODI rates for all other performance commitments do not apply to Severn Trent.

In line with early certainty, the draft determination implications for fast track companies were:

- United Utilities for PCC (both outperformance and underperformance rates increased), leakage (outperformance rate only increased), supply interruptions (both outperformance and underperformance rates increased), pollution incidents (underperformance rate only reduced), internal sewer flooding (outperformance rate only increased), water quality customer contacts (both outperformance and underperformance rates reduced), external sewer flooding (outperformance rate only increased), mains repairs (outperformance rate only reduced).
- Severn Trent Water for CRI, the underperformance rate increased due to poor performance.

We present below a summary of the key representations received in relation to our draft determination decisions. These focus on overarching methodological aspects of our decisions. Company-specific representations and our assessments of them are contained in the individual company 'Delivering outcomes for customers final decisions' documents. In general, company-specific representations are focused on our draft determination interventions to ODI rates for water supply interruptions, leakage, mains repairs, internal sewer flooding, per capita consumption and Compliance Risk Index. Relatively few representations are made on sewer blockages, low pressure, treatment work compliance and external sewer flooding. Stakeholders stated that our interventions did not reflect their customer research, and that our assessment of their past and comparative performance was not accurate. We set out our assessments of these representations and our decisions in each company's 'Delivering outcomes for customers final decisions' document.

The use of our industry reasonable range to set ODI rates as opposed to companies' customer valuations

South Staffs Water, Wessex Water, Anglian Water, Dŵr Cymru and Bristol Water state that their customer valuations are high quality and should be used to set their

ODI rates rather than our reasonable ranges. They suggest that some companies' research is of lower quality and so should not be used, and that not all of the ODI rates are comparable, for example some being conducted for non-household as well as household customers. Wessex Water also states that our use of triangulation is not always consistent.

- **Our response:** As set out in the section on our approach at final determination above, a reasonable range is a numeric range which we expect company ODI rates to fall within, unless there is a good explanation otherwise. The primary rationale for using the reasonable ranges is that companies' proposed ODI rates vary considerably, in ways that we are unable to correlate to plausible potential drivers of underlying customer preferences following our analysis at draft determination. To mitigate the risk of methodological differences leading to ODI rates which depart significantly from underlying customer preferences, we use reasonable ranges as one of our checks, on the basis that a range based on the sector average will reduce the impact of the unexplained variance, and provides a tool for identifying where methodological differences, rather than customer preferences, may be driving ODI rates.

For **non-asset health performance commitments**, our methodology does not use the reasonable range mechanically, and we consider companies' research through our checks as set out above. In particular:

- An ODI rate being outside of the range does not automatically lead to an intervention. If we identified no issues with the company's willingness to pay research, and no other checks indicated problems then we did not intervene even when the ODI rates were outside of the reasonable range.
- Where we assess it necessary to intervene on rates and consider the company research to be of sufficient quality, we ensure this is included in the calculation of the intervention rate (i.e. customer research was not overridden by the reasonable range). In these cases the reasonable range forms only one element of the intervention rate, and we consider it a transparent source of information that reflects a broad view of customer valuations for a performance commitment. We consider that there are good reasons to use other information in addition to customer valuations to set ODI rates where we identify problems in the checks, e.g. past performance concerns, or a very different rate to the corresponding rate used in the 2015-20 period with no clear reason why customer valuations would have changed in the intervening period. In some cases, companies face credible incentives to overstate or understate particular incentives.
- The use of the reasonable range was relatively more systematic for **asset health interventions**. This is because in our view there are significant challenges involved in obtaining accurate customer valuations for these performance

commitments. Given the more limited range of alternative willingness to pay data, re-triangulation of these rates was not feasible and therefore we relied on the reasonable range when intervening to adjust ODI rates.

Constructing the reasonable range based on industry mean

Affinity Water and South East Water state that our use of the mean in constructing our reasonable ranges is inappropriate where data quality is poor and there are outlier data points. United Utilities and South East Water similarly state that our use of standard deviations for calculating the range is less robust than using quartiles with small datasets containing outliers.

- **Our response:** The use of the arithmetic mean and standard deviations is a common approach used to set intervals in a wide variety of settings. In this context, moving to using the median and interquartile range instead requires a clear statistical reason, such as where there are small sample sizes, different approaches used by companies to derive their rates, and where there are different values for the mean and the median.
- At final determination we assess each ODI to determine whether there was a case for not using a simple arithmetic mean, and whether the use of the median would be more appropriate, as set out in the section above on our approach at final determination. We conclude that using the median and inter-quartile range is the most appropriate approach in three cases due to data skew and presence of outliers: low pressure, sewer blockages and sewer collapses.

Accounting for changes in marginal costs and benefits

Yorkshire Water and Anglian Water state that we have not accounted for changes in marginal costs and benefits when assessing ODI rates. In particular, Yorkshire Water states that the ODI rates used to construct the reasonable ranges are themselves based on pre-efficiency challenge marginal costs, and so are overstated. Anglian Water states that where we have increased the performance commitment level stretch, the ODI rates should be lower, as marginal benefits are decreasing as performance improves whereas marginal costs are increasing.

- **Our response:** As set out in the above section on our approach at final determination, we acknowledge that there is some evidence of customer valuations for incremental service improvements falling at higher levels of service. This is discussed in the Section 5 of this appendix on enhanced ODIs, where companies are looking to achieve frontier performance in the sector.

- However, where companies' performance commitment levels have increased (e.g. as a result of our interventions), we do not make an automatic adjustment to their ODI rates. This is because we do not have sufficient evidence from companies to justify and implement either a standard adjustment factor, or unique adjustment factors for each performance commitment, without the introduction of more uncertainty and potential unintended consequences with respect to customer protection.
- In response to Yorkshire Water's point, we consider that constructing reasonable ranges using ODI data from companies' September and April business plans is appropriate despite subsequent changes to companies' ODI rates. This is because many companies' subsequent changes are made in response to these ranges, such that updating the ranges to reflect newer data would be a circular exercise. Where companies have proposed new rates taking into account updated marginal costs, we consider the evidence provided in our assessment of the individual rates in line with our assessment methodology described above. Company-specific assessment details are provided in individual company 'Delivering outcomes for customers final decisions' documents.

Consideration of past performance as a check

South East Water states that a comparative assessment of past performance is not appropriate for asset health measures, as all companies face different situations and environments. As such, it considers we should not apply our past performance test for asset health measures. Similarly, Bristol Water states that past delivery is not an appropriate criteria for setting incentive rates, and that past performance should be considered in the round, rather than for an individual performance commitment.

- **Our response:** For both asset health and non-asset health performance commitments we consider that companies' past performance for the performance commitment in question is a relevant consideration when setting ODI rates. Companies with poor past performance may require stronger financial incentives than in previous periods, to ensure that they place due focus on improving performance in this specific area. In addition, companies with poor past performance face a credible incentive to understate their underperformance ODI rates in order to limit the extent of future underperformance payments. As with the other checks, poor past performance alone does not necessarily mean that we intervene – it is considered in the round with the results of the other checks, including customer evidence.
- Our performance check does not entail directly comparing past performance across companies. Instead, the test analyses a company's own performance

against its performance commitment levels in the 2015-20 period (and earlier, where data are available).

Use of the 1.2 ratio between underperformance and outperformance rates

Bristol Water states that our use of a 1.2 multiplier when intervening on both the outperformance and underperformance rate for a given ODI has no particular rationale and is inconsistently applied.

- **Our response:** As set out above in the section on our approach at final determination, we use a multiplier (1.2) where we intervene in either the underperformance or outperformance rate for a performance commitment, and need to amend the corresponding under- or outperformance rate consistently. This is based on our analysis of data on the relative sizes of the outperformance and underperformance rates proposed by companies.
- We do not consider it feasible to use a different multiplier specific to each performance commitment. The reduced sample size and variable data quality for each performance commitment could introduce a large degree of uncertainty and unexplainable variance in the multiplier.
- We only use the multiplier for customer-facing performance commitments where we are intervening on an underperformance or outperformance rate for the performance commitment for a particular company and need to adjust the corresponding rate accordingly. Where we do not have reason to intervene then we accept that the ratio between under- and outperformance rates could be different to 1.2 for that particular performance commitment.

Normalisation of ODI rates for industry comparisons

Hafren Dyfrdwy proposes that we normalise all ODI rates on a per-household basis, rather than a per-household-per normalised unit basis. In particular it states that our approach of normalising using total mains and sewer lengths disproportionately impacts small companies with small networks, leading to high ODI rates. It further proposes to normalise leakage rates on a £ per-household per-megalitres per day, rather than a £ per-household per-% reduction basis, as it considers the latter basis to distort ODI rates according to company size.

- **Our response:** We do not agree with Hafren Dyfrdwy's argument that £/household/un-normalised unit is a more appropriate basis of comparison. We consider that assessing ODI rates on a £ per household per normalised unit basis best reflects our starting position that, all else equal, a household should attach a

similar value to an equivalent increment in performance. This approach also controls for the aggregation effect that is present in companies' raw ODI rates (such that, all else equal, a company that serves more households should have a greater ODI rate).

- We consider comparing leakage ODI rates on a £ per household per percentage reduction basis the most appropriate as a 1Mld change in leakage represents a very different level of improvement depending on a company's current volume of leakage. We also use percentage reductions to set companies' performance commitment levels, given the uncertainty regarding the 2019-20 forecast values.

Excessive downside risk on certain performance commitments

A number of companies claim that for particular performance commitments our draft determination interventions have resulted in ODI rates that result in disproportionate potential downside risk, either in absolute terms or compared to other relevant performance commitments. Anglian Water considers that our overall approach skews incentives towards underperformance payments, stemming from increased performance commitment stretch, underperformance only financial incentives and increased ODI rates.

- **Our response:** As part of our final determinations we consider the impact of performance commitment packages (performance levels and ODI rates) in the round, including the implications for underperformance and outperformance payments and necessary interventions at the industry level. This approach is described in more detail in section 4.3.3 above. As set out in this section, we consider that our overall approach to outcomes provides the right balance of underperformance and outperformance incentives, in particular to avoid underperformance and incentivise outperformance, and we have taken steps to provide customer protection where we consider this not to be the case.

Company-specific representations

We also receive representations where companies provided new (or reiterated previous) evidence relating to our assessment of or intervention into their ODI rates, but did not raise additional methodological points to those summarised above. These representations and our assessment of them are set out in each company's respective 'Delivering outcomes for customers final decisions' document.

Where stakeholders make representations to change our draft determination decisions, we assess these in light of our final determination approach described

below, and in light of the nature of the stakeholder's representations. We change our draft determination decisions where the evidence provided by the company is sufficient and convincing (including evidence previously submitted to which the company referred in its representation) and supported by our methodological approach.

4.4 ODI rate adjustment for past performance

We make adjustments to a company's underperformance rates where we continue to have concerns over the deliverability of the company's business plan, given its past performance on some performance commitments and the evidence it provides in the lessons learned from past delivery. In deciding whether further adjustments are required, we take into account the company's proposed outcome delivery incentive rates and any adjustments that we are already making. Where we consider that further customer protection against poor performance is required, we intervene to increase its underperformance rate (for example by increasing the underperformance rate to align with the industry average). Further details of our assessment approach are set out in the 'Accounting for past delivery technical appendix', and details of our assessment in each company's 'Accounting for past delivery final decisions' document.

4.5 ODIs for cost recovery on common performance commitments

4.5.1 Our policy approach for the final determination

We allow leakage enhancement costs for companies that plan to go beyond the forecast upper quartile levels, which results in additional funding for Bristol Water, SES Water, South East Water and Anglian Water. Anglian Water, Bristol Water and South East Water are currently performing above the upper quartile (their 2019-20 forecast levels on a three-year average basis), and therefore we fund them to go beyond these levels. We also allow funding for Thames Water to improve its unplanned outage performance, expecting it to deliver the industry median performance level by 2025, with investment in resilience and asset health. We set out further information on our assessment of costs relating to common performance commitments in 'Securing cost efficiency technical appendix'.

We amend the ODI underperformance rates on these performance commitments to take into account the additional funding allowances. We apply a two-tier ODI rate

where the company does not deliver the service level that the additional cost allowance is funding it to achieve. The 'Tier 1' rate applies to the scope of the funding – i.e. for leakage it will apply to underperformance increments between the performance commitment level and the company's current performance level or upper quartile (whichever is more stretching). The 'Tier 2' underperformance rate is based on the standard ODI rate that will operate below the scope of the funding – i.e. for leakage the standard rate applies to underperformance increments equal to or below the companies' current performance level or upper quartile. The Tier 1 rates are calibrated over the entire 2020-25 period such that if the company remains at its 2019-20 performance levels throughout the period the entire additional funding allowance would be recovered.

The Tier 1 rate is calculated for each company to recover for customers the additional funding in the event that the company does not reach the performance commitment levels. The rate is also designed to compensate customers for the forgone incremental benefit of the underperformance. There are some exceptions to this: we do not include foregone customer benefit for the unplanned outage performance commitment for Thames Water, as this is an asset health performance commitment where the ODI is not set with respect to customer willingness to pay values (and where Thames does not have an outperformance rate). We also do not recover the forgone benefit element for leakage where companies are already performing at or above the industry upper quartile and where we have increased their performance commitment levels beyond those proposed by the companies (e.g. to align them with the WRMP targets). We do not consider it appropriate to set further underperformance measures for these companies for foregone customer benefit for performance that is below their performance commitment level, given this is already upper quartile and beyond the levels proposed by the companies, provided that performance remains above their current (2019-20) level (the level from which the funding allowance applies). The Tier 1 rate for Anglian Water, Bristol Water and South East Water therefore only recovers the enhancement funding in the event that the company does not reach its performance commitment level, whereas the Tier 1 rate for SES Water also recovers the forgone marginal benefit element as its performance commitment level remains the same as what it originally proposed.¹⁶

The Tier 1 rates use the totex outperformance cost sharing rates for each company, as opposed to the indicative cost sharing rate of 50% used in calculating standard ODI rates. This is to recover the share of the actual funding that a company keeps through underspending if it fails to reach its performance commitment level for which it has been granted additional funding.

¹⁶ The calculation of the Tier 1 rates is set out in the 'ODI Rates Customer Facing' and 'ODI Rates non-customer facing' models.

4.5.2 Summary of stakeholders' representations to our draft determinations and our response

Anglian Water, South East Water and Bristol Water make representations relating to our draft decisions on Tier 1 underperformance rates for leakage. Bristol Water and Anglian Water propose new rates based on their interpretation of the formula used to calculate the Tier 1 rates, and South East Water states that the enhancement funding allowance reflected in the Tier 1 rate is insufficient to fund the service improvement required for it to reach their performance commitment levels.

- **Our response:** We respond to Anglian Water's comment regarding the inclusion of the foregone customer benefit element of their Tier 1 rate in our revised approach to setting the Tier 1 rates above. We have also adjusted our formula for Bristol Water, to exclude the foregone benefit element from the Tier 1 rate, as described above. We address Anglian Water's comment regarding the inclusion of the foregone customer benefit element of their Tier 1 rate in our approach to setting the Tier 1 rates above. We have also adjusted our formula for Bristol Water, to exclude the foregone benefit element from the Tier 1 rate, as described above.
- We adjust our funding allowance for South East Water from our draft determination decision and recalibrate the Tier 1 rate accordingly.

5 Enhanced ODIs

We want to encourage companies to innovate to improve their performance beyond the best level currently achieved by any company. Together with enhanced performance commitment thresholds, enhanced outperformance and underperformance payments provide strong incentives to deliver major performance improvements and compensate companies for the extra effort and risk involved. Significant changes in frontier performance through innovation not only provide direct benefits to customers of the company in question but also enable more stretching benchmarks for other companies, benefiting consumers more widely. Due to better availability of comparative data enhanced ODIs only apply to common performance commitments and are put forward at the discretion of companies.

5.1 Our policy approach for the final determination

In the sections below we set out our approach to our decisions on:

- Enhanced rates.
- Enhanced thresholds.
- Enhanced caps and collars.
- Knowledge sharing.

5.1.1 Enhanced rates

We derive **enhanced outperformance rates** by estimating the benefit to all customers when a company delivers excellent performance that will improve sector benchmarks and hence push the sector forward in the next price control period. We refer to this as **benchmarking externality**. We consider that, in general, the benchmarking externality for a given performance commitment should be the same, regardless of which company achieves this, as it reflects the benefits to the sector as a whole of frontier-shifting performance. However, we recognise that customers of smaller companies may be disproportionately impacted (on a per household basis) if they are required to share the same industry-wide externality as customers of larger companies. We therefore apply a distributional adjustment factor to our quantification of the benchmarking externality to account for the relative number of households for each company compared to the industry average. Further details of our approach to estimating the benchmarking externality are presented in Annex 3. In particular, the approach considers the following:

- The impact of enhanced outperformance in 2020-25 on performance commitment stretch benchmarks in 2025-30. This takes into account the probability of a company with enhanced outperformance influencing the upper quartile in 2025-30.
- Diminishing returns to outperformance. This provides for a downward adjustment to the value of an increase in performance commitment stretch benchmarks to capture the likely diminishing returns of improved service.
- A discount for the delay in benefits being accrued. This accounts for the benchmarking externality not being realised until 2025-30.

Where companies propose enhanced outperformance ODI rates that are greater than our estimate of the adjusted benchmarking externality, we intervene to set the rates at the level implied by our estimate of benchmarking externality, adjusted where necessary for distributional concerns. We do not intervene where companies' proposed rates are lower than our adjusted externality estimate. This is because we consider that there is information asymmetry between us and companies and hence where companies propose a lower ODI than us, this ought to be sufficient to incentivise innovation by them.

As with standard ODI rates, we consider that **enhanced underperformance rates** should be at least as large as enhanced outperformance rates. Symmetric rates provide balance to the enhanced outperformance payment which should reduce the chances that companies take unreasonable risks to achieve enhanced outperformance, which may inadvertently result in very poor performance for customers. We therefore apply symmetric rates for enhanced out- and underperformance payments in cases where we intervene on the outperformance rate, and intervene to set enhanced underperformance rates equal to enhanced outperformance rates where the outperformance rate is higher than the underperformance rate.

We also consider that customers who do not support standard outperformance payments for a performance commitment would not support enhanced performance payments. Where companies fail to provide convincing evidence of customer support for standard outperformance payments, we intervene to remove the enhanced ODI for that performance commitment.

5.1.2 Enhanced thresholds

We take a single industry view for each relevant performance commitment of the threshold level of performance beyond which companies should receive enhanced outperformance payments. We consider a single industry level is appropriate

because it represents a level that improves the industry frontier as a whole, and does not reward companies that are behind for simply catching up with the rest of the industry.

To calculate **enhanced outperformance thresholds** for each performance commitment for the 2020-25 period, we apply four steps.

We first set a **starting point** for our assessment of the 2020-21 industry frontier, setting it either at the current best performing company in 2017-18 or 2018-19 or the forecast frontier level for 2020-21, whichever is more stretching. This combined approach compensates for the risk that companies may underestimate performance forecasts such that forecast frontier levels are below the current frontier performance level, and ensures that we do not set enhanced thresholds that companies have already achieved in the very recent past or are forecasting to do so in the short term.

Second, we apply an **upward shift** to the starting level of performance to achieve a “frontier shift” to set the 2020-21 enhanced threshold. At draft determination we made this upward adjustment for each performance commitment based on the historical annual percentage change in the (standard) upper quartile industry performance for the related service from 2014-15 to 2017-18. For final determination, we add 2018-19 actual performance data.

For final determination we conduct further analysis of this frontier shift using a range of assumptions. The resulting frontier shifts vary considerably depending on choice of start and end year, number of years, whether upper quartiles or averages are assessed, and which performance commitments are considered. We consider that there is also potential for overlap or gaps with respect to other measures of productivity improvement. Given this volatility and uncertainty in the measure we consider it appropriate to take a conservative approach to the estimation of the 2020-21 frontier shift factor, in order to arrive at enhanced performance commitment levels that represent a significant change in performance while maintaining a credible incentive on companies to reach the performance levels required to earn enhanced outperformance payments.

We therefore decide to set a common frontier shift for all performance commitments at the level of the lowest shift estimate across the performance commitments – this is 1.4% (the result for per capita consumption).

Third, we apply a **profile** to the shifted frontier starting point from 2020-21 to reflect that the standard industry frontier will continue to shift throughout the period. We calculate the year on year percentage improvement in the (standard) upper quartile

forecast values for each performance commitment between 2020-21 and 2024-25 and apply that profile to the shifted frontier starting point from 2020-21.

Fourth, in order to ensure that the enhanced threshold profiles over the period are consistently more stretching than companies' standard performance commitment levels, the enhanced threshold profile applied is constructed from the more stretching of: (a) the year on year percentage improvement in the (standard) upper quartile forecast values calculated in step 3; and (b) where companies propose less stretching enhanced outperformance thresholds than our single industry view, we intervene to set their thresholds at our industry view. Where companies propose more stretching thresholds we do not intervene and we accept these more stretching thresholds for these companies, since we consider that there is information asymmetry between us and companies and hence companies may have a better view on the extent of enhanced performance companies consider they can achieve.

In assessing **enhanced underperformance thresholds** for each performance commitment, we consider that the threshold should be at least at the lower quartile of industry performance, in order to reflect a deterioration in performance to very poor levels. We use the actual lower quartile performance of all companies applied to each year of the 2020-25 period. While companies have generally proposed more demanding enhanced underperformance thresholds, we consider that the lower quartile of actual performance for all companies is still appropriate, and represents very poor performance for the subset of companies that have proposed enhanced ODIs.

We therefore intervene where necessary to set companies' enhanced underperformance thresholds to the current lower quartile performance (based on 2018-19 actuals).

Common performance commitment levels are not included in early certainty, so our final decisions on enhanced thresholds for these performance commitments apply to all companies, including fast track companies.

5.1.3 Enhanced caps and collars

Our approach to assessing **enhanced outperformance caps** has regard to the following considerations:

- Companies require sufficient incentives to innovate and deliver frontier-shifting performance for the benefit of all customers.

- Customers should be protected from unduly high outperformance payments and from companies focusing on a single performance commitment to the detriment of other service areas. This is particularly relevant given the remaining uncertainty around customers' willingness to pay for service improvements and the risk of misspecification of standard and enhanced ODI rates. We also consider it appropriate to limit the extent to which any particular company's customers fund innovation to the benefit of all customers.

To achieve a balance between these considerations, our decision is that companies should be able to earn outperformance payments using standard ODI rates on performance up to the enhanced outperformance threshold. Beyond that threshold, we set a cap on the enhanced outperformance payments that can be earned from any one enhanced ODI in any year equal to 1% of either water or wastewater regulated equity as relevant. This combines the notional regulated equity in the network plus water and water resources price controls into a single 'wholesale water regulated equity' and the network plus wastewater and bioresources price controls into a single 'wholesale wastewater regulated equity'.

We consider this an appropriate cap as it is consistent with the aggregate sharing mechanism as a percentage of regulated equity. This mechanism operates alongside our wider customer protection approach, where a company's annual outperformance payments (standard plus enhanced) across all performance commitments greater than 3% of water or wastewater regulated equity in any year are shared with customers.

We consider this strikes the right balance between providing sufficient incentives for companies to advance the frontier while protecting customers from high outperformance payments. We consider that having individual caps on performance commitments with enhanced ODI payments provides additional customer protection over and above the general cap above 3% of return on regulated equity (RoRE). Individual caps will mitigate the risk that the enhanced ODI rate may be incorrectly specified or that companies focus excessively on a single performance commitment to the detriment of their wider commitments.

In the same way as we use the lower quartile of recent sector performance for enhanced underperformance thresholds, we use the lower decile for each performance commitment to set **enhanced underperformance collars**. We set enhanced underperformance collars at the lower decile¹⁷ of actual company performance (using 2018-19 actual performance data) for each relevant performance commitment. This balances limiting companies' financial exposure to enhanced

¹⁷ A decile is a form of a quantile which has ten categorical buckets. In this case we have used the lower decile out of the seventeen companies.

underperformance payments with the need to protect customers from excessive risk taking by companies which may lead to very poor performance. We consider a range of potential levels and consider this to be the most suitable. It ensures the collar is aligned to recent poor performance by all companies in the sector, while excluding outlier poor performance which may result in disproportionate exposure for companies. There are further complementary tools such as enforcement action to deter such low performance levels.

As with enhanced outperformance payments, standard underperformance payments will continue to apply up to the enhanced underperformance threshold – this provides further incentives for the company to avoid significant underperformance.

5.1.4 Knowledge sharing

Knowledge sharing is an important element of the enhanced ODI framework. The exact nature of each knowledge sharing process is likely to depend on the innovation undertaken, the service area concerned and the industry circumstances at the time of the sharing.

We expect a company earning enhanced ODIs to share learning on what has worked and what has not, consistent with knowledge sharing plans set out in its business plan. We also expect companies to assess the success of their knowledge sharing and be able to provide evidence of this to Ofwat, and we will take account of this when we determine ODI payments.

Our decision is not to intervene on companies' knowledge sharing plans in our final determinations. However, we will take account of companies' evidence of their knowledge sharing activities when reconciling enhanced ODI payments.

5.2 Summary of stakeholders' representations to our draft determinations and our responses

At draft determination, we allowed nine companies enhanced ODIs across five common performance commitments (internal sewer flooding, leakage, per capita consumption, water supply interruptions and pollution incidents).

We receive 10 representations on our draft determinations, from six companies (Anglian Water, Northumbrian Water, SES Water, South West Water, Wessex Water and Yorkshire Water), and two other stakeholders – CCWater and Anglian Water's CCG, all relating to the setting of either the enhanced outperformance threshold or

enhanced outperformance rate. None of the representations were on the under-performance or knowledge sharing aspects of the enhanced ODI regime.

We summarise below the representations that include over-arching methodological points and set out our response. Representations focusing on company-specific details are addressed in the relevant company's 'Delivering outcomes for customers final decisions' document.

Anglian Water – leakage enhanced outperformance thresholds. The company states that Ofwat's approach to calculating the enhanced thresholds for its leakage performance commitment, by setting frontier performance on a m³/km/d basis and l/property/day basis separately and only subsequently normalising the final frontier level, risks setting unachievable enhanced threshold levels. The company states that if a company with an urban region and a company with a rural region are the two frontier companies, this sets a more stretching level than if the two companies were less urban and less rural respectively. The company demonstrates this point with Hafren Dyfrdwy's leakage levels – the company is one of the best performers in leakage per km of main, but average on a per property basis. The company claims that without Anglian Water leading on leakage per km of main, Hafren Dyfrdwy would have been used to set the frontier despite being an average performer in leakage per property. The company proposes that its thresholds for enhanced outperformance payments should revert to the levels set out in its April business plan.

- **Our response:** At draft determination, we took two values for the frontier level of leakage, normalised by km of mains and by households. We then took a 50:50 weighting of both of these values to reach our view of the appropriate enhanced threshold. The two frontier companies, by km of mains and population respectively, are Northumbrian Water and Anglian Water. An analysis of the companies' concentration of properties to km of mains can be used as a proxy for how rural/urban are the companies. Relative to the rest of the industry, we find that Thames Water is the most 'urban' company and Hafren Dyfrdwy the most 'rural' company. This shows that, contrary to Anglian Water's argument, the enhanced thresholds are not skewed by companies that are significant outliers with either very high or very low concentrations of households to km of mains. We consider a standard approach to estimating outperformance thresholds is more appropriate than setting thresholds at individual companies' proposed levels, to ensure that companies are receiving enhanced outperformance payments only for pushing the industry frontier forward. Further to this, at final determination we revise our approach to setting the degree of the frontier uplift.

Northumbrian Water – enhanced outperformance thresholds. The company states that it does not accept Ofwat’s decision to further tighten the thresholds at which enhanced ODI payments apply. The company states that it believes its proposed thresholds in its April business plan are consistent with Ofwat’s guidance and with the thresholds set in the draft determinations for fast track companies. The company notes that Ofwat has further tightened its view of the forecast frontier level in 2020-21, which may be partially a result of more recent improvements in performance. The company states that the continued ratcheting of thresholds and targets below what was reasonable at the time of business plan submission is inappropriate. The company states that it incentivises companies to game the regulatory settlement by throttling back on improvements at the end of the current period so these can be delivered in the next period. The company states that its enhanced thresholds should revert to those proposed in its April business plan.

- **Our response:** The company is the leading company for leakage for its Essex and Suffolk Water performance commitment, and it is proposing that, for this measure, its enhanced outperformance threshold is set equal to its performance commitment level. We state, in our PR19 methodology (page 85), that companies should propose thresholds that are higher than the current leading company’s performance and include forecast improvements. Our intention for the enhanced ODI threshold is to ensure that companies are receiving enhanced outperformance payments only for moving the industry frontier forward through innovation for the benefit of all consumers, not just to provide enhanced rewards for continuing a company’s performance, even if it is at the frontier. Setting the company’s enhanced outperformance thresholds at the level proposed by the company in its business plan would therefore be against our methodology, which is based on defining an industry-wide frontier-shifting enhanced performance level. In line with our methodology, we therefore consider it is inappropriate to have enhanced thresholds that are equal to a company’s performance commitment level. Similarly, although the company proposes stretching enhanced thresholds for pollution incidents and water supply interruptions and that include improvements over time, they are not beyond the performance level of the frontier company taking account of frontier shifting performance.

The company states that it has set thresholds consistent with the fast track draft determinations. We align enhanced thresholds for fast track companies with all other companies for final determination as they do not have early certainty on this aspect of ODI design. We also note that we recalibrate the frontier shifting level of performance for setting the threshold with an extra year’s performance data and by adjusting our assumptions on a reasonable level of frontier shift. We consider that these are a reasonable proxy for the frontier shifting performance

levels described in our PR19 methodology and are stretching but achievable by leading companies.

The company states that our intervention to set enhanced outperformance thresholds higher than its April business plan proposals incentivises companies to 'game' the price review process. We do not agree with this argument, because we set enhanced outperformance thresholds at the level that pushes out the industry frontier, taking account of a number of factors including observed performance and not only companies' forecasts. It would require a number of companies to choose to 'game' both actual and forecast performance to materially influence our assessment of the industry frontier shifting level (and not just those choosing to apply for an enhanced ODI). If a company were to attempt to game the regulatory settlement, by withholding improvements to the end of the period, it would forgo the outperformance payments it would have received if it had performed well or would have the burden of underperformance payments if its performance slips below its performance commitment level.

South West Water – adjustment for small companies. The company notes that the scaling down of the benchmarking externality for smaller companies is contrary to the approach recommended by Frontier Economics in the 2018 paper for Ofwat. The company states the number of households that are beneficiaries of the externality (outside of the company's own customers) should positively affect the value of the externality. The company states that Ofwat's adjustment does the opposite.

- **Our response:** The 'scaling down' adjustment the company is referring to is the adjustment for distributional concerns. This is an adjustment to ensure customers of a small water company do not end up paying more than the customers in a large water company on a per-customer basis. The company has only chosen parts of the 2018 Frontier Economics report that makes its case. It has omitted the report's statement that 'there is no clear justification for rewarding a small company significantly more than a large company for such improvements' and that 'it would be disproportionate for customers for that company to bear such large variations in their bills'. We consider that the scaling adjustment is appropriate to protect customers of small companies.

6 Bespoke performance commitments

Bespoke performance commitments provide companies with the opportunity to reflect their customers' preferences and develop innovative performance commitments. For example, this allows companies operating in Wales to reflect Welsh customers' priorities and government policy in Wales. Companies engaged with their customers and local stakeholders on their bespoke performance commitments.

It is important that the definitions of bespoke performance commitments are clear. Most companies have no, or very few, exemptions included in the definitions.

We encouraged companies to consider ways of making their performance commitments more challenging at PR19. This included making bespoke performance commitments to their customers based on innovative metrics that genuinely challenge the company and lead to significant changes for the benefit of customers or the environment. It also included performance commitments that involve working together with others, such as new approaches to catchment management.

Companies propose a wide range of bespoke performance commitments to reflect the challenges they face and their own customers' preferences and circumstances. In assessing these, we use multiple sources of evidence. This includes customer support and willingness to pay for the performance commitment and any financial incentives associated with it; technical evidence supporting the performance commitment, including any sector comparators or similar performance commitments; and historical evidence and precedents where available.

Our final determination decisions relating to the bespoke performance commitments proposed by companies are outlined in our 'Delivering outcomes for customers final decision' documents for each company.

There are several areas where all or the majority of companies propose bespoke performance commitments. This section outlines our approach to assessing and decision-making on performance commitments in these areas, where we have taken a common approach across companies.

We also briefly summarise stakeholders' representations on our draft determination decisions and our responses for other bespoke performance commitments where we do not adopt a common assessment approach, but where representations have

focused on common topics. This covers metering and lead performance commitments.

6.1 Residential gaps and voids

In our PR19 methodology, we set out our concerns about water companies' management of gap sites and voids and the incentives they have to manage them appropriately. Voids are properties classed by water companies as being vacant; however, some voids are actually occupied, so they may erroneously not be billed. A gap site is a property where water and/or wastewater services are provided, but the property is not on a water company's system and is therefore not billed. It is in customers' interests for gap sites and voids to be properly managed by water companies, as the correct billing of all properties helps to reduce the average bills across customers. Water companies have varying levels of voids and gap sites, manage them differently and face different circumstances.

In our PR19 methodology we challenged companies to propose bespoke performance commitments on gap sites and voids, for residential retail and the business retail market, or justify why this is not appropriate. In this section we cover residential retail gaps and voids, and we cover non-household gaps and voids in a later section.

We consider there are clear, direct benefits to customers of companies reducing void sites, in the form of bill reductions. At final determination we therefore include a performance commitment for voids for each company, and set ODI rates for underperformance and outperformance using a common methodology, as described below.

For gap site performance commitments, our approach at final determination is not to undertake a comparative assessment across companies, as there is limited information (direct or proxy) to enable a consistent comparison of performance levels or ODI rates across the industry. The nature of gap sites and difficulties in predicting how many may be identified over time across companies compounds the difficulties of cross-company comparisons. Our decisions for these performance commitments are outlined in the relevant company's 'Delivering outcomes for customers final decisions' document.

South Staffs Water's performance commitment relates to both gaps sites and void properties. It only has underperformance payments due to the nature of its performance commitment that is set at the maximum 100%. It already has a very low

percentage of voids and is proposing to reduce these even further and thus we consider it appropriate to accept its bespoke proposals.

The remainder of section 6.1 addresses performance commitments relating to only voids.

6.1.1 Our policy approach for the final determination

Performance commitment levels

Stretching performance commitment levels will lead to improvement in this area. We asked companies to propose stretching levels, supported by evidence to demonstrate that the proposed levels are stretching and in customers' interests.

We do not set a common definition across companies, and thus assess the definitions proposed by companies and adjust these where necessary to ensure that the correct outcomes are being incentivised. For example, we amend some definitions to include unmetered properties, as unmetered properties are more difficult to identify as using services. This is because the meter cannot be read and thus excluding them would not focus incentives on this more difficult issue.

In assessing the performance commitment levels, we do not apply a common performance level across all companies, given the influence of exogenous factors on void rates, such as the level of housing availability and deprivation. We therefore assess performance levels on a case-by-case basis, taking into account:

- companies' business plan data on absolute void levels and the percentage reduction in voids proposed across the period;
- comparative performance levels of other companies; and
- Ministry of Housing, Communities and Local Government (MHCLG) data on total dwellings and empty dwellings as a cross-check.

Where companies propose performance levels that we do not consider to be sufficiently stretching on the basis of the above analysis, we intervene to set more stretching performance levels based on our assessment of their historical performance and other company-specific circumstances.

Outcome delivery incentives

We consider there are clear, direct benefits to customers of companies reducing void sites, in the form of bill reductions. We also consider that underperformance

payments are necessary to incentivise companies to identify void sites where services are being used, as otherwise there is no clear incentive for them to do so (as the foregone bills are covered by the bills paid by other customers).

For this reason, we set financial incentives (including both outperformance and underperformance payments) for void performance commitments for all void performance commitments except those with early certainty on ODI rates (for Severn Trent Water and South West Water – we assessed these company's ODI rates on a bespoke basis at fast track draft determination and do not change our draft determination decision). We calculate ODI rates such that if outperformance payments are earned, the positive impact on bills from the revenue requirement being spread across more customers will outweigh the cost of the outperformance payment. We therefore consider that it is in the interests of customers to set outperformance as well as underperformance incentives.

We apply a common methodology for assessing and intervening in ODI rates for the void performance commitments, as the benefits to customers can be assessed in the form of bill reductions rather than relying on willingness to pay evidence. The calculation of ODI rates is based on the company's average wholesale residential bill to represent the benefit of a reduction in a false void. We do not adjust company average bills to take account of the likelihood of an identified false void bill being paid, as we consider that whether a bill is paid or not affects bad debt, rather than customer bills, and is a cost that the company should largely control. Customers receive a benefit of bill reductions if the number of void properties reduce, regardless whether the bill is paid.

The outcome delivery incentive rate calculations are based on the following inputs:

Marginal benefit of reducing a false void - average wholesale bill amount: The company's latest bill amount following the residential adjustment. We use 2017-18 figures available on '[DiscoverWater](#)', which is consistent with the draft determination. This adjustment is made by deducting the 10% residential element from the total bill as customers do not receive this element. We separate out the wholesale bill to take account of single service (water or wastewater) and dual service (water and wastewater) customers. This is because single service voids have lower average bills than dual service voids and thus a lower impact on costs passed through to customers. We therefore weight the water, wastewater and water+wastewater (dual) elements of the wholesale bill by the proportion of customers in each service.¹⁸

¹⁸ This approach implicitly assumes that the proportion of false voids is the same as the proportion of customers across the different services. Whilst likely an oversimplification, we consider this acceptable given the alternative (no weighting) will overestimate the benefits to customers from reducing false voids.

1% of the total number of properties: The performance commitment definition is expressed as the number of voids as a percentage of total properties, and thus we express the marginal benefit of a reduction in each false void as a percentage of total properties. This is 1% of the total number of properties companies have quoted in their respective “App1a” data tables.

We do not apply a **cost-sharing ratio** to the ODI formula as this performance commitment relates entirely to the retail control, for which we do not apply the cost sharing mechanism.¹⁹ Any deviation from allowed expenditure will be entirely incurred by the company, and thus no element of this needs to be returned to/recovered from customers through the ODI. Thus the underperformance and outperformance ODI rates are the same and based only on the marginal benefit of reducing false voids.

Risk-sharing allowance: We acknowledge that the definition we apply to this performance commitment (voids as a percentage of total properties) is affected by wider economic and social factors such as empty dwelling rates (which, all else being equal, higher rates would make it more difficult to reach the performance level) or total connected properties (which, depending on whether the company sees more or less growth in the total number of connected properties would make the performance level more or less difficult to reach). We therefore apply a 50% risk sharing allowance to reflect the impact of macroeconomic factors and to share the risk between companies and customers. This is applied symmetrically to underperformance and outperformance payments.

The calculation is as follows:

ODI underperformance and outperformance rate

$$\begin{aligned} & (Average\ wholesale\ bill_W \times Cust_W) + (Average\ wholesale\ bill_{WW} \times Cust_{WW}) \\ & + (Average\ wholesale\ bill_D \times Cust_D) \times (1\% \text{ of total number of properties}) \\ & \times 50\% \text{ risk sharing} \end{aligned}$$

Where

- W = water service
- WW = wastewater service
- D = dual service

¹⁹ In the PR19 methodology (p142) we state “The cost sharing mechanism will apply for total revenue controls only, namely for water resources, water network plus and wastewater network plus. We will not apply cost sharing in average revenue controls, namely in the retail and bioresources controls. In the average revenue controls, any deviation from our allowed expenditure will be incurred fully by the company”.

- *Cust = customer weight*

We apply this methodology in calculating ODI rates across all companies, with the exception of South Staffs Water, South West Water and Severn Trent Water. We retain our draft determination decision for South Staffs Water, as it already has a very low percentage of voids and is proposing to reduce these even further and thus we consider it appropriate to accept its bespoke proposals. The other two companies have early certainty in relation to ODI rates and thus we retain our fast track decisions for them.

Caps and collars

The wider economic and social factors lead to a level of uncertainty for these performance commitments and following our methodology set out in section 7 we apply caps and collars for all companies. Our approach is normally to set caps and collars at P10 and P90 levels.

We compare companies' P10 and P90 estimates and most companies propose very narrow ranges between P10 and P90 performance. We review performance for the last four years from annual performance reports and find that the values for all companies fluctuate year on year, although most changes are less than 0.5% up or down.

As company-proposed P10 and P90 estimates do not appear to reconcile with the recent past we have derived a common way to set caps and collars:

1. We have no reason to assume a skewed distribution and consider upside and downside should be symmetrical.
2. As demonstrated by historical data, all companies have scope for year on year variations. We assume that this is at least 0.5% between the collar and performance commitment level and 0.5% between the cap and the performance commitment level.
3. We consider all companies should improve performance beyond the current 2018-19 level (as reported in annual performance reports), but there is a risk that companies do not improve. The underperformance range should include 2018-19 performance to provide strong incentives to improve. Companies with reducing performance commitments also have the greatest scope for outperformance as we have only moved company performance halfway to the independent benchmark set from the Ministry of Housing, Communities and Local Government (MHCLG) data. Therefore it is appropriate for these companies to have a wider

interval between the cap and the performance commitment level. These companies are exposed to greater upside and downside risk.

4. For companies where we increase stretch from business plans our estimates of P10 and P90 performance are equal to the cap and collar levels.

6.1.2 Summary of stakeholders' representations to our draft determinations and our responses

Summary of our draft determinations

At draft determinations we adopted a similar approach to assessing and intervening on this performance commitment. The key difference was the calculation of the ODI rates. We did not include a differentiation in the average wholesale water bill for dual or single service customers; we included a marginal cost element of £30 (unless companies provided sufficient and convincing evidence for a different amount); we included the standard 50:50 cost sharing ratio; and we did not include the risk sharing allowance. Details of our approach can be found in the 'PR19 draft determinations: Delivering outcomes for customers policy appendix'.

We applied an industry-wide intervention to incorporate underperformance and outperformance rates to each void performance commitment where they were not already present.

We also intervened to apply more stretching performance levels to several companies where we assessed them to be forecasting poor performance against expectations.

For two companies, Hafren Dyfrdwy and Yorkshire Water, we intervened to change the definition of the performance commitment so that we can better challenge the stretch of the performance level by comparing performance to that of other companies and to comparable data. We also considered that the revised performance commitments were more focused on the benefit for customers.

Summary of stakeholders' representations and our response

We summarise below the representations made by companies in relation to this performance commitment (no other representations were received). We focus our responses on the representations related to methodological aspects of our approach. Company-specific representations are addressed in more detail in the individual company 'Delivering outcomes for customers final decisions' documents.

Impact of macroeconomic factors: Anglian Water, Yorkshire Water and Hafren Dyfrdwy state that the definition predominantly chosen by the companies (11 out of 17, i.e. voids as a percentage of total properties) and which we applied when we considered that the definition selected by Yorkshire Water and Hafren Dyfrdwy would not incentivise the right outcomes, is affected by wider economic and social factors such as empty dwelling rates, which can affect the ability of companies to reach the performance commitment levels and are largely outside of management control.

- **Our response:** We acknowledge that the influence of these factors increases risk for companies in terms of their ability to reach the performance level as defined. We therefore apply a risk sharing allowance of 50% to the ODI rate, and apply caps and collars as set out in our final determination approach above.

Apply suitable caps and collars: Anglian Water, Hafren Dyfrdwy, Bristol Water and Yorkshire Water propose methods to set the collar. Anglian Water proposes a collar should apply at an underperformance level which is double the potential outperformance level. Hafren Dyfrdwy proposes to set the collar at the current void rate and set a symmetrical cap. Bristol Water proposes taking the approach used in other areas and mitigate risk with a collar at two times the 2020-21 performance.

- **Our response:** We do not consider that a multiplier approach is appropriate in this case as variations tend to be similar each year between companies, but the void rates at very different which would lead to very different collars that would not address uncertainty. We consider that the Hafren Dyfrdwy proposal will help to give strong incentives, but consider there should be at least some downside, as well as upside from the current level. We do not necessarily consider that the downside should be greater than the upside in this case as we accept that there are factors outside company control.

Change the denominator in the performance commitment (i.e. total properties):

To address the above issue, Hafren Dyfrdwy suggests the definition should be updated. In the current definition of the performance commitment the denominator is calculated, for each year, as the company's realised number of connected properties. The company proposes to change the definition so that the denominator is instead calculated, for each year, as the ex ante assumed number of the company's connected properties. The company states that this would ensure whether real improvements have been made rather than simply a change in customer numbers.

- **Our response:** The key concern in using the ex ante assumed number of properties is that, other things held constant, if a new property became a void property in period it would disproportionately impact the ability to meet the

performance target compared to using the actual number of connected properties. Under the current definition, the impact of an additional void is mitigated by the increase in the denominator (one additional property). This mitigation effect is not present if we use the assumed number of connected properties. As we do not have evidence on the likelihood that a new registered property will become void, we cannot measure the materiality of this distortion. If enough new registered properties become voids, this change could result in a substantial distortion. We therefore do not change and will continue to calculate void percentages based on the number of properties each year. We mitigate the risks faced by Hafren Dyfrdwy by the introduction of a risk sharing allowance and caps and collars.

Cost sharing: Bristol Water and Southern Water state that no sharing rate should be applied to the ODI rates, as this performance commitment applies to a retail revenue control.

- **Our response:** We agree with this, and remove the cost sharing element from the ODI rate calculation as set out in our final determination approach above.

Marginal benefit: Southern Water raises a concern that the calculated benefit per false void is too high as it does not take account of the difference between single service and dual service customers. It states that single service voids have a lower impact on costs passed through to customers, with average bills of £162 for water and £251 for wastewater. The company proposes two options to fix the issue namely: 1) separate incentives for dual and single customers; and 2) weight incentives for the number of customers in each service. Hafren Dyfrdwy also raises concerns around not separating water and wastewater services when calculating the total number of connected properties.

- **Our response:** We consider it appropriate to separate out the impacts of single and dual service bills on the average bill impact of false voids. As set out in our final determination approach above, we weight the average wholesale bill by the proportion of customers across water, wastewater and dual services. We consider this a practical approach to addressing this issue.

6.2 Scheme-specific performance commitments and cost recovery

In the 2020-25 year period companies will invest in schemes to improve existing assets or build new assets. Schemes may include investment in natural capital approaches such as catchment management that avoid the need for traditional hard

engineering investment, while providing wider benefits such as improving biodiversity.

Companies' incentives are best targeted on the end outcomes that matter to customers such as the service they receive. We want to see companies focusing on delivering what really matters to their customers, rather than the delivery of certain outputs and schemes and consider this is possible in most circumstances.

Scheme-specific performance commitments are performance commitments related to the delivery of a particular scheme, rather than a service or outcome delivered to customers. This is a way of ensuring that customers are protected if the particular scheme covered by the commitment are not delivered in a timely manner. This can be necessary where the scheme will deliver longer term benefits that are not fully captured by service in the five year price control period. Performance commitments just focused on short term service would not provide appropriate incentives to companies.

The situations where it might be appropriate to set scheme-specific performance commitments include:

- schemes with extended delivery times beyond 2025, or, that deliver inter-generational benefits to customers;
- schemes where the companies' existing performance commitments do not sufficiently cover the benefits of the schemes, and therefore, would not compensate customers sufficiently for delay and / or non-delivery; and
- schemes where there is a high degree of uncertainty associated with completion.

However, in all such cases, we expect companies to consider whether their customer- and environment-focused performance commitments could capture the benefits of such schemes instead. We also expect companies' applications for special cost claims to be accompanied by their proposed approach to protect customers (in the event of delay or non-delivery of the scheme).

6.2.1 Our policy approach for the final determination

Performance commitments for late / non-delivery

Where companies propose performance commitments to incentivise the delivery of schemes which are being funded through another mechanism (e.g. an enhancement allowance), we assess these schemes against the approach in our PR19

methodology that we said companies should adopt. We assess whether a company has done the following:

- engaged with its customers and CCG on any scheme-specific performance commitments, as part of its engagement process on all its performance commitments;
- submitted the details of a scheme-specific performance commitment alongside its special cost claim or enhancement funding claim. This should include an explanation of how its performance commitments and outcome delivery incentives (ODIs) will ensure customers will be compensated in the event of non-delivery or delay. The proposed compensation should be relative to the costs customers would be paying and relative to the benefits of the scheme the customers would be foregoing; and
- explained what alternatives to scheme-specific performance commitments and ODIs it had considered and what engagement it has undertaken to support its approach including why the company did not consider the alternatives were appropriate.

In some cases, we set performance commitments to protect customers' interests where these have not been subject to customer engagement. For example, some companies' proposals are in representations and there has been limited opportunity for engagement. In other cases, we set performance commitments to protect customers as a consequence of changing our cost allowances.

We assess **performance commitment levels and definitions** to ensure these include specific annual delivery milestones and set out clearly what scheme completion entails, so that this can be aligned with customer benefits. Only by exception do we allow annual performance commitment levels based on percentage of expenditure (as opposed to delivery milestones), for example one of Dŵr Cymru's performance commitments.

We assess **ODI rates for late delivery** using our methodology for developing an appropriate rate. We consider that ODI rates for late delivery should compensate customers for the forgone benefit of not receiving the scheme on time. Where companies provide clear customer evidence on annual benefits to support an ODI rate, we accept this evidence. Where we do not have confidence in the company's proposed benefit, but we consider the annual benefit of delivering the scheme on time to be significant for customers, we estimate the benefit based on the annual accounting costs and impact on customers' bills. We assume that, on average, the annual benefits arising from scheme delivery are significantly greater than the annual impact on bills. We use WACC and the run-off rate as proxy for forgone customer benefit from late delivery. We set underperformance rates as follows:

$$ODI\ rate = scheme\ totex * (WACC + RCV\ run-off\ rate) / units$$

where:

- 'scheme totex' is our final cost allowance in 2017-18 prices;
- 'WACC' is the wholesale CPIH-based weighted average cost of capital that applies to that company, including where the small company premium applies. Using CPIH reflects the schemes relate to new investment;
- 'RCV run-off rate' is the price control allocation for the performance commitment multiplied by the five-year average RCV run-off rate for that price control in our final determinations. This reflects the relative bill impact of the different RCV run-off rates for the price controls that relate to the scheme; and
- 'units' is the expected number of units that will be delivered in the 2020-25 period as specified by the performance commitment.

We use company-wide assumptions on run-off rate rather than scheme-specific, which is simpler and reflects the impact on customer bills. As ODI rates for late delivery are largely relevant for capex schemes, we consider it appropriate to use the cost of capital and run off rate to estimate lost benefits. These underperformance rates are normally calculated and applied each year, reflecting the extent of delay relative to the company's delivery profile.

In addition, if at the next price review, we expect a company will not deliver a scheme by 31 March 2025, we will also recover any expenditure related to **non-delivery**. We will do this based on the latest estimate of performance at the next price review. The company will have to confirm the need for any further expenditure required, as with other expenditure required post 31 March 2025. This excludes environmental schemes, water industry national environment programme (WINEP) and national environment programme (NEP), that were confirmed 'green' on 1 April 2019 as set out below.

Where the main underperformance rate reflects late delivery, we also specify a further rate in the performance commitment definition to use at the next price review in case of non-delivery. We intend to recover both the lost benefit in period and the costs related to any non-delivery at the end of the period.

The approach to reconcile these ODIs for the final year 2024-25 post 31 March 2025 will be set out at the next price review, if any is required. Any further reconciliation may need to take into account the interaction with the reconciliation with cost assessment in the period post 2025 – i.e. we may not be able to take into account the interaction with allowed costs that is possible at a periodic price review. This

recovery of costs may only apply at the next price review and not in future in-period ODI determinations.

For **non-delivery ODIs**, we set underperformance rates as follows:

$$ODI\ rate = (scheme\ totex * totex\ outperformance\ rate) / units$$

where:

- 'scheme totex' is our final cost allowance in 2017-18 prices;
- 'totex outperformance rate' is the price control allocation for the performance multiplied by the cost sharing rate for totex outperformance for that price control in our final determinations. This is the investor share of the cost sharing mechanism. This ensures the proportion of totex not returned to customers for non-delivery via the cost sharing mechanism is returned; and
- 'units' is the expected number of units that will be delivered in the 2020-25 period as specified by the performance commitment.

Cost recovery schemes

We decide to allow companies to retain their cost-recovery performance commitments where our standard criteria for accepting a performance commitment are met (i.e. there is sufficient evidence of customer support and demonstrable customer benefit). We consider that this will incentivise innovative activity, as these schemes may not be undertaken in the absence of a cost recovery mechanism.

We allow companies to recover the costs of these schemes through setting an outperformance payment-only ODI type in cases where:

- there is clear customer benefit and customer support for the ODI type; and
- where the activity would not be funded through another alternative mechanism (e.g. other ODIs or enhancement allowances), especially where the outcome of the proposed activity is uncertain, due to its innovative nature or dependence on customer uptake.

In certain specific cases, we allow performance commitment levels to be set to zero, such that costs can be recovered through outperformance payments, where we consider that a cost-recovery performance commitment is the only appropriate means to deliver the proposed scheme. We decide that the ODI rates should be set to efficient marginal costs, or less (adjusted for the investor share of additional costs through the totex underperformance rate), rather than other measures like customer willingness to pay. This is because there is less transparency around willingness to

pay values, and efficient costs are an appropriate basis for a cost recovery performance commitment.

We set outperformance rates as follows:

$$ODI\ rate = (scheme\ totex * totex\ underperformance\ rate) / units$$

where:

- 'scheme totex' is our final cost allowance in 2017-18 prices;
- 'totex underperformance rate' is the sum of the price control allocation for the performance multiplied by the cost sharing rate for totex outperformance for that price control in our final determinations. This is the investor share of the cost sharing mechanism. This ensures the proportion of totex not funded for delivery via the cost sharing mechanism is recovered; and
- 'units' is the expected number of units that will be delivered in the 2020-25 period as specified by the performance commitment.

Our intervention approach

Our decisions are aimed at ensuring that the performance commitment definitions, including ODI rates and commitment levels for scheme-specific performance commitments, reflect the funding associated with the schemes. We make the following interventions:

Scheme-specific:

- Where we consider that a company should have proposed a scheme-specific performance commitment, in the absence of any other suitable customer protections against under-delivery, we intervene to introduce one. This covers material investments (for example, smart metering programmes) and those with regulatory drivers (for example, reservoir safety compliance).
- We adjust ODI rates to ensure that they allow full recovery of the scheme costs in the event of non-delivery.

Scheme-specific and cost recovery:

- We also make changes to the ODI design, for example, where appropriate setting incentives to underperformance payments only and changing the timing of payments to be revenue payments that are reconciled on an annual basis, in-period, before the next price review.

- We intervene on performance commitments which relate to investment proposals for schemes that have been rejected. This involves either removing performance commitments where the scheme has been rejected, or where there has been a funding adjustment intervening to adjust the performance commitment or make it non-financial.
- We remove performance commitments that relate to the strategic regional water resource solutions. This is because we consider an end-of-period reconciliation mechanism would allow more flexibility as well as providing appropriate level of incentives and protections to the development of these schemes. Further details are set out in 'Strategic regional water resource solutions appendix'.

6.2.2 Summary of stakeholders' representations and our response

Stakeholders' representations regarding scheme-specific and cost recovery performance commitments are all company-specific, and addressed in the individual company 'Delivering outcomes for customers final decisions' documents.

6.3 WINEP and NEP

The Environment Agency and Natural England's water industry strategic environmental requirements (WISER) document and Natural Resources Wales's '[PR19 expectations and obligations](#)' paper sets out certain statutory obligations on water companies operating in England and Wales respectively. These documents describe the environmental, resilience and flood risk obligations that water companies must take into account when developing their business plans.

A large portion of enhancement expenditure is driven by environmental requirements. These requirements will be set out in a release of the 'water industry national environment programme' (WINEP) in England, and the 'national environment programme' (NEP) in Wales, which were issued in March 2019. However, some requirements are not expected to be confirmed until December 2021 at the earliest. This means that these requirements were uncertain when companies submitted their business plans to us in September 2018 and April 2019, and are still uncertain at the time of our final determinations in December 2019. These as yet unconfirmed requirements are known as 'amber' schemes. The confirmed schemes are known as 'green' schemes.

In our PR19 Methodology we state we will fund the anticipated WINEP and NEP programmes, as long as companies propose an appropriate cost adjustment mechanism to account for any potential discrepancy between the scale of the

assumed and confirmed programmes. This removed the need for companies to propose scheme-specific performance commitments.

6.3.1 Our policy approach for the final determination

Definition of performance commitments

Performance commitments are set out at the beginning of the period to inform customers of the benefits they should expect companies to deliver. Reporting against performance commitments provides transparency on company performance, and if companies have confidence that performance commitments will not change, they can focus on delivering more, for less, of what customers value. If there is the potential for performance commitments to change during the period this could lead to a disconnect between the cost/service package specified at the start of the period and what is delivered. It may incentivise companies to focus on convincing regulators of the need for a change as opposed to focusing on delivering what matters to customers, and it adds complexity, which is likely to reduce the impact of incentives and reduce transparency as well as adding cost to both companies and regulators.

We consider that performance commitments with specific service levels for the delivery of WINEP or NEP schemes should, in general, only apply to schemes designated as green schemes by 1 April 2019. This is because including amber schemes (which might be removed during the period) may result in the performance levels being inaccurate, and may also result in inefficient investment in schemes that are no longer required. Exceptions may apply if the number of amber schemes is de minimis (less than 2% of total schemes) – in which case these would not need to be separated out from the performance commitment as their impact on the overall target would be negligible. We also consider exceptions where a company has a large number of amber schemes (e.g. by including performance commitments for only amber schemes) or where a company measures its performance in such a way that it is not important whether a scheme is green or amber, for instance measures on days/months delivered early or late. We also consider exceptions where a company proposes that it will compensate any amber schemes which do not proceed by bringing in non-WINEP schemes or green schemes scheduled for the next period under appropriate externally assured governance processes.

Companies have WINEP and NEP requirements that are outside their proposed performance commitments. This is because of how they define their performance commitments or because we exclude amber schemes that were uncertain on 1 April 2019. In light of this we add a further performance commitment to provide

transparency on whether the company meets all its WINEP and/or NEP obligations or not each year. This has a binary measurement of “met” or “not met” each year and the ODI is reputational.

Changes to performance commitments

In line with the above we have not put in place a specific approach for companies to amend performance commitments on WINEP and NEP during the period (a company may only propose changes in the exceptional circumstances set out in Annex 2 of each of the company’s ‘Outcomes performance commitment appendix’).

We allow changes to a small number of companies’ performance commitments to take into account changes made since 1 April 2019. In these cases the companies provided sufficient evidence for us to amend the delivery profiles set at draft determination. In these cases, companies commit to deliver no less than at the draft determination.

Cost recovery decisions

We do not recover costs relating to elements of WINEP or NEP which are **not delivered** by the end of the period as we will for other significant schemes. Once confirmed we expect schemes to be delivered. If a scheme is not delivered by 31 March 2025 no further allowance for costs will be made at the next review, but we will still expect the company to deliver any schemes that are still required. In the case of material changes to schemes (e.g., removal from WINEP or NEP or significant changes in scope), we will consider the implications as part of the PR19 reconciliation process.

We consider that performance commitments should **not be used as a cost-recovery** mechanism for **amber schemes**. This is because there is already a clear cost assessment framework (as set out in each company’s ‘Cost efficiency final determination appendix’) for recovering expenditure for schemes that are no longer required, and recovering expenditure through the ODI framework is less transparent. An exception is for one performance commitment, for Hafren Dyfrdwy, which only includes amber schemes. In this case, rather than remove the performance commitment, we will use the performance commitment as the cost adjustment mechanism as it will achieve the same policy objective.

However, where a company proposes to go **beyond requirements** (either green or amber schemes at 1 April 2019) with additional schemes, for which there is no funding framework, we allow outperformance payments for efficient cost recovery. We allow these only where the company provides high quality evidence of both

customer benefit and customer support, and regulatory support (from the Environment Agency or Natural Resources Wales, as appropriate). Where we allow a cost-recovery performance commitment we check that this does not double count any funding provided through the cost assessment framework.

Outcome Delivery Incentives

We consider that all performance commitments should have underperformance ODIs in order to incentivise **timely delivery** of WINEP and NEP schemes, as these hold significant benefits for the environment that customers' value. We allow outperformance payments for early delivery only with:

- convincing customer support (specific to the performance commitment, meeting our normal criteria for high quality customer research); and
- convincing customer benefit, that there are clear benefits that customers value for any outperformance; and
- that outperformance payment is only earned for genuinely stretching performance – the company must demonstrate that the proposed performance levels are stretching (we do not consider that this is necessarily demonstrated by scheme delivery according to the dates specified in NEP or WINEP).

In exceptional circumstances we allow non-financial performance commitments, where companies have provided clear evidence of customer support and evidence that this type of ODI would be in customers' interests (e.g. evidence of skewed incentives resulting from a financial ODI).

We accept end of period ODIs if companies provide sufficient and convincing evidence that they are sufficiently incentivised against delivery delays and that in period ODIs would not be beneficial (e.g. due to the cumulative nature of the measure or the fact that the phasing of delivery may change as a result of ongoing consultations with regulators).

6.3.2 Summary of stakeholders' representations to our draft determinations and our responses

Summary of our draft determinations

Our approach at draft determination followed the approach outlined above. We intervened at draft determination in a number of ways on WINEP and NEP performance commitments, including:

- Strengthening performance commitment definitions where appropriate, including clarifying that performance commitments relate only to green schemes under WINEP and NEP (for the majority of companies).
- Removing outperformance payments where companies did not sufficiently justify customer and stakeholders' support or that it was not clear outperformance would result from going beyond stretching performance
- Increasing customer protections by introducing underperformance payments.
- Introducing a WINEP performance commitment for Northumbrian Water and Portsmouth Water, with underperformance payments to protect customers against delivery delays.

Summary of stakeholders' representations and our responses

We receive representations from Affinity Water, Anglian Water, Bristol Water, Dŵr-Cymru, Northumbrian Water, Portsmouth Water, South East Water, Southern Water, Thames Water, United Utilities, and Yorkshire Water, as well as CCWater, the Environment Agency and Natural Resources Wales.

The representations covered a range of company-specific issues, such as the definition of performance commitments and levels of stretch, end-of-period ODIs, and the removal of outperformance payments. Our responses to these representations are detailed in the individual company's 'Delivering outcomes for customers final decisions' document.

We summarise here representations that relate to our approach and our responses.

The Environment Agency states that it is pleased WINEP has been included in all water company business plans and allowances made for Water Framework Directive requirements. It states that it supports the interventions we have made to ensure that environmental improvement schemes are implemented in a timely manner. The Environment Agency reiterates that it expects companies to deliver the whole of their agreed programme of measures by December 2024, even if they have not requested up-front funding in their business plans.

- **Our response:** We welcome the representation from the Environment Agency.

CCWater challenges the exclusion of amber schemes for South Staffs Water and Yorkshire Water, but does not agree with the inclusion of amber schemes for Anglian Water.

- **Our response:** We note CCWater's concerns, however, we consider that final determination price limits allow for all schemes that are required, either through

the costs we allow or the cost adjustment mechanism, and the standard performance commitment that we introduced covers all schemes that are required. We consider that our approach, set out above, to exclude amber schemes from performance commitment definitions is justified. We note that Yorkshire Water also makes a representation to have its 'length of river improved' performance commitment reinstated as per its September business plan. This included amber schemes which are disproportionately high in number for the company. For final determination, as outlined above, we consider it appropriate to include amber schemes in Yorkshire Water's performance commitment, taking into consideration its unique circumstances in having a disproportionately high number of schemes and also its proposals to mitigate the risk of the amber schemes which do not go ahead by 2025. This means that its measure will remain stable throughout the period.

Northumbrian Water, Thames Water and Yorkshire Water propose to change annual performance commitment levels in line with any **changes agreed** with the Environment Agency.

- **Our response:** In line with our approach set out above, we do not consider it appropriate to make specific provision for performance commitments to be amended during the period without a formal process of consultation. We do not consider that Yorkshire Water, Thames Water or Northumbrian Water provide sufficient or convincing evidence to support a change in that approach.

6.4 Carbon

The challenges of climate change need to be addressed by the water and wastewater sectors in ways that offer value to consumers both now and in the future.

Companies are required to include bespoke performance commitments which cover the environment and most companies include bespoke performance commitments relating to carbon reductions as part of this requirement.

Operational emissions from water companies account for nearly 1% of the UK's total carbon emissions. In addition, as an asset intensive sector, water companies are responsible for significant emissions associated with construction and the manufacture of the products they use. We expect companies to understand their emissions and play their part in the UK's effort to reduce them.

We are committed to helping to mitigate climate change through our approach to regulation. We currently monitor each company's greenhouse gas emissions

annually in line with Government guidance and we publish these figures in our annual service delivery report.

We welcome the sector's recent commitment to be net zero operational carbon emissions by 2030. The level of carbon reduction associated with the bespoke performance commitments do not reflect this latest commitment, however, we recognise that the performance commitments pre-date it and expect the industry to put in place the measures required to meet its Public Interest Commitments.

6.4.1 Our approach for the final determination

We assess the relative emissions reductions companies propose for performance commitments through benchmarking measures that use comparable metrics and the associated reductions proposed. We take into account historical performance, including differences in baselines and level of reductions already achieved by companies in the current period. Where companies clearly demonstrate significant reductions in the current period we accept that additional reductions are likely to be more difficult, and allow for this when considering whether proposed reductions are sufficiently stretching.

It is each company's responsibility to deliver its part in the net zero carbon emission commitment via its own unique opportunities and challenges in its region and for some this will mean going beyond the levels set in their performance commitments.

We do not allow financial incentives for reductions in capital carbon (the carbon emitted as a result of construction). This is due to the fact we cannot appropriately assure the quality and representativeness of capital carbon baselines proposed by companies. Therefore, we cannot accurately judge how stretching reductions that companies propose are from such baselines.

We do allow financial incentives for operational carbon because the UKWIR Carbon Accounting Workbook, along with appropriate assurance, provides a suitably standardised approach to operational carbon calculations that has been used by companies for several years. This standardised approach allows the comparative stretch of proposed carbon reductions to be judged more accurately. In assessing whether financial incentives for operational carbon are appropriate we assess evidence of customer support and whether proposed carbon reductions are sufficiently stretching based on our assessment across companies with similar measures.

Companies will report operational carbon according to the UK Water Industry Research Ltd (UKWIR) Carbon Accounting Workbook published on 8 May 2019. For avoidance of doubt there is flexibility to use either the grid emissions factor within the carbon accounting workbook or a 'market-based' emissions factor for electricity supplied via the grid.

Companies will also report their operational carbon measures using both a 2019-20 baseline grid emissions factor and the actual year grid emissions factor, to provide transparency on reductions achieved through their own activities and those through national grid decarbonisation.

All companies have a requirement to provide external third party assurance. For operational carbon this includes that all data collection relating to greenhouse gas emissions is compliant with the international carbon reporting standard (ISO 14064, Part 1) and a third party assures this. For capital carbon the relevant standard is PAS2080.

6.4.2 Summary of stakeholders' representations to our draft determinations and our responses

Summary of our draft determinations

At draft determinations we introduced additional assurance requirements for companies' carbon reductions. This included a requirement for companies to provide external third party assurance including that all data collection relating to greenhouse gas emissions is compliant with the international carbon reporting standard (ISO 14064, Part 1) and assured following an audit by the Certified Emissions Measurement and Reduction Scheme (CEMARS).

Individual company interventions include:

- Portsmouth Water – We intervened to revise the definition and increase the stretch of the performance level for this performance commitment. The performance commitment measures percentage reduction in operational carbon emissions per megalitre from a 2019-20 baseline. The company proposed to measure the change from three year average of the performance from 2015-18, which did not take into account likely reductions in the last two years of the current period. We also increased the stretch from the company proposal of maintaining the emissions level.
- SES Water – We intervened to introduce an underperformance payment for its operational carbon performance commitment. This is because the company

proposed significant reductions in the last two years of the current period which had not yet been achieved. Therefore, the underperformance payment would protect customers if these reductions were not delivered.

- **Wessex Water**– We intervened to set the underperformance rate using the average of the values for the traded cost of carbon for 2020 to 2024 rather than fixed 2017 cost, this is in line with Government policy appraisal guidance. This increased the company’s underperformance payment rate, as the cost of carbon increases over time.
- **Yorkshire Water** – We removed the financial incentives for capital carbon reductions due to the fact we cannot appropriately assure the quality and representativeness of capital carbon baselines proposed by the company (as discussed at the start of this section). We therefore split the proposed performance commitment, which was focussed on total carbon emissions, into two separate performance commitments measuring operational carbon and capital carbon (including land emissions) reductions separately. This allows financial incentives to be maintained for the operational carbon component of the performance commitment.

Summary of stakeholders’ representations and our responses

We receive representations from Northumbrian Water, South East Water and Yorkshire Water. The company-specific representations and our responses are set out in the individual company’s ‘Delivering outcomes for customers final decisions’ document.

Northumbrian Water’s representation covers our approach to carbon performance commitments relating to the selection of baseline year and how we take into account forthcoming changes in UKWIR methodology. It proposes changing the definition so that it is relative to a 2019-20 baseline, rather than that 2017-18 baseline it had proposed. It considers that the forthcoming changes could have a material impact on how carbon is measured.

- **Our response:** As we considered that the issue raised by Northumbrian Water may impact other companies, we queried each company that may be affected. No other company consider that the forthcoming changes would lead to a significant impact in how carbon is measured. We change the definition for Northumbrian Water to be relative to the 2019-20 baseline. Companies will report operational carbon according to the UK Water Industry Research Ltd (UKWIR) Carbon Accounting Workbook published on 8 May 2019. Should the UKWIR make changes to the Carbon Accounting Workbook, the process set out in Annex 2 of each company’s ‘Outcomes performance commitment appendix’ provides the

means to request updates of third party materials that are referenced in performance commitments.

Yorkshire Water questions if it should report with either the current emission factor or a zero-emission factor. It states that should it continue on a green tariff, it intends to use a zero-emission factor rather than the 2019-20 emission factor.

- **Our response:** The carbon accounting workbook from version 12 onwards does allow for specific tariff details to be inputted in the “Electricity Details” tab. This allows the percentage of electricity consumption supplied through green tariffs and includes input for percentage offset allowance, which the green tariff supplier should provide. All operational carbon performance commitments definitions now state the following: “Measurement of greenhouse gases can adopt either the grid emissions factor within the carbon accounting workbook or the ‘market-based’ emissions factor for electricity supplied via the grid. This means the actual emissions associated with the electricity purchased will be used in the calculation of operational emissions rather than the national average UK grid emissions factor”.

Yorkshire Water notes that the capital carbon performance commitment definition states it should provide third party assurance of performance through the Certified Emissions Measurement and Reduction Scheme (CEMARS). It states that it understands that this is only relevant to operational carbon. It proposes to instead use PAS2080 for assurance purposes in line with others in the water industry, and considers that PAS2080 is seen as best practice in reporting capital carbon performance.

- **Our response:** We agree that PAS2080 is the relevant standard for capital carbon and have removed the reference to CEMARS from all carbon performance commitments as there are other appropriate approaches for assurance.

6.5 Non-household performance commitments

Companies propose various performance commitments relating to non-household customers. The majority of these are company-specific and we assess them on an individual basis.

Two of these performance commitments (business retailer satisfaction and gaps and voids) involve cross-company issues, and therefore we consider cross-cutting issues in assessing these, set out below.

We note the distinction between non-household retail services and non-household wholesale services. We can only set performance commitments and incentives relating to wholesale services received by non-household customers. Retail services are the responsibility of business retailers.

At the same time, there are potential interactions with the market performance framework which governs wholesaler-retailer interactions. Performance commitments and incentives via the PR19 outcomes framework thus need to be targeted and mindful of provisions that are, or are capable of, being put in place pursuant to that framework.

As well as here, we also cover representations made by business retailer stakeholders in 'Business retail market representations' in more detail.

6.5.1 Business retailer satisfaction

Our policy approach for the final determination

In our PR19 methodology we set out that we would continue to explore if and how wholesalers are incentivised in relation to the services they provide to retailers, and consider whether it is appropriate to introduce an incentive mechanism.

Since then we have been encouraging the industry to consider ways to strengthen wholesaler performance and service in the business retail market. In November 2018 we published a [Call for inputs \(CFI\)](#), focused on strengthening wholesaler service and performance in the market.²⁰ In June 2019 we published our [CFI: Outcomes Report](#), which reflected on evidence received from the CFI and set out our specific expectations on what more needs be done – by whom and by when – to resolve market frictions arising from wholesaler performance.²¹

This report recognised the importance of introducing a qualitative measure of wholesaler performance in the market and noted that the Retailer Wholesaler Group is currently developing a measure of retailer satisfaction called 'R-MeX'. We expect R-MeX to be incorporated in the market codes in time to be implemented as a reputational common measure for all wholesalers from April 2020. MOSL (the market operator for the business retail market) is currently leading a review of the Market

²⁰ 'Call for inputs: Strengthening wholesaler performance and service in the business retail market', November 2018. Available from: <https://www.ofwat.gov.uk/wp-content/uploads/2018/11/Final-CFI-Wholesaler-Performance-Nov18.pdf>

²¹ 'CFI outcomes report – strengthening wholesaler performance and service in the business retail market', June 2019. Available from: <https://www.ofwat.gov.uk/wp-content/uploads/2019/06/Final-CFI-Outcomes-Report-Jun19.pdf>

Performance Framework. The Market Performance Framework includes quantitative metrics and financial penalties and is intended to incentivise effective operation of the market. This review is considering how the existing incentive framework can be improved so that it delivers effective market functioning and acts a driver for continuous improvement. We consider that this review provides an opportunity for the Market Performance Framework to be developed in such a way to better incentivise wholesaler performance and service. This may include making R-MeX a financial incentive over time.

In our November CFI we indicated that the business retail market codes were our preferred method to drive improved wholesaler performance in the business retail market. Based on what we have seen in the responses to the CFI and the progress made through the Retailer Wholesaler Group, we still consider this to be the case and we do not implement a common performance commitment focussed on improving wholesaler service to retailers as part of PR19.

To avoid duplication with the existing or future market performance (incentive) framework for business retail, including how this may evolve in the future, we intervene to remove financial incentives for any performance commitment addressing retailer satisfaction.

Summary of stakeholders' representations to our draft determinations and our responses

Four companies proposed bespoke performance commitments relating to the satisfaction of business retailers. At draft determinations, we removed two due to poor definitions (Bristol Water and Thames Water) and changed Anglian Water's performance commitment to be non-financial due to potential conflicts with the market performance framework. We accepted South Staffs Water's performance commitment which was reputational. All companies accept our draft determination decisions.

Three retailer stakeholders (UK Water Retailer Council, Business Stream and Water Plus) propose a common performance commitment for the satisfaction of business retailers with wholesalers.

- **Our response:** As set out in our final determination approach, we consider that the market performance framework should be the main mechanism through which to address retailer satisfaction. The UK Water Retailer Council notes the industry measure of R-MeX that is under development could be implemented outside of the PR19 process. We understand that the Retailer Wholesaler Group expects to incorporate R-MeX in the business retail market codes, ready for

implementation by April 2020. As discussed above, in the medium or longer term, the review of the MPF could provide an opportunity to add financial incentives to R-MeX. We consider an industry-led approach, which can be modified during the 2020-25 period, if necessary, to include financial incentives, is a more effective way of encouraging improved wholesaler performance.

6.5.2 Non-household gaps and voids

Our policy approach for the final determination

As with gaps and voids on residential properties, we consider it important for companies to effectively manage gaps and voids on non-residential properties. At final determination we assess companies' proposed performance commitments for gaps and voids in line with our bespoke assessment approach, considering whether the evidence provided by companies is sufficient and convincing to support their proposals.

Wholesalers have been able to initiate charging on void properties since before market opening. With the introduction of separate business retailers and incentives for wholesalers to reduce non-household voids through the PR19 voids performance commitments, we recognise this could lead to wholesalers being more likely to initiate charges on retailers for vacant sites, while at the same time not necessarily sharing with them financial outperformance payments from reducing voids. This could be exacerbated by data quality issues in the market database.

We consider that maintaining the incentives on wholesalers to reduce void sites through performance commitments is important to bring about customer benefits. However, it is possible that, at some time during the 2020-25 period, a common financial incentive on gaps and/or voids is developed by market participants (for example this could be developed at part of the reform of the market performance framework). If industry was planning to introduce a common financial incentive on business voids under the market performance framework, we would consider, following consultation with those companies which have bespoke performance commitments on business retail gaps and voids, the appropriate way to take such a measure into account in their future in-period determinations. We therefore include provision, in both non-household gaps and void sites performance commitments, which enables us to do this. For example, this could result in us amending the revenue adjustment we make during an in-period determination for the bespoke performance commitments on business voids to zero or netting off the market initiated financial measure against out / underperformance payments to avoid duplication.

Due to the limited non-household competition for companies wholly or mainly in Wales, we do not include this clause on performance commitments for Hafren Dyfrdwy and Dŵr Cymru.

Summary of stakeholders' representations to our draft determinations and our responses

Two retailer stakeholders submit representations on our draft determinations.

The UK Water Retailer Council and Business Stream welcome incentives to reduce non-household void properties, but say this significantly increases the likelihood of wholesalers unilaterally activating charges on retailers for void properties, introducing unmanageable cost and risk for retailers. They also note data quality issues in the market database. The UK Water Retailer Council proposes temporarily suspending wholesale charges for vacant properties for one or two years to allow time for data cleansing and the development of a market-wide solution. It says this may include a temporary suspension of PR19 performance commitments. Business Stream proposes a consistent scheme for sharing payments with retailers.

- **Our response:** We acknowledge the potential impact of performance commitment incentives on the relationships between wholesalers and retailers, and the issues around data quality. In light of this we have considered a short delay to the introduction of financial incentives for non-household gaps and voids performance commitments. This would reduce the risk of exacerbating market frictions by giving market participants the time to address data issues and implement consistent processes across wholesalers. However we do not recommend this because we are confident industry-led work to avoid these issues will be in place by April 2020. Separately we will progress any necessary changes to the charging framework relating to charging for void sites. Once this potential issue is resolved, wholesalers will have incentives to share rewards with retailers because retailers are responsible for designating voids in the market database.

6.5.3 Other non-household related performance commitments

We received methodology-related representations from non-company stakeholders to our draft determination decisions on three additional performance commitments, namely business customer satisfaction, water efficiency for business customers and the exclusion of business customers from smart metering performance commitments. We address company-specific representations in each company's "Delivering outcomes for customers final decisions" document.

Water efficiency for business customers

The UK Water Retailer Council and Business Stream propose extending some of the common performance commitments relate to water efficiency (e.g. per capita consumption) to include business customers.

- **Our response:** We recognise potential benefits from reducing non-household consumption. However we do not consider it practical to extend the common performance commitment for per capita consumption to business customers given it is calculated on a per person basis and we do not consider it feasible to set a new common performance commitment due to data quality issues, inherent challenges with setting levels and rates and the advanced stage of the price review. We consider the market framework is better placed to explore solutions in relation to water efficiency in the first instance.

Measure of business customer satisfaction

The UK Water Retailer Council, Business Stream and Water Plus propose a common performance commitment for the satisfaction of business customers (in England) with their wholesalers.

- **Our response:** We do not consider it appropriate to set a direct measure of business customer satisfaction with (wholesale) companies that are wholly or mainly in England. Companies wholly or mainly in Wales have bespoke performance commitments due to the extent of competition for customers of those companies. We do not consider PR19 is the most appropriate mechanism to address this issue, particularly with the existence of the business retail market and the market code framework which should be the first avenue to consider in addressing relevant issues. We also note many common and bespoke performance commitments (such as supply interruptions) cover wholesale services provided to business customers. Other issues of concerns such as complaints or data quality are addressed through non-PR19 mechanisms.

Inclusion of business customers in smart metering

One retailer stakeholder (Business Stream) proposes extending the scope of smart metering performance commitments to include non-household properties.

- **Our response:** The performance commitments in question are aligned to the cost adjustment allowances we make to replace standard meters with 'smart meters'. It is the companies that proposed the exclusion of business customers. The relevant performance commitments are designed to return funding to customers

for non-delivery. We set out our assessment of this issue in 'Business retail market representations'. In summary we revise the definition of Anglian Water's performance commitment because the company clarifies that business customers are in scope of its metering programme. For other companies we do not find sufficient and convincing evidence to remove the exclusions in their performance commitments which are focused on residential retail customers.

6.6 Incomplete performance commitments

A number of bespoke performance commitments submitted by companies in their business plans were not complete at draft determination. For example, some lacked full details around how the performance commitment is defined and what the levels of performance are.

At draft determination we removed incomplete performance commitments from companies' outcomes packages. We stated that we required sufficient detail from the companies on how these will be measured to include these performance commitments in final determinations. This is to ensure that the performance commitments, and any associated incentives, will result in customer benefits.

At final determination, we add performance commitments where companies provide sufficient additional information on definition and measurement. In some cases we have worked with the company to fully define the performance commitments.

6.7 Final determination decisions on other bespoke performance commitments

We received stakeholders' representations on other bespoke performance commitments at draft determination, and adopt the following common decisions for the final determination.

6.7.1 Lead

Summary of our draft determinations

Our approach for lead-related performance commitments at draft determinations was based on the following:

- Lead performance commitments were assessed individually based on company responses to our initial assessment of business plans actions as per our agreed draft determination methodology.
- Dŵr Cymru and Hafren Dyfrdwy were assessed in tandem due to their shared focus on Welsh government priorities. Both companies support a common priority of changing lead pipes to reduce the amount of lead in water from 10 µg/l to 5 µg/l.
- We intervened on the definition, target levels and ODIs of performance commitments where necessary, for example to increase transparency and measurability and increase customer benefits.

Summary of stakeholders' representations and our response

Stakeholders raised the following key issues:

- Wessex Water proposes to amend its performance commitment definition to allow it to rehabilitate lead pipes as well as replace them.
- Dŵr Cymru proposes a change to the definition to clarify how supply pipes are treated.
- Severn Trent Water proposes a change to the definition to clarify how supply pipes are treated.
- CCWater would like us to consider whether the performance commitment levels for lead are ambitious enough and if they should be tightened at final determination for Hafren Dyfrdwy.

We set out below our final determination approach in light of these representations. Our response to other, company-specific representations are contained in the individual company's 'Delivering outcomes for customers final decisions' document.

- **Our response:** We make the following common decisions for the final determination. Otherwise we retain our draft determination approach.

It is important that definitions do not restrict companies from delivering the best outcome for customers unnecessarily. We make clear in companies' definitions that they can deliver methods alternative to supply or communication pipe replacement, such as pipe rehabilitation, where they are found to be most cost-effective and deliver better outcomes for customers. The company must, however, also ensure that any negative impacts of alternative methods (e.g. reduced capacity and pressure drops from pipe lining) are accounted for.

We clarify performance commitment definitions that require both the supply pipe and communication pipes to be replaced, that where the company can demonstrate that the communication pipe is not made of lead, the replacement of a supply pipe alone at a property can count and vice versa.

6.7.2 Metering

Our approach at final determination

We adopt the following common actions at final determination. Otherwise we retain our draft determination approach.

Updated cost sharing rate

We use the final determination individual company cost sharing rates in calculating the ODI underperformance and outperformance rates. The final determination cost sharing rates represent the percentage of the benefit/cost that is borne by the company when it underspends/overspends compared to its totex allowance. For example, where a company under-delivers on its metering performance commitment, this links to underspending over the 2020-25 period compared to its totex allowance by the cost of the units not delivered. As a result, the company retains the share of this benefit according to its outperformance cost sharing rate. The ODI underperformance rate is designed to recover this element of the cost saving for customers. Following the same logic, the underperformance and outperformance ODI rates are calculated for each company as follows:

$$\begin{aligned} \text{ODI underperformance rate} \\ &= (\text{allowed unit cost} * \text{outperformance cost sharing rate}) \end{aligned}$$

$$\begin{aligned} \text{ODI outformance rate} \\ &= (\text{allowed unit cost} * \text{underperformance cost sharing rate}) \end{aligned}$$

Definition of meters

We confirm the following definitions to be used in the various companies' performance commitments.

- We define **new/replacement smart meters for Anglian Water and Thames Water's** performance commitments as new/replacement meter installations that use Advanced metering infrastructure (AMI) technology that enables them to be

read remotely through an integrated system of smart meters, communications networks, and data management systems. This system will have the capability to:

- Record consumption data and comply with the appropriate regulations governing cold water meters.
- Allow ready access to this data by customers (directly or via contractors / agents) and the company at near real time, with a minimum granularity of one hour and data updated not less frequently than once per day.
- Enable the capability for automated leak alarms to be communicated to the customer and company.
- Transfer consumption data to the company remotely without requiring access to the meter or property.
- Communicate with the internet.
- We define **new/replacement smart meters for Northumbrian Water's** performance commitment performance commitment as new/replacement meter installations that use Automated meter reading (AMR) technology which enables the meter to be read remotely without having to directly access the meter itself for a manual reading, i.e. walk-by/drive-by reading. The meters installed should be capable of being linked to a wide area network in the future.
- For **existing meters** (applicable to Anglian Water, Northumbrian Water and Thames Water) we define these as meters that were installed in the relevant Water network prior to 1 April 2020 without smart meter capability.

Summary of our draft determinations

At draft determinations, we assessed companies' bespoke performance commitments on metering in line with our approach to assessing scheme-specific and cost recovery performance commitments, as set out in Section 6.2. These performance commitments included rolling out existing 'standard' meters as well as smart meters.

In particular:

- We ensured that the performance commitment definitions, including ODI rates and commitment levels for metering performance commitments, reflect the funding associated with the schemes.
- Where we considered that a company should have proposed a scheme-specific performance commitment, in the absence of any other suitable customer protections against under-delivery, we intervened to introduce one.
- We adjusted ODI rates to ensure that they allow full recovery of the scheme costs in the event of non-delivery.
- We also made changes to the ODI design, for example, setting incentives to underperformance payments only and changing the timing of payments to be

revenue payments that are reconciled on an annual basis, in-period, before the next price revenue. We allowed outperformance when there was sufficient and convincing evidence of customer benefit and customer support.

Our standard approach to calculate ODI underperformance and outperformance rates based on cost recovery was:

$$ODI\ rate = (allowed\ unit\ cost * cost\ sharing\ rate\ (50\%))$$

At draft determinations, we also said we would define existing meters and smart meters at final determination.

Summary of stakeholders' representations and our response

We receive representations on our draft determinations from Anglian Water, Bristol Water, Northumbrian Water, Severn Trent Water and Thames Water. These covered companies' proposed changes to their performance commitment definition and ODI design, and representations on the ODI rates and performance commitment levels. Responses to these representations are covered in the individual company's 'Delivering outcomes for customers final decisions' document.

7 Customer protections

We said in our PR19 methodology that we expect companies to propose approaches to protecting customers in case their ODI outperformance payments turn out to be much higher than expected. These could involve companies demonstrating their understanding of the drivers of potential returns and the probability of extreme outcomes, and proposing protections for customers from these extreme outcomes. These protections could include caps or sharing the returns from outperformance with customers.

We also said in the methodology that we would consider capping ODI outperformance payments – including down to zero – specifically for companies under significant scrutiny, given potential concerns about the quality of data related to the performance commitment stretch levels and ODI rates.

7.1 Our policy approach for the final determination – P10 and P90 estimates

We use estimates of P10 for the downside risk and P90 for the upside risk for each performance commitment and for the overall ODI package to help us understand both the risks to customers and to companies.²² This range spans the performance that is most likely to occur in a five year period and so provides a useful point of reference.

For the final determinations, we use further information to consider the balance of the overall performance commitment and ODI package (as set out in section 4.3.3 above) and do not rely solely on company P10 and P90 estimates as there is some uncertainty associated with these numbers. This uncertainty arises because:

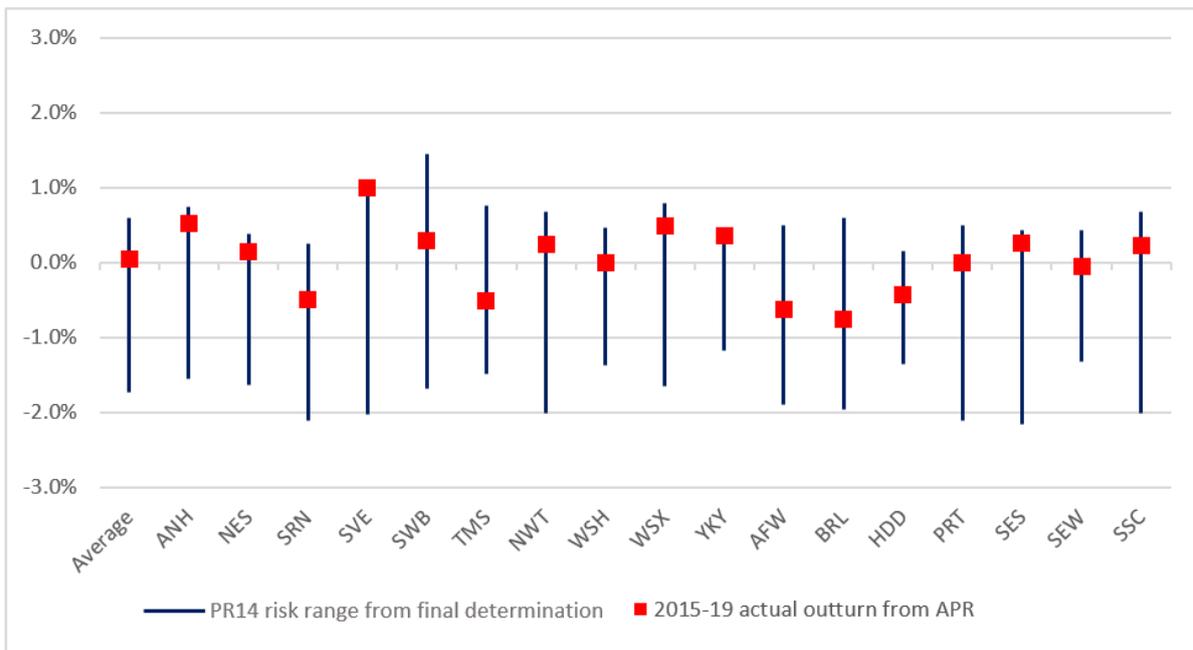
- We have limited ability to verify that the risk ranges companies propose are accurate.
- Some companies base their P10s and P90s on the range of their historic performance. Past performance can be informative, particularly as it is much more easily verifiable and less subjective than company predictions or forecasts. However, we expect performance to improve over time. There have been high rates of improvement across many outcome performance commitments in recent

²² 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.

years. In many cases, companies themselves have forecast significant improvement across many performance commitments for 2020-25. We expect stronger incentives in PR19 may well result in further increases in performance. The expected pace of improvement limits the extent to which the past can be relied on alone as a good predictor of the future.

- Companies have a credible incentive to argue there is greater risk and a downward skew in their performance commitment and ODI package, in order to reduce the stretch of performance commitments, increase outperformance payments and limit underperformance payments. We observe that companies' outturn performance in the 2015-20 period has in general been at the upper end of their ODI risk range estimated in PR14. As shown in Figure 7.1, despite the fact that most companies expected to pay underperformance payments on average (as the risk ranges were centered below zero), the vast majority (12²³ out of 17) earned neutral or net outperformance payments.

Figure 7.1 – Performance of each company against the ODI risk ranges from the PR14 final determination



Source of estimates of P10 and P90 performance

²³ Correction made that the number of companies which earned neutral or net outperformance payments is 12 not 13.

We continue to use company estimates of P10 and P90 performance from April business plans (February submissions for fast track companies) as a starting point for our risk range. We then make similar adjustments as we made for draft determinations.

We review the estimates of P10 and P90 performance that companies provided in their representations to our draft determination, but in general do not adopt these estimates for the final determination as there is insufficient and unconvincing evidence that these represented more accurate forecasts for an efficient company in the 2020-25 period than those we used at draft determinations.

Moreover, the differences between the P10 and P90 estimates we used at the draft determination and those that companies provide as part of representations are generally only significant for a few performance commitments. In these few cases, we consider the potential financial consequences of these different views in exposure are limited because:

- we mitigate any undue downside risk when dealing with other issues relating to performance commitment levels and/or ODI rates; or
- there is no evidence the downside was greater than for other companies. For instance where the company has good performance compared to other companies, but has pessimistic P10 estimates. We therefore take no further action.

How we adjust company estimates of P10 and P90 performance levels

We make a range of adjustments to companies' revised business plan estimates of P10 and P90 performance in order to be confident that they are appropriate and better reflect those of an efficient company. We review all performance commitments, but are only able to perform comparative assessments for the subset that are comparable.

Where we have made adjustments we explain these in each case in the relevant company's 'Delivering outcomes for customers final decisions' document. In making estimates of P10 and P90 performance we take into account comparisons between the estimates companies propose, past performance and expert knowledge to derive estimates that will protect customers.

For a few performance commitments, companies do not propose P10 and P90 performance levels either in business plans or as part of company representations. This includes where we have introduced new performance commitments. We derive estimates as explained in the paragraph above.

We also check that the P90 performance level proposed by a company corresponds to a higher level of service than the performance commitment level that it proposed. We consider that efficient companies have realistic prospects of achieving outperformance, which would be inconsistent with a performance commitment level which was achieved less than 10 per cent of the time. Conversely, the P10 performance level should generally not be set at a higher level of service than the performance commitment level, as this would suggest an efficient company would outperform the performance commitment level very easily.

In some cases where these issues occurred we expect that companies transposed P10 and P90 estimates, as there were problems with both the P10 and P90 estimate. In all cases we have adjusted the P90 estimates where they are a worse level of service than performance commitment level, to make them a better level of service, and also adjusted P10 estimates where they are a better level of service than performance commitment level, to make them a worse level of service.

An exception to this is scheme specific cost recovery performance commitments. The track record of the industry shows that schemes are delivered on time in most circumstances. Therefore it is appropriate that the P10 should be set at the performance commitment level in these cases.

We then consider whether further adjustments are appropriate to reflect the results of our decisions on performance commitment levels. Specifically, where we set a performance commitment level at a different level to that proposed in April 2019 revised business plans, we adjust the P10 and P90 levels to retain the same distance between the P10 and P90 levels provided in the companies' April 2019 revised business plans and the performance commitment levels in that plan. This is because we assume that a company that has underestimated its performance commitment level (which is intended to reflect the P50 level) will have underestimated the P10 and P90 by the same extent. These adjustments to P10 and P90 values also better enables us to compare P10 and P90 performance estimates across companies on an efficient company basis, which allows us to identify outliers and make appropriate adjustments as we describe below.

We then check whether the P90 and P10 values for common and comparable bespoke performance commitments are much lower than other companies' corresponding estimates (we did not consider intervening as a rule when P10 or P90 proposals were much higher than the rest of the industry because we consider companies are unlikely to have an upward bias in their estimates which would suggest that our determinations were less stretching). Specifically, we calculate the ratio of the P10 and P90 level to the performance commitment level. Where this was more than one standard deviation away from the industry mean of that ratio, we

adjust P10 and P90 levels to the bottom of the range where we did not consider them to be robust. In deciding whether estimates were robust, we take into account the degree of difference from other companies' estimates and we consider whether there were any other credible explanations for a given company's P10 and P90 levels being an outlier.

This comparison to a reasonable range is not possible for other bespoke performance commitments as there is no comparable data and for these we review the P10 and P90 level estimates on a case by case basis. In cases where we do not consider P10 and P90 levels to be credible even after adjusting for changes in performance commitment levels as described above, we apply judgement as we set out above and explain each case in the relevant company's 'Delivering outcomes for customers final decisions' document.

We consider whether companies' P90 estimates are consistent with the ODI incentives. For instance, where a company has proposed enhanced ODIs, we consider that an efficient company with enhanced incentives has at least a reasonable chance, greater than 10%, of achieving these outperformance payments. If a company's P90 level was below the threshold that applies to the enhanced ODIs over the period we increase estimates from the 2020-21 P90 estimate linearly so that by 2024-25 the P90 estimate is equal to the enhanced threshold.

We also compare a company's proposed caps with the wider evidence set out in its business plan, particularly where its P90 levels were pessimistic compared to the outperformance caps other companies had proposed. For instance, Bristol Water proposes that P90 performance was close to its performance commitments. However, it set outperformance caps at a much wider distance and explains how innovation would help it to improve to this level. We consider that this describes the P90 level. It is a level of performance that is not certain to occur, but there is a reasonable possibility that it could. In this case, and in other cases, we increase P90 levels to reflect the ambition of companies.

7.2 Our policy approach for the final determination – caps and collars

This section applies to caps and collars for standard ODIs associated with performance commitments. We explain how we set caps and collars for performance commitments with enhanced ODIs in section 5.

Caps and collars reduce the strength of financial incentives. Nevertheless, we consider they are justified in some circumstances. Caps protect customers from

higher than expected outperformance payments in the event that ODI rates are not correctly specified, which could lead to companies undertaking improvements that exceed customers' willingness to pay. Caps also prevent companies from focusing on some performance commitments to the neglect of others. Collars protect companies from disproportionate exposure in the case of very poor performance and can counter-balance a skew in exposure where we are applying a cap to ODI outperformance.

We apply caps and collars to common and comparable bespoke performance commitments which are financially material or where there is considerable uncertainty around the data. These are the performance commitments that are most likely to lead to higher than expected outperformance payments.

To consider which performance commitments are **financially material** and may lead to large increases in customer bills, we apply ODI rates to the estimates of P90 performance levels derived through the above process. All performance commitments which have P90 payments higher than 10% of the sum of the company's P90 performance payments for all performance commitments within the relevant price control area (wholesale water or wastewater) are considered to be financially material. Where we apply caps to financially material performance commitments to protect customers against high bills, we also apply collars to help offset the change in risk to companies.

We consider that there is **uncertainty** around the data and measurement for the unplanned outage and CRI common performance commitments. In addition, for CRI there is uncertainty with respect to the continued use of metaldehyde, as explained in section 3.4.1. We apply collars, and where outperformance is possible caps, for all companies for unplanned outage and CRI as we consider them uncertain, unless covered by early certainty.

We also consider performance commitments **uncertain** where companies have discretion to increase delivery, such as where performance commitments relate to activities or outputs rather than outcomes. For instance companies have performance commitments to increase biodiversity, which customers support, and so have incentives to outperform. Without a cap companies would be able to increase activity beyond the level that customer's value.

We also consider that caps and collars may be appropriate for other performance commitments in cases where companies propose them and provide sufficient evidence of customer support.

Finally, we consider applying caps and collars to a company's ODI if it is common or comparable and caps or collars already apply to other companies' corresponding ODIs. While there may be good reasons why some companies have caps and collars and others do not, where the vast majority of companies have caps and collars on a specific performance commitment, and we cannot clearly identify reasons that the remaining companies should be treated differently, this may suggest that there are underlying reasons that all companies should have caps and collars.

Following the above approach, collars and, where outperformance is possible, caps are applied to all companies where performance commitments are not covered by early certainty for:

- supply interruptions;
- external sewer flooding;
- internal sewer flooding;
- pollution incidents; and
- leakage.

Levels of caps and collars

In general, we set a **cap** at our estimate of the P90 performance level. We consider this appropriate because this is the level that, based on the company business plan and our P90 adjustments as described above, should only be achieved in exceptional circumstances. Setting the cap at this level keeps the company incentivised to improve performance across all its performance commitments, while protecting customers from higher than expected bill increases.

Where we apply **collars for common and comparable bespoke performance commitments**, we set them as a multiple of the 2020-21 performance commitment levels. We explain below how we determined this multiple and why we consider that this leads to appropriate incentives to improve and be resilient.

Where we apply **collars for other bespoke performance commitments**, we do this at our estimate of P10 performance levels. These performance commitments are varied. We do not have information to derive a multiplier value and in any case setting the same collar for each year may not lead to appropriate incentives in each case.

However, we allow exceptions to this approach where we have convincing customer evidence that a cap or collar should be applied at a different level and we consider the incentives that this provides to the company are in the interests of customers.

Multiples for common and comparable bespoke performance commitments collars

For common and comparable bespoke performance commitments, we set collars as a multiple of the 2020-21 performance commitment level and use this collar for all years. As performance commitment levels tend to get progressively more stretching over the period, this means that the potential financial consequence of not meeting the performance commitment level increases in each year of the 2020-25 period.

We consider this protects customers better than an alternative approach of setting a collar at the P10 level, which will normally increase and so would lead to similar maximum underperformance payments each year. In addition, we consider that delinking collars from P10 performance levels improves resilience, by providing companies with incentives to manage against the risk of high impact, low probability events. A further reason to be cautious of using P10 levels is that performance is not independent of incentives. A P10 level depends on the company response and a company has to respond to prevent poor service. If we set the collar at, or close to, the P10 level a company has no financial incentive to respond to events after the level of poor performance reaches the collar. So by setting a collar at the P10 level which we judge is unlikely to occur if there is no collar, may have the perverse outcome that service in the period is more likely to be worse than this level. On the converse setting a cap at the P90 level is unlikely to significantly impact company incentives if it is a reasonable estimate. A company would not expect to achieve the level or beyond and so it should not dampen incentives to outperform the performance commitment level.

We select multiplier values that capture poor levels of recent historical performance across the industry. We consider that this is an indication of the performance level against which a company should ensure that it is resilient under plausible circumstances. We do not expect companies to deliver this poor service, but if it is not exposed to the financial consequences it is more likely to do so.

To set multipliers we use the information that companies provided in business plans. The time series of data that we have varies between companies and performance commitments, but we use this as we have reasonable confidence that the data is consistent across companies and across time. The default multiplier values of the 2020-21 performance commitment level that we have selected are set out in the following table.

Table 7.1: Multiples of performance commitment level (PCL) used to determine collars

Performance commitment	Multiple applied to 2020-21 PCL	Reason
Water supply interruptions	3.5	All companies' performance have been below this level in at least three out of the last five years.
Per capita consumption	1.1	There is only comparable data based on the new definition for two years. All performance was within 1.1 times of expected 2020-21 performance. Note that as we set the performance commitment as a reduction to the 2019-20 baseline we use the formula: Collar = (1.1 multiplied (1 - 2020-21 PCL)) - 1
Mains repairs (bursts)	1.4	All companies have been below this level since 2012-13. Apart from Yorkshire Water all companies have attained less than a multiple of 1.3 of their 2020-21 PCL since 2012-13. Yorkshire Water performance in 2018-19 was 1.39 times its 2020-21 PCL. At draft determinations we had set the multiple at 1.5, but at final determinations we increase the 2020-21 mains repairs PCL for most companies for an additional allowance for leakage reduction as set out in section 3.5.2, that declines over time. We do not consider that this adjustment should increase the collar which we set as flat each year and so have selected a slightly lower multiple to maintain similar collar levels.
Unplanned outage	2.0	Unplanned outage is a new measure and we consider the most robust data is for 2018-19 and so have used this sole year. All companies' performance in 2018-19, apart from Thames Water, were below a multiple of two of the 2020-21 PCL (most were below this level in previous years as well). Thames Water has a specific cost allowance to improve performance and so it is important that ODIs apply if it does not improve. We apply a collar at four times 2020-21 performance to give it an incentive to improve as performance is currently at three times the 2020-21 level.
Internal sewer flooding	2.0	Excluding Northumbrian Water, United Utilities and Yorkshire Water, each company's performance has been below a multiple of two of the 2020-21 PCL for the three years of consistent data that we have. We are setting alternative collars for Northumbrian Water, United Utilities and Yorkshire Water as set out in the individual company's 'Delivering outcomes for customers final decisions' document.
Pollution incidents (category 1-3)	1.5	We have a long series of data for this performance commitment, but it is substantially reducing over time and so using the full set of data could lead to excessive risk to companies. In the last three years only Southern Water, South

Performance commitment	Multiple applied to 2020-21 PCL	Reason
		West Water and Yorkshire Water have been above a multiple of 1.5 of the 2020-21 PCL. South West Water has no collar and due to early certainty this will not change. Yorkshire Water has an enhanced performance commitment and so a standard collar does not apply. We set the collar for Southern Water at twice the 2020-21 level to take account of the extra risk that the company has not reported accurately in the past. If the accuracy of reported performance deteriorates customers should be compensated.
Sewer collapses	1.5	We have a long series of data for this performance commitment, and in general performance is below a multiple of 1.5 of the 2020-21 PCL. There are significant changes for some companies in 2018-19 following a revision to the definition. This has led Wessex Water's historical data to be more than a multiple of 1.5 above the 2020-21 PCL. However we consider this is just a reporting change and have not taken this into account. Hafren Dyfrdwy has had performance above the historical level, but we consider that the volatility is due its short length of sewer that leads to small changes in absolute numbers of collapses leading to large swings in performance. Setting a collar at 1.5 multiple will help to limit this volatility
External sewer flooding	1.5	We only have two years of consistent data and in general performance is below a multiple of 1.5 times the 2020-21 PCL. Severn Trent Water's performance exceeds this in 2016-17, but this is due to significant improvements over time which have led to low performance commitments.
Sewer blockages	1.5	We have a long series of data for this performance commitment, and since 2015-16 performance is below a multiple of 1.5 times the 2020-21 PCL.
Low pressure	3.0	We have a long series of data for this performance commitment, and in general performance is below a multiple of two times the 2020-21 PCL. Anglian Water's performance exceeds this in earlier years, but this is due to significant improvements over time which has led to low performance commitments. The only other water company is Affinity Water that has had high incidents above a multiplier of two times the 2020-21 PCL in 2015-16 and in 2016-17, but was generally lower than this before these dates. For any company the number of customers experiencing low pressure is small and if the collar is too close to the PCL it will lead to a small incentive to deliver an outcome that is important to customers. We therefore consider that a collar at three times the 2020-21 level is a balance between providing an incentive to companies to provide a resilient service and companies not having excessive risk.

Performance commitment	Multiple applied to 2020-21 PCL	Reason
Drinking water contacts	2.0	There is a long consistent data set for this metric that shows no company has exceeded this level back to 2014-15, but the majority of companies have exceeded 1.5, including five companies in 2016-17.

We set the collar for CRI at a score of 9.5, which is the upper quartile of the collars that companies proposed in revised business plans.

We set the collar for leakage at 5% higher than the 2019-20 baseline. We expect all companies to improve over the period and so it is important to set a collar that incentivises this improvement. Over the last five year period, in which leakage is reported on a consistent basis, all annual deteriorations in performance were less than 5%. This therefore provides an appropriate collar for the annual change between 2019-20 and 2020-21. The collar for Thames Water is 10% above the 2019-20 baseline. In 2017-18 and 2018-19 it has significantly failed its PR14 performance commitment and we took enforcement action set out in '[Notice of Ofwat's imposition of a financial penalty on Thames Water Utilities Limited](#)'. There is an increased risk of leakage increasing for this company above the 2019-20 baseline.

Aggregate sharing mechanism

We maintain our view that companies should share 50% of their outperformance payments with customers once the outperformance payments in any year reach 3% of their wastewater or water RoRE for that year. This includes any enhanced outperformance payments.

We maintain our view that the aggregate sharing mechanism should be in-period rather than apply to the whole of the 2020-25 period. This will provide customers with more protection against bill volatility. This approach also provides additional protection if circumstances in a particular year lead to significant outperformance, such as benign weather.

We maintain our view that it is appropriate to apply the aggregate sharing mechanism threshold on a gross basis, such that outperformance payments in a year are limited to 3% of RoRE. Under a net approach, the threshold is breached only once outperformance net of underperformance payments incurred in that year exceed 3% of RoRE. We consider a gross approach more appropriate, as it provides a higher level of customer protection with a greater focus on minimising poor performance.

We maintain our view that the aggregate sharing mechanism should apply to outperformance payments relating to the water resources, water network plus and wastewater network plus controls. This means that the retail controls are not included. As we set out in '[Customer measure of experience \(C-MeX\) and developer services measure of experience \(D-MeX\) policy appendix](#)', outperformance payments from D-MeX will also not be included.

For Hafren Dyfrdwy, we apply an aggregate 50% sharing mechanism if the net, rather than gross, underperformance (underperformance payments less outperformance payments) in any year reach 3% of its wastewater or water RoRE for that year. We are only applying this mechanism to this company. One of the reasons that the company is a significant scrutiny company is due to a lack of understanding of its data due to the recent change in company area. The mechanism will help to address potential uncertainty around downside exposure due to the lack of long-term historical data and the small size of the company and mitigate the risk that downside is a result of poor understanding of past performance as opposed to genuine poor performance.

7.3 Our policy approach for the final determination - limiting companies' exposure

We define financial materiality with reference to whether customers at risk of unexpectedly high bills. Where we apply a cap for these reasons, we also apply a collar, to maintain the balance of incentives. However, where a company has a large downside exposure, but not a high upside exposure (for example where the ODI is downside only), we do not automatically impose a collar. We deal with any residual concerns around downside exposure by conducting a review of the overall incentive package.

Our approach to setting caps and collars includes wider decisions around limiting company exposure to downside risk, which we set out here. We review the **package level impact of the outcomes interventions** for each company in order to assess whether our interventions result in companies being exposed to a disproportionate level of downside risk. We use the aggregate P10 and P90 payment values for each company across all performance commitments to construct P10 and P90 ranges as a percentage of appointee RoRE, and compare this to our target P10 range of +/-1% to +/-3% of appointee RoRE as outlined in PR19 methodology.

In constructing the **aggregate RoRE ranges**, as a starting point for each individual performance commitment we add up the P10 payments for each of the five years for the 2020-25 period and then we add all of these P10 payments for each

performance together. We do the same for the P90 payments. This gives an estimate of the package level P10 and P90 payments that would apply if the performance commitments were perfectly correlated with each other and across years. In other words, if a P10 payment is incurred on one performance commitment then it will be incurred on all other performance commitments and in all years. However, while there may be some such correlation, this is unlikely to be perfect in practice, i.e. a company that hits its P10 level for one performance commitment is unlikely to also hit its P10 levels on all other performance commitments at the same time. And this is even more unlikely to happen in each of the five years. Thus this simple additive measure is likely to overestimate the overall package-level P10 and P90 payment estimates.

We therefore need to account for a more appropriate degree of correlation between performance commitments and across time to produce package-level estimates of P10 and P90 payments by price control. Companies provided these package-level estimates. In a number of cases companies have used Monte-Carlo or other modelling approaches. This is impracticable for us to replicate and adapt.

For the final determinations, we consider further how to adjust the additive range and reviewed the adjustments that companies have made. Companies reported P10 and P90 payments on a performance commitment basis and at the package-level. We find ratios of the package level values that companies provided us with and the simple additive values. We refer to these as “scaling factors”.

Table 7.2: Scaling factors derived from companies P10 and P90 estimates for water and wastewater

Company	Water P10	Wastewater P10	Water P90	Wastewater P90
Affinity Water	89.50%		2.16%	
Anglian Water	82.91%	114.99%	99.42%	74.89%
Bristol Water	100.00%		100.00%	
Dŵr Cymru	49.17%	52.97%	54.91%	54.91%
Hafren Dyfrdwy	71.51%	78.81%	36.72%	55.16%
Northumbrian Water	86.97%	87.03%	88.00%	88.00%
Portsmouth Water	118.24%		136.10%	
SES Water	109.46%		132.29%	
South East Water	84.54%		54.48%	
Southern Water	100.08%	114.79%	130.66%	112.13%
South Staffs Water	58.54%		-42.73%	
Severn Trent Water	68.21%	69.67%	84.25%	85.75%
South West Water	56.65%	64.46%	58.83%	88.83%
Thames Water	124.42%	89.18%	74.03%	65.08%
United Utilities	90.01%	93.60%	84.66%	86.20%
Wessex Water	34.72%	34.68%	36.67%	47.15%
Yorkshire Water	40.21%	37.03%	9.85%	3.93%
Mean	70.23%	67.49%	52.95%	64.99%

Note: The mean and median exclude scaling factors that are greater than 100% as these results seemed counterintuitive and were not explained

We cannot identify any reason why these scaling factors differ so much between companies. We are also not clear why the P90 scaling factors should be significantly lower than the P10 scaling factors, as the table suggests is the case for water performance commitments. This would suggest that underperformance of different performance commitments is more highly correlated than outperformance but there is no evidence that this is the case. As noted above, companies tend to be pessimistic about forecast performance and have some incentive to overstate the P10 estimates and understate the P90 estimates.

Our experience of PR14 also suggests the simple additive P10 and P90s were unduly pessimistic compared to the outturn evidence. All companies' performance has been in the upper half of the distribution given between these additive P10 and P90 estimates that were made at PR14. This implies that the distribution provided by the additive P10 and P90 should be adjusted for this pessimism. Therefore, on the

basis of the 2015-20 evidence, the simple additive downside proposed by the company should be decreased by 50% to provide an accurate estimate. To address pessimism in outperformance we would need to increase the upside, but as it is already around 70%, a 50% increase would take it beyond 100%. It would not be appropriate on a theoretical basis for the scaling factors to be more than 100%. It does indicate that the P10 scaling factor should be a lower percentage than the P90 scaling factor, otherwise we risk exacerbating pessimism in the upside or not addressing pessimism in the downside.

As set out in Section 7.1, we make changes to individual P10 and P90 estimates based on cross industry comparisons and this increases the importance that the scaling factors we apply to simple additive ranges are similar for companies (or we understand the reason for any differences) to ensure we are treating companies on the same basis. As we do not see convincing evidence of differences in correlation we apply the same scaling factors to all companies.

For P10 estimates, we use 70% which is broadly in line with the average ratios provided by companies. For outperformance, we consider that this should be greater in order to correct the likely pessimism in company estimates. We use 90%.

We apply these scaling factors to the simple additive approach and these ranges are then expressed as a percentage of RoRE. Where companies' P10 RoRE percentage is greater than around -3%, we identify performance commitments that are driving the downside exposure, e.g.

- where P10 payments are high in absolute terms (around 1% regulated equity or above) to capture cases where a small number of high exposure performance commitments are driving downside exposure; and
- where P10 payments for the performance commitment as a percentage regulated equity are high compared to industry average to capture cases where a relatively large number of performance commitments with above average exposure are collectively driving downside exposure.

Our consideration is whether the overall package risk for a given company is in a materially different position from other companies and therefore on balance amending collars is justified. We do not consider it appropriate to amend ODIs or P10s as the range of checks set out in Section 4.3.3 and Section 7.1 should already have ensured these are appropriate. Where we consider we should amend a collar, we apply a graduated collar, with linearly increasing exposure over the AMP in order to preserve the company's incentives to manage underperformance. The imposition of graduated collars is limited to a few cases where there is material disproportionate exposure to risk and we are mindful of the importance of ensuring that all

companies, particularly poor performers, retain strong incentives to improve performance.

7.4 Summary of stakeholders' representations to our draft determinations and our responses

7.4.1 Summary of our draft determinations

At draft determinations, we intervened to apply **caps and collars** on financially material performance commitments where companies have not already done so. We also intervened to adjust or remove collars on non-financially material performance commitments where there is insufficient evidence of customer support or when the proposed collar is set at a better performance level than the level we determine to be appropriate.

We also intervened to apply an **aggregate sharing mechanism** to all companies, such that companies share 50% of all gross outperformance payments with customers once these payments reach 3% of water RoRE or wastewater RoRE in a year, or a lower threshold if proposed by the company.

We intervened to further adjust ODI rates and introduce graduated collars in order to reduce downside risk for a number of companies as part of our work on **limiting companies' downside exposure**.

We decided not to undertake **interventions on ODI payment caps for companies under significant scrutiny**. In our PR19 methodology, we said we would intervene on caps on the basis that we would identify significant issues with the relevant data in these companies' business plans. However, we no longer consider this appropriate as we have assessed each company's ODI rates in sufficient detail – and intervened where necessary – to ensure that they are appropriate. We do not consider it necessary to undertake further interventions on significant scrutiny companies to reduce or cap their payment rates.

7.4.2 Summary of stakeholders' representations and our responses

We receive representations on our draft determinations from all 17 companies and the CCWater.

We summarise below the representations that include broad methodological points, and set out our response. These cover the aggregate sharing mechanism, how we set collars for common and comparable performance commitments, and how we adjust companies' estimates of P10 and P90 performance.

We respond to company comments on the overall ODI package incentives in Section 3.3 of 'Aligning risk and return technical appendix' as these arguments need to be considered against the overall risk and return of companies.

Representations focusing on company-specific details are addressed in the individual company's 'Delivering for customers outcomes final decisions' document.

Aggregate sharing mechanism

CCWater welcomes the steps we have made in the draft determinations to moderate the potential bill impacts that might result from ODI outperformance and that companies have proposed overall caps on the ODI package with sharing mechanisms if these are breached. It notes that this is particularly important for SES Water, where it is concerned over the lack of customer testing in regard to the ODIs and how this may impact bills; Severn Trent Water given its current ODI performance on wastewater; and Hafren Dyfrdwy's as significant impacts on customers' bills would prove unpopular with some customers.

- **Our Response:** We note CCWater's points and retain the aggregate sharing mechanism for all companies.

In setting the levels of underperformance collars we have not followed policy and/or have changed policy without consultation

Four companies (Southern Water, Bristol Water, South East Water and Affinity Water) consider that the approach to setting collars on the basis of multiples for common and comparative performance commitments does not follow policy and/or has changed policy without consultation.

Southern Water considers the approach to set collars based on multipliers represents a significant change in policy which has not been previously communicated or subject to consultation. The late nature of the change and the lack of transparency has provided limited opportunity for challenge. It considers we should revert to setting collars at the P10 level that we set out following the initial assessment of plans.

Bristol Water states that it can find no justification for our approach to set the levels of collars, other than there being a unilateral top-down decision that companies were not made aware of until the draft determination. It states that the design of the ODI package should offer reasonable scope for reward, without creating unreasonable financial risk.

South East Water does not agree with our amended collars which we have moved further away from its performance commitment level without amending the level of the cap. It states this makes the risk/reward balance uneven, as it exposes it to more potential downside but does not allow more potential upside.

Affinity Water also suggests setting collars at the estimate of P10 performance for some performance commitments but did not provide specific reasons why.

- **Our response:** The policy aims for risk and return that we set following consultation were set out in section 10.1 of the PR19 methodology, aligning risk and return:

‘Our aim to set effective price controls that drive companies to deliver the outcomes and levels of service their customers want. We expect companies:

- to deliver for customers;
- to deliver all their legal obligations, including those as statutory water companies and for drinking water quality and the environment;
- to provide services that are resilient now and in the long term; and
- to do all this at a cost that is efficient and provides the best value for money over the long term.’

We clearly set out that companies delivering for customers and having resilient services were policy aims. In section 10.4, managing risk and uncertainty, we note that

‘All businesses have to deal with risk and uncertainty when operating and planning their activities. They all have to take steps to understand, manage and mitigate the potential impacts of risk and uncertainty on their operations and profitability. Water and wastewater companies are no different, although they have significant protection from risks compared to companies operating in a wholly competitive environment.’

We go on to note a range of benefits that water companies have, but being protected from delivering poor performance was not one of them. There was a clear expectation that water companies should be subject to risks.

We set out our approach to caps and collars in appendix 2 of the PR19 Methodology:

'In relation to adverse events, such as weather events, we want companies to be incentivised to minimise the impact on customers. These are precisely the events we want the sector to be resilient to'.

We noted that caps and collars had costs and benefits:

'The main cost is that these individual caps and collars reduce the incentives for companies to improve their performance near, at and beyond the cap and collar.

There are benefits of such caps and collars. These include:

- avoiding the exposure of companies and customers to unlimited, or very high, outperformance and underperformance payments on individual ODIs; and
- allowing companies to have higher ODI rates, focused over a smaller performance range.'

We went on to state:

- 'Companies can propose outperformance payment caps and underperformance penalty collars on individual ODIs, if supported by their customer engagement. In doing so, companies will need to consider the costs and benefits of such caps and collars'
- We consider that the methodology following consultation clearly set out that we expected performance commitments to have incentives to improve and be resilient and that we allow for use of caps and collars where benefits outweigh costs. This is the policy we applied at the draft determination. We intervened at draft determination where we considered company proposals in their revised business plans were not in customers' interests. The draft determinations provided opportunity for companies to respond and comment on our interventions.
- Our methodology set out a broad potential RoRE range for outcome delivery incentives of +1 to 3%. It did not require or set expectation for symmetry of outcome delivery incentives between up and downside. We noted that in PR14, the companies expected ODIs to be skewed to the downside, but the outturn was not. Further, in price reviews prior the 2014 price review, there were only negative financial incentives for performance such as short-falling for failing to meet asset health conditions. So we did not consider that achieving symmetry of returns is a valid rationale for imposing caps and collars. We consider it appropriate that companies are exposed to sufficient

downside risk to provide incentives to be resilient and manage that risk. We discuss why we do not consider companies are exposed to excessive downside risk in 'Aligning risk and return technical appendix'.

- Southern Water also set out that the policy did not meet the policy aims we set out in the draft determination of: allowing collars on financially material performance commitments to offset the introduction of a cap on the upside; and that collars protect against very poor performance. We accept that allowing collars when we set caps on material performance commitments need not fully offset the risk on the company. However, we consider that the collars do protect companies against disproportionate exposure in the case of very poor performance.
- We explain the reasons that we set collars on a multiple of the 2020-21 performance commitment in section 7.2 and we consider this implements our policy set out in the final methodology and our interventions have been consulted in the draft determinations. Having considered the points raised, we do not propose to change our approach.

Caps and collars should be set on the basis of customer research and setting collars on a multiple of the 2020-21 performance commitment leads to inconsistencies between companies or between performance commitments

Four companies (Anglian Water, South East Water, Southern Water and Thames Water) consider the caps and collars applied at draft determination are not in line with customer valuations. Three companies (Anglian Water, Southern Water and Thames Water) consider that the caps and collars applied at draft determinations are inconsistent.

Anglian Water considers that the caps and collars set at the draft determination that increased the downside risk are not appropriate and should be based solely on customer research. It highlights that caps and collars set at the draft determination lead to differences in incentives between companies.

South East Water considers that the changes to the ODI rates and caps/collars on ODIs have meant that its outcomes package has become somewhat disconnected from what its customers told it they wanted.

Southern Water considers that the change in maximum underperformance payments distorts incentives. It considers that keeping the collar the same each year means that performance commitments that increase the most have the highest underperformance rates which 'dis-incentivises stretching performance'. Southern Water considers that multiples were only used in 60% of instances that a company (excluding Fast Track) has applied a collar on a financially significant ODI, with the

collar level less stretching in 50% of the instances where the industry-multiple was not used.

Thames Water considers that using a multiplier approach is inappropriate. The multiplier used varies by performance commitment, which has not been explained or justified. It lacks consistency providing greater risk for some measures, which may result in incentives that conflict with customer priorities, it illustrated this with reference with P1 payments under the revised caps.

- **Our Response:** We do not consider that company evidence on customer's views alone should determine where collars should be set. In order to protect customers' interests, it is also necessary to consider whether the levels provide appropriate incentives.

We accept a company's proposed caps and collars where they are based on robust customer research and the resulting ranges of performance over which ODIs apply provide sufficient incentives. Where the collars proposed by the company suggest a tight range of underperformance then this would not give sufficient incentive for the company to adequately prepare for high impact low probability events, which would not be in customers' interests. In these cases we apply our approach of setting collars at a multiple of 2020-21 performance for common and comparable performance commitments.

We note that using company evidence on their customers' views will lead to differences between companies. We also allow flexibility to companies to propose enhanced ODIs to drive innovation and improve their performance beyond current levels. This also leads to differences between companies as the structure of enhanced ODIs leads to caps and collars at different levels. We also intervene to reduce the risk on companies where the overall ODI package had a disproportionate risk to companies. In each of these cases where we do not apply our standard approach to setting collars we consider it appropriate as it reflects the underlying circumstances and the evidence of customer views of each company.

Southern Water and Thames Water use the maximum underperformance payments, or in the case of Thames Water near the maximum underperformance payments (P1), to illustrate that incentives are not appropriate. These are the payments if companies do not manage risks and provide poor service, however, these are low probability risks that are below P10 levels. Companies can mitigate risks, such as weather, by reducing the consequence if they occur. These should not unduly impact management incentives as they are unlikely to occur and so the risk (probability multiplied by consequence) is relatively low. Being exposed to

risks below P10 levels provides an incentive to manage resilience against these events which protects customers. However, we consider the company's incentives and risk exposure are best represented by the likely range of financial incentive between the P10 and P90 estimates of performance. We consider that the ODI incentives within this likely range of performance are in line with customer priorities as set out in Section 4.3.3.

Approach to setting collars based on a multiple of 2020-21 performance is incorrect as it leads to excessive exposure beyond management control and does not provide appropriate incentives

Three companies (Dŵr Cymru, Southern Water and Thames Water) raise this point.

Dŵr Cymru states that internal sewer flooding, external sewer flooding and the number of mains repairs are significantly driven by factors beyond management control such as severe weather events. Any deviation beyond its proposed collars will be due to factors beyond management control and therefore any incremental underperformance payments will not provide any additional incentives to management.

Southern Water considers the revised approach results in a significant risk related to low probability high impact events that is, to a large extent, beyond its control. As such it will distort incentives to invest in the areas most valued by customers. It considers that the draft determination approach does not recognise the historic legacy of the sector and implicitly assumes that its assets can be resilient to all events, including severe weather events. It is aiming to become more resilient but in the event that it experiences a 1 in 100 year storm or worse, it considers this would likely have a significant impact on its assets.

Thames Water notes that the collar approach has led to increasing the collar level which removes protection against factors outside its control. For internal sewer flooding, it suggests if the level of the collar is not set at a tighter level then severe weather events should be excluded from the measure.

- **Our Response:** We consider our approach to collars is in line with the methodology which aims to incentivise companies to provide resilient services. Companies should consider how they can reduce the probability of events which are directly in their control and may negatively impact the performance commitment. Where it cannot do this, such as atypical weather, it should consider how it can reduce the consequence for its customers. Excluding severe weather events, as Thames Water suggests, would remove the incentive for companies to

be resilient. It could also redirect company efforts to try and show weather events are severe, rather than prevent customers receiving poor service.

Companies do not provide evidence that poor performance at the level the collar is set could only be the result of factors outside their control. We consider that the resilience of companies' systems has increased over time.

For instance, in terms of reducing the risk of sewer flooding, over the twenty year period 1995-2015 the industry received continued investment to undertake capital investment at properties at the highest risk of flooding, which addressed the vast majority of such properties. The level of investment has continued during 2015-20 enabling companies to address newly arising issues. In addition, over the last fifteen years we have also seen an increase in investment in property level mitigation to help reduce the consequence of sewer flooding risk and partnership working with lead flood authorities to reduce the risk of flooding on a wider scale. As well as investment to tackle flooding at sites with risks of flooding 1 in 20 years or less, some companies have invested to reduce the risk of flooding in rarer events. For instance during the 2010-15 period Southern Water had an output to deliver 1 in 76 year protection for the Eastney catchment where the consequences of a low probability event are particularly severe due to the topology of the catchment.

We consider that companies have and are able to reduce the impact of events on their customers. In the 2018 freeze/ thaw that followed the 'Beast from the East' some water companies performed well, while others did not. It is important that all companies provide the service that customers deserve. For this to occur companies must prepare and manage these risks. Being exposed to these risks gives incentives to do so. We consider that companies have and are able to reduce the impact of events on their customers.

We should set some collars on the basis of 1% of RORE

Two companies propose setting collars on the basis of 1% of RoRE.

Yorkshire Water considers that our approach in the draft determination to setting collars to limit excessive underperformance for enhanced ODIs should also be used for its other asset health performance commitments. The company proposes collars set at the level of 1% of RoRE for the relevant price controls in the year.

Thames Water also proposes that using a 1% RoRE threshold to set a collar may be appropriate.

- **Our Response:** We use the threshold of 1% of RoRE for enhanced ODI caps to ensure sufficient incentives to companies to innovate and deliver frontier-shifting performance while considering the potential bill impacts for customers from enhancing service. This also takes account of the uncertainty of potential scope to shift frontier of performance and the cost to companies of doing so. This is different to the approach for underperformance collars that need to provide sufficient incentive for companies not to provide poor service and to compensate customers for failing to deliver service levels funded within the final determination.

There should be greater consistency in how we set caps and collars

Two companies (Northumbrian Water and Anglian Water) consider there should be greater consistency in how we set caps and collars.

Northumbrian Water does not accept our decision to remove the underperformance collar for supply interruptions. It claims that it is the only company without such a collar when it is a common performance commitment, so it would expect a consistent approach. The company does not accept our argument that these underperformance payments are not material – the company considers its underperformance rates are now consistent with the industry range, and an extreme weather event could expose the company to a very high level of underperformance.

Anglian Water proposes that there should be a consistent collar across the industry, stating that currently there is an inconsistent approach to underperformance payment collars and the level at which these are set provides an imbalance to risk and reward.

- **Our Response:** We consider that there may be good reasons based on evidence why some companies have caps and collars and others do not. However, where the vast majority of companies have caps and collars it may suggest that there are underlying reasons that all companies should have caps and collars.

There are five comparative performance commitments that have a vast majority of companies (>70%) have caps and collars.

- Supply interruptions
- External sewer flooding
- Internal sewer flooding
- Pollution Incidents
- Leakage

We do not have clear reasons why a few companies do not have caps and collars, while most do. For these five performance commitments we apply collars and, where outperformance is possible caps, to all companies where performance commitments are not covered by early certainty.

Some common performance commitments are uncertain and should have underperformance collars

Four companies (Northumbrian Water, Severn Trent Water, United Utilities and Yorkshire Water) consider that unplanned outage and CRI should have underperformance collars.

Northumbrian Water does not agree with our intervention to remove the underperformance collar for unplanned outage. The company states that the intervention significantly increases the downside ODI risk to a level which is highly inappropriate for a performance commitment which is so new, with the definition only being finalised on 4 April 2019, and hence which contains an inherent level of uncertainty. It states that this view is supported by our own targeted review of the performance commitment in 2018.

Severn Trent states that its position of not having a collar for unplanned outage contrasts with that of other companies. It states that a more consistent underperformance collar should be applied for CRI, given the significantly higher levels of risk. In the draft determination, its underperformance collar had been set above the collar put forward by a number of other companies, meaning they face significantly less risk. This position has been exacerbated by revisions to slow track plans whereby the majority of companies would now face significantly less risk than the three fast tracked companies (as defined by the difference between the target and the collar).

In view of the uncertainties associated with unplanned outage, United Utilities proposes that a collar be introduced. In line with the Ofwat methodology, it proposes that this be set at twice the 2020-21 target.

Yorkshire Water states that the unplanned outage measure is new and has previously not been reported or standardised in the industry, and it is one of several companies who did not have corporate systems in place to capture the required information until recently, when the performance commitment was finalised in 2018.

- **Our Response:** We consider that there is sufficient evidence that there is uncertainty around the data and measurement of unplanned outage. CRI is also relatively new, and there is also uncertainty with respect to the ban on

metaldehyde. We set out in the methodology that uncertainty was a reason for caps and collars on performance commitments. We apply collars, and where outperformance is possible caps, for all companies for unplanned outage and CRI as we consider them uncertain, unless covered by early certainty. We apply the same approach to setting caps and collars for all companies unless there is sufficient customer evidence that it should be set at a different level and setting the cap or collar at this level is not detrimental to customers.

We have not been transparent in how we have adjusted P10 and P90 estimates

Five companies (Bristol Water, Wessex Water, Yorkshire Water, Southern Water and South East Water) consider we were not transparent in how we adjusted P10 and P90 performance estimates at draft determinations, with a number stating that they cannot replicate our calculations.

- **Our Response:** At draft determinations we provided an explanation of how we adjusted estimates of P10 and P90 levels in the delivering outcomes policy appendix and also covered this in a webinar. We provided a further spreadsheet with the base information for the reasonable ranges for P90 performance estimates. For the final determinations, we supplement this with descriptions of the changes we make in each company's delivering outcomes final decisions document, apart from the adjustments that arise from the policy of moving P10 and P90 levels by the change in performance commitment levels.

The method to adjust P10 and P90 performance estimates is incorrect

Eight companies (Anglian Water, Wessex Water, South East Water, Yorkshire Water, Thames Water, South Staffs Water and Bristol Water) disagree with our adjustments to P10 and P90 performance levels. These views include that:

- performance commitment levels do not represent a central estimate and so the view that the P10 and P90 should be moved as this central estimate moves is not valid;
- previous guidance had not set out that P10 and P90 performance levels should be set based on an efficient company and so it is wrong to adjust them; and
- companies have set P10 and P90 performance levels using their own data and should not be changed, especially not as other company estimates may be inaccurate.

Anglian Water suggests that calculating P10s and P90s on the efficient company, rather than the actual company represents a methodological change from IAP, with previous guidance that companies should base P10/P90 values partly on their historical performance and circumstances. Anglian Water states that ‘there is no economic rationale to support this change in methodology, and the construct of the notional company does not support it’.

Wessex Water states that it is not appropriate to change P10/P90 levels when performance commitment levels are changed, as it reasons that the probability of achieving a performance level is unaffected by the target set. In addition it disagrees with the idea that performance commitment levels should reflect P50 levels with P10 and P90 levels to either side, suggesting that performance commitment levels could plausibly be the P10 level in some cases.

South East Water claims that the performance commitment levels set at draft determinations do not reflect P50 levels for an efficient company, as it believes that the performance commitment levels assume strong performance by the efficient company across all outcomes (whilst also performing strongly on costs), which it views as unrealistic. It disagrees with the adjustments to P10 and P90 levels and considers the ODI RoRE range results in an underestimate of the potential risk.

Yorkshire Water strongly disagrees with the adjustments to P10 and P90 levels that were made at draft determinations, arguing that this approach is ‘erroneous’. It additionally considers that Ofwat should have undertaken a comprehensive performance risk analysis before changing P10/P90 levels. Yorkshire Water disagrees with the anchoring of P10/P90 levels to performance commitment levels applied during the draft determinations, stating that its own performance risk ranges from the September 2018 and April 2019 submissions are more robust.

Thames Water suggests that Ofwat’s view of its P10 and P90 levels is unrealistic, noting that Ofwat’s approach ‘disregards the historical trend analysis we have undertaken on each measure’ and that it ‘assumes that there is equivalent upside and downside around the new performance commitment levels’, which is ‘clearly not the case’.

South Staffs Water states that it considered the performance commitment levels it submitted back in April 2019 as P50 levels. It also explains how its representation P10 and P90 levels are derived based on company-specific information including historical data/trends as well as future management actions and planned investment.

Bristol Water disagrees with the ODI RoRE range that has been estimated for them at draft determinations, arguing that its overall P10 downside risk is much greater.

- **Our Response:** We set price limits for efficient companies with a notional capital structure so that customers are protected and shareholders have an incentive to address inefficiency and bear the consequences of any lack of past investment. It is therefore important that, when we consider risk, we do this on the basis of an efficient company in order to protect customers. Companies should not be protected against their own inefficiency or poor performance.

Outturn data set out in figure 7.1 demonstrates that companies are likely to be pessimistic in their P10 and P90 estimates. In order to provide a better understanding of risk and to protect customers from caps and collars applying at inappropriate levels, we have intervened on P10 and P90 estimates. As we consider company estimates are likely to be conservative and insufficiently stretching, we do not increase downside or reduce upside on the basis of comparative analysis of company estimates of P10 and P90 performance.

In 'Overall level of stretch across costs, outcomes and allowed return on capital appendix' we set out evidence that companies can strongly perform on a range of performance commitments and be efficient or outperform on costs. We consider that an efficient company will have P90 performance greater than the performance commitment level and a P10 performance below the performance commitment level. Our performance commitment levels reflect efficient performance levels and so we make corresponding adjustments to P10 and P90 levels. If we did not adjust company estimates of P10 and P90 performance levels, as we adjust performance commitment levels we would end up with estimates of P90 performance at worse levels than performance commitment levels. This would not reflect the likely performance of an efficient company, nor would it provide a useful guide to risk.

We do not set out detailed guidance of how to set P10 and P90 performance levels. We consider the base data is likely to come from historic information held by companies. However, this needs to be adjusted to take into account improvements in both the company and the industry over time. We consider that an important step is to compare and contrast different companies' assumptions in order to arrive at more appropriate estimates for an efficient company.

8 Long-term performance forecasts

8.1 What we said in our PR19 methodology

We expect companies to propose performance commitment levels for all performance commitments for five years (2020-21 to 2024-25), and provide projections for at least a further ten years (2025-26 to 2034-35). We also provided for companies to include longer-term projections, beyond our requirement of ten years, for the reporting years 2035-36 to 2039-40 and for the five years 2040-45, where these were available. Companies were able to provide this data as part of their business plan data submission.

The long-term projections are to encourage companies to consider their long-term ambitions and help customers and stakeholders engage on longer-term issues. This aligns with UK and Welsh Governments strategic priorities to secure long-term resilience.

In addition, we have a duty to set price controls in the manner we consider is best calculated to further the resilience objective to secure the long-term resilience of companies' systems, and to secure that they take steps to enable them, in the long term, to meet the need for resilient water supplies and wastewater services. The provision of long-term performance data helps us discharge this duty.

8.2 How we have used this information

The majority of companies provide data up to 2040 for all the established performance commitments. We queried companies and obtained data where the information was missing.

The performance commitments included in this analysis are:

- Leakage
- Per capital consumption
- Supply interruptions
- Pollution incidents
- Internal sewer flooding
- Mains repairs
- Sewer collapses

We use the data from the seven performance commitments listed to form a view of how stretching the forecasts are at a sector level. We outline some key messages and draw some broad conclusions as to the long-term ambition of the sector. The diagrams showing the long-term performance for these seven performance commitments are provided in Annex 2. The analysis shown below is based on April 2019 business plan data and subsequent queries.

The performance commitments not included in this analysis are:

- compliance risk index – expected performance is zero in all years, during the 2020-25 period and beyond;
- treatment works compliance – expected performance is 100% in all years, during the 2020-25 period and beyond;
- unplanned outage – although long-term data is available, this is a new measure, with only two years of shadow reporting, so long-term projections are likely to be unreliable;
- customer measure of experience (C-MeX), developer services measure of experience (D-MeX) – both performance commitments are relative incentives, so long-term projections are not feasible;
- priority services register (PSR) – this performance commitments is a new measure, hence long-term projections are likely to be unreliable; and
- risk of severe restrictions in a drought and risk of sewer flooding in a storm are new measures – we have considered the companies' long-term forecasts in assessing the companies' proposed performance commitment levels, but have not carried out comparative analysis across companies.

8.3 Key messages and conclusions from the analysis

Mains repairs and sewer collapses - Overall, companies forecast the least stretching longer-term performance levels for these performance commitments. The diagrams show stable performance levels over the long term for several companies. For sewer collapses, there is a significant change in methodology and therefore uncertainty in the long-term forecasts, but the diagram shows stable performance (except for Yorkshire Water, which has an ambitious forecast that is not reflective of their historical performance).

Leakage and PCC – Overall, companies outline ambitious long-term forecasts for these performance commitments. For leakage, the average reduction planned from 2020-2040 is 35%; for PCC this is 13%. This is reflective of the level of ambition provided in the companies' water resources management plans. Southern Water has

a particularly ambitious target for PCC, and SES Water has the most ambitious percentage reduction for leakage.

Supply interruptions, pollution incidents and internal sewer flooding – Of the three performance commitments, forecasts for supply interruptions show the least ambition. Wessex Water and SES Water are planning to reach zero interruptions (above three hours) by 2035. The majority of companies show strong ambition to improve for internal sewer flooding and pollution incidents. Southern Water and Yorkshire Water are planning to eliminate almost all internal sewer flooding. Yorkshire Water is forecasting to eliminate pollution incidents entirely by 2040.

In summary, the sector proposes ambitious long-term forecasts for leakage, PCC, internal sewer flooding and pollution incidents, with some companies proposing very ambitious performance levels to eliminate almost all internal sewer flooding and pollution incidents. Supply interruptions forecasts show a more mixed picture. The biggest area for improvement in ambition of long-term performance appears to be asset health, where companies' forecasts show a trend for stable, rather than improving, long-term performance. This is an area where the sector needs to show more ambition to improve as a whole, to ensure long-term resilience.

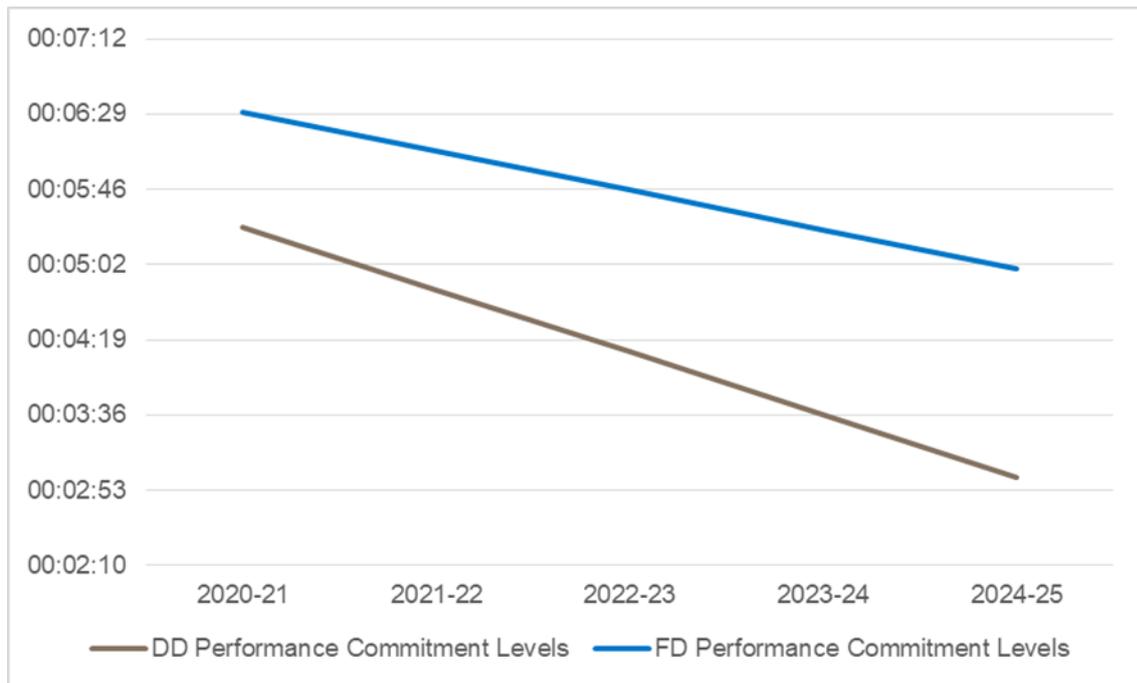
Annex 1: Common and comparable performance commitments: performance commitment level and outcome delivery incentive (ODI) rate interventions

A1.1 Performance commitment levels

We set out our final determination and draft determination performance levels below for common and comparable performance commitments.

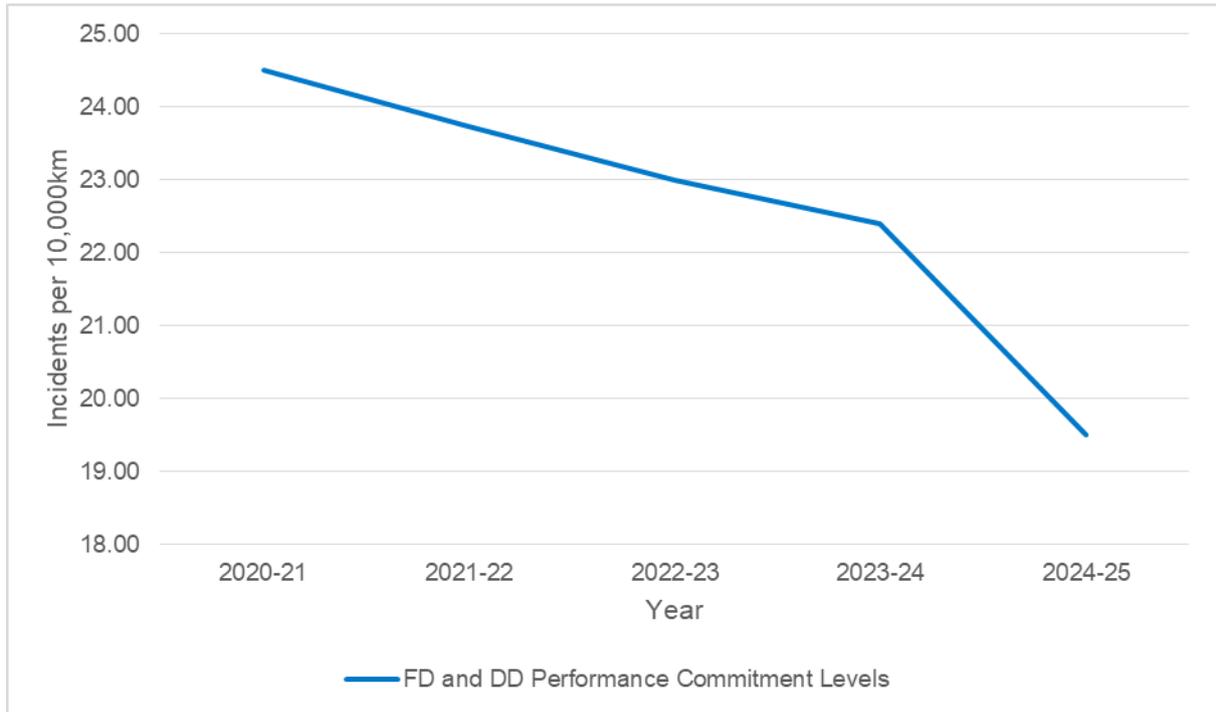
Water supply interruptions – We present our final determination and draft determination performance commitment levels for all companies in the graph below. Values are expressed in hours and minutes and seconds.

Figure 1: Water supply interruptions – final and draft determination performance levels



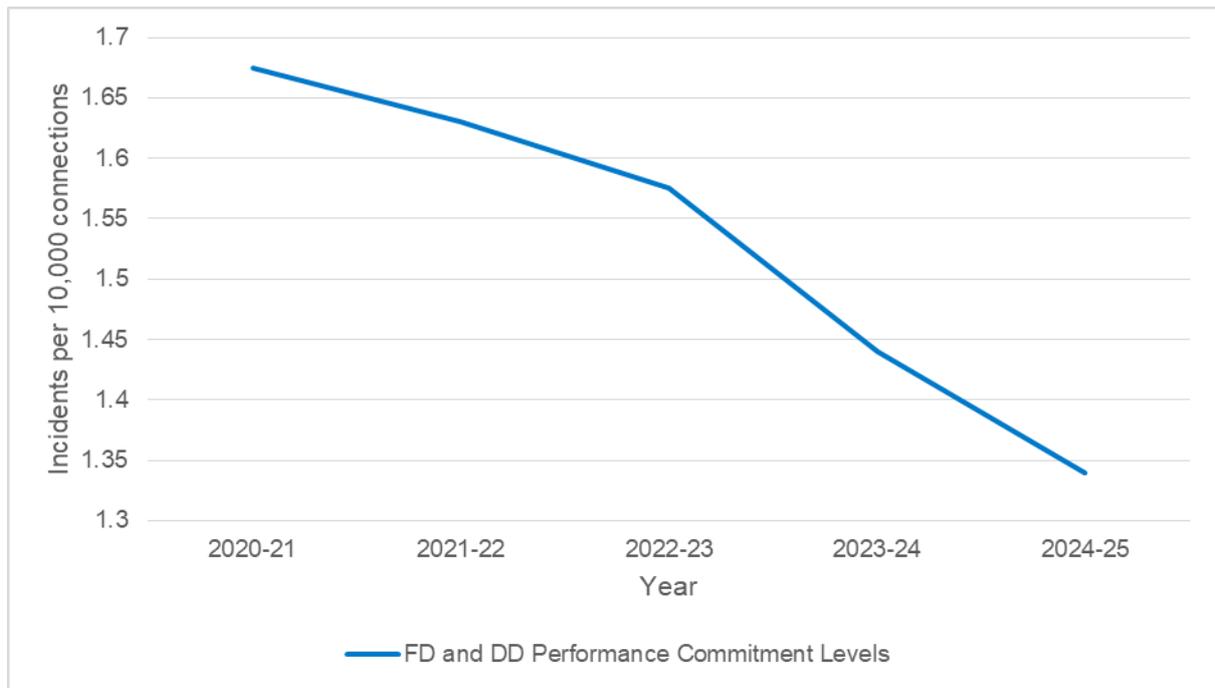
Pollution incidents – We present our final determination performance commitment levels for all companies in the graph below. These levels are unchanged from the draft determination. Hafren Dyfrdwy is excluded from the graph since we have set a different performance commitment level to the rest of industry – please see Section 3 of this document for further detail.

Figure 2: Pollution incidents – final and draft determination performance levels



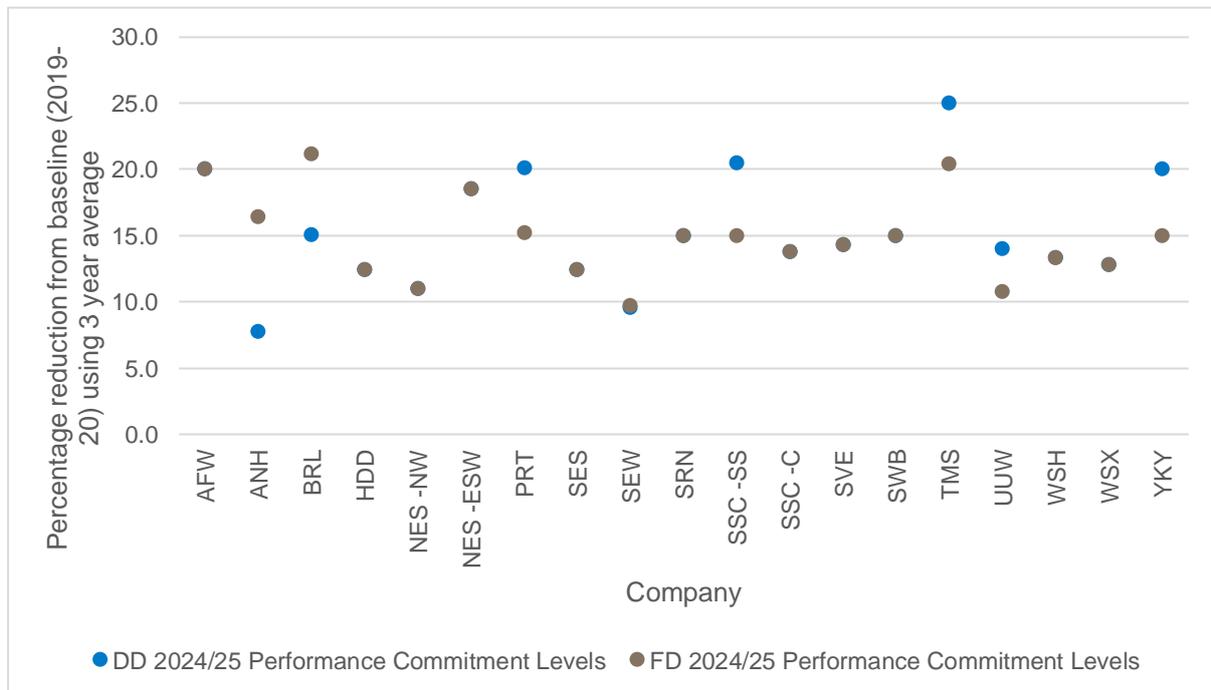
Internal sewer flooding – We present our final determination performance commitment levels for all companies in the graph below. These levels are unchanged from the draft determination. Values are expressed in number of incidents per 10,000 connections.

Figure 3: Internal sewer flooding – final and draft determination performance levels



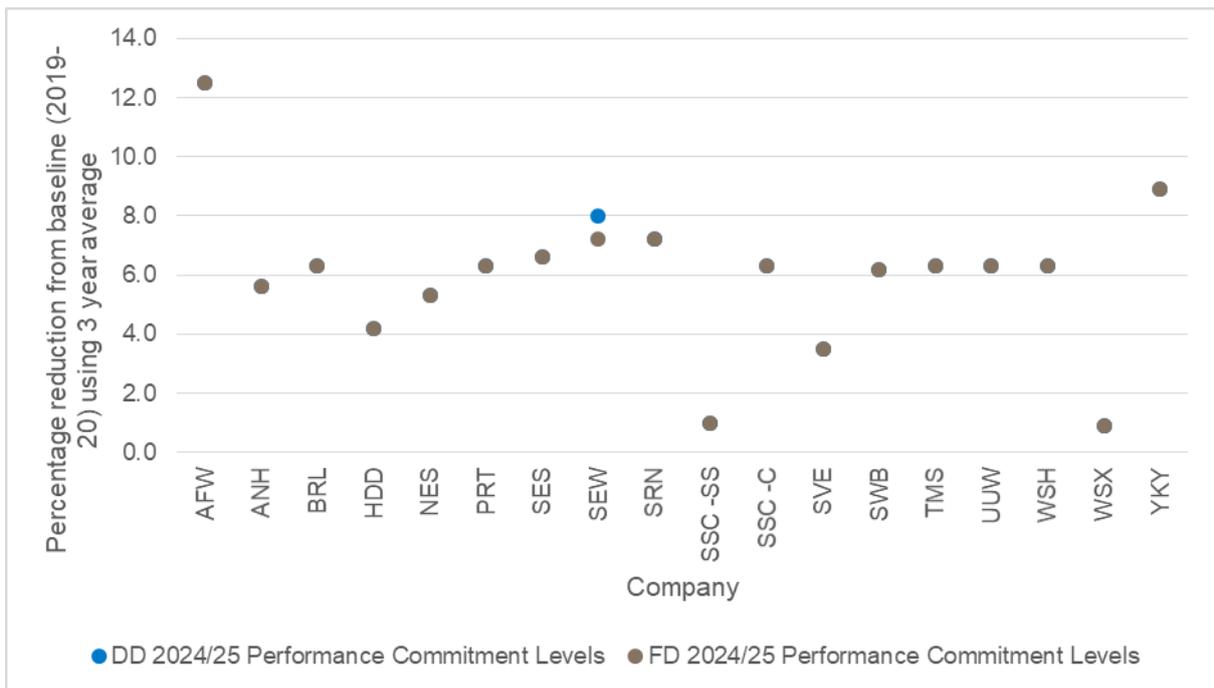
Leakage – We present our final determination and draft determination performance commitment levels for 2024-25 in the graph below. Where only one value is shown for a company this is because the level is unchanged from the draft determination. Values are expressed as a percentage reduction from the baseline (2019-20) using a 3 year average (%). When setting performance commitment levels we assess whether the companies achieve at least 15% reduction in leakage by 2024-25, defined as a reduction in leakage of 15% on an annual average basis (rather than three-year average basis shown on the charts) compared to 2019-20 performance commitment levels.

Figure 4: Leakage – 2024-25 performance commitment levels, draft and final determinations



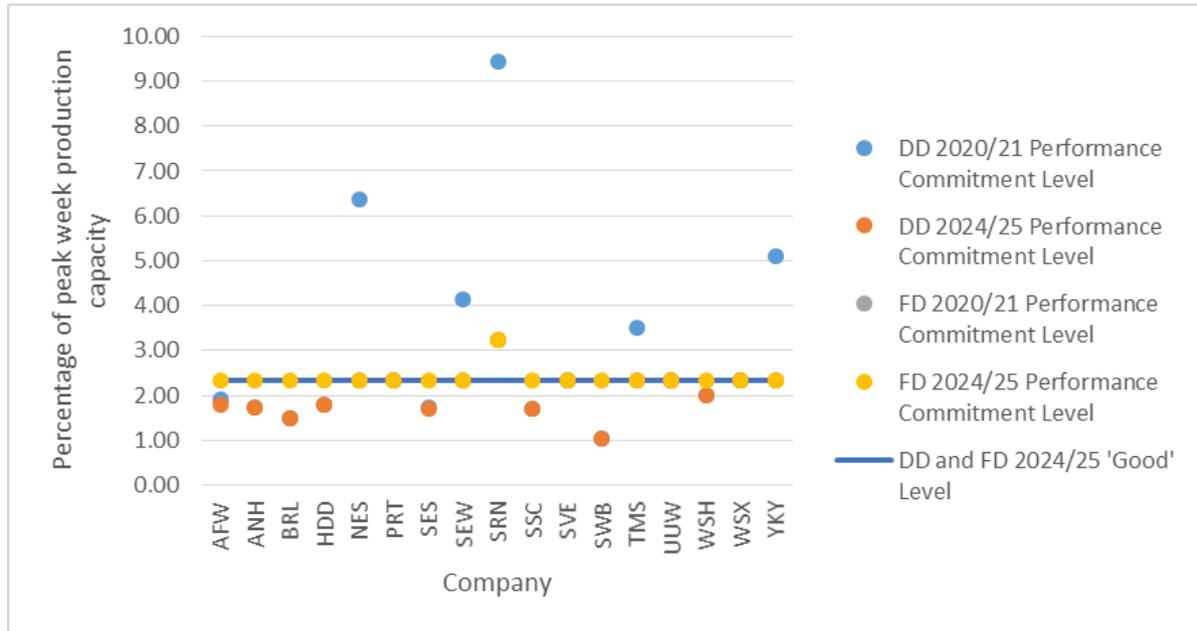
Per capita consumption – We present our final determination and draft determination performance commitment levels for 2024-25 in the graph below. Where only one value is shown for a company this is because the level is unchanged from the draft determination. Values are expressed as a percentage reduction from the baseline (2019-20) using a 3 year average (%).

Figure 5: Per capita consumption – 2024-25 performance commitment levels, draft and final determinations



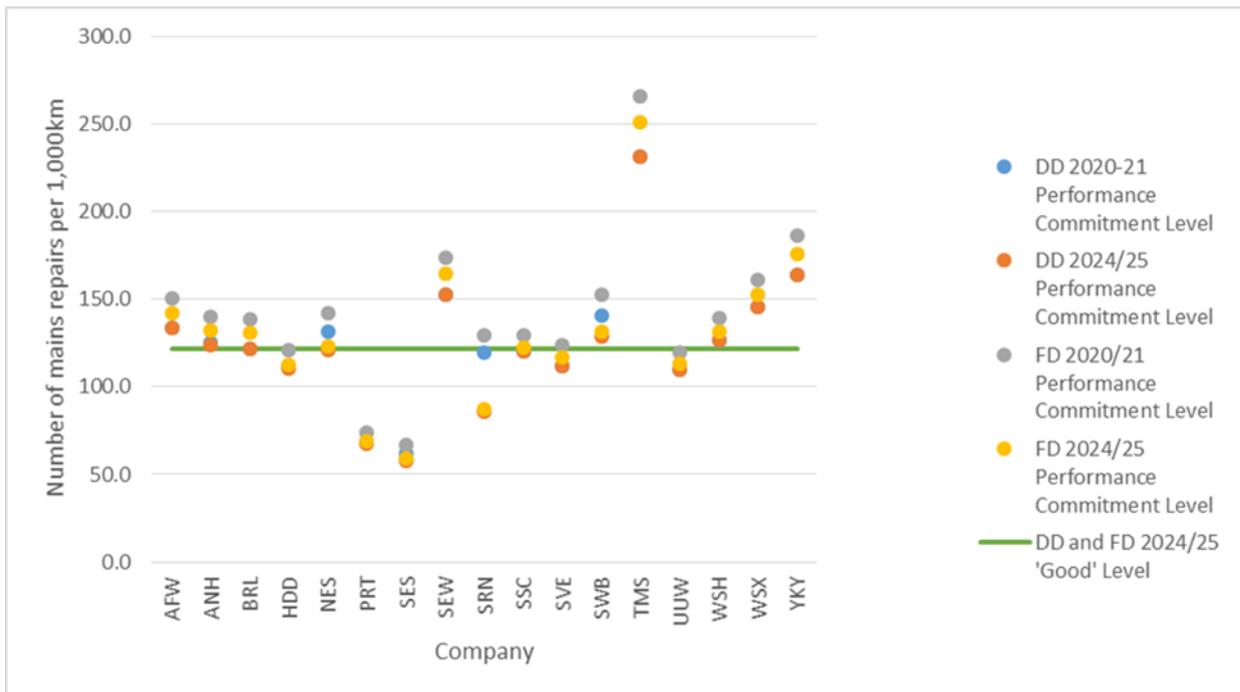
Unplanned outage – We present our final determination and draft determination performance commitment levels for 2020-21 and 2024-25, together with the industry 2024-25 ‘good’ level at draft and final determination. Values are expressed in percentage (peak week production capacity).

Figure 6: Unplanned outage - 2020-21 and 2024-25 final and draft determination performance commitment levels, and 2024-25 ‘good’ level at final and draft determination



Mains repairs – We present our final determination and draft determination performance commitment levels for 2020-21 and 2024-25, together with the industry 2024-25 ‘good’ level at draft and final determination.²⁴ Values are expressed in number of repairs per 1,000km of sewer pipe.

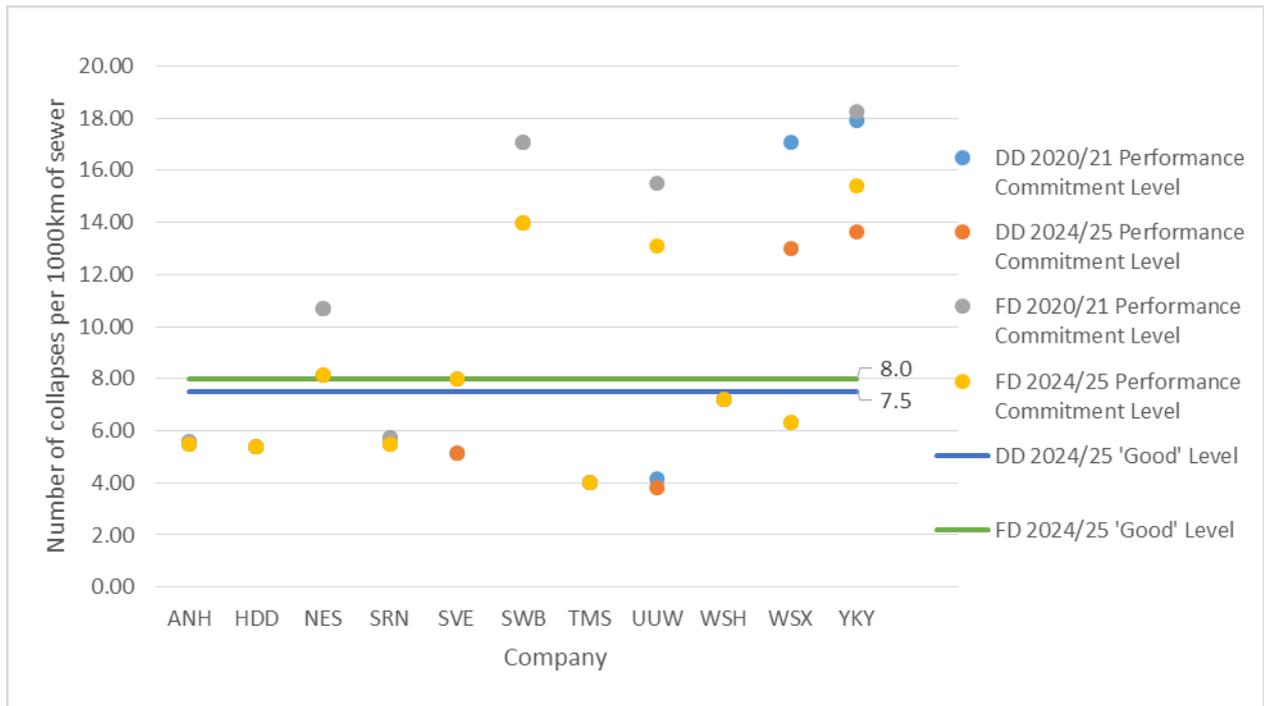
Figure 7: Main repairs - 2020-21 and 2024-25 final and draft determination performance commitment levels, and 2024-25 ‘good’ level at final and draft determination



²⁴ We update the 2024/25 ‘good’ level from 120 at draft determination to 122 mains repairs per 1,000km of sewer for the final determination. This is due to the original figure being rounded.

Sewer collapses – We present our final determination and draft determination performance commitment levels for 2020-21 and 2024-25, together with the industry 2024-25 ‘good’ level at draft and final determination²⁵. Values are expressed in number of collapses per 1,000km of sewer pipe.

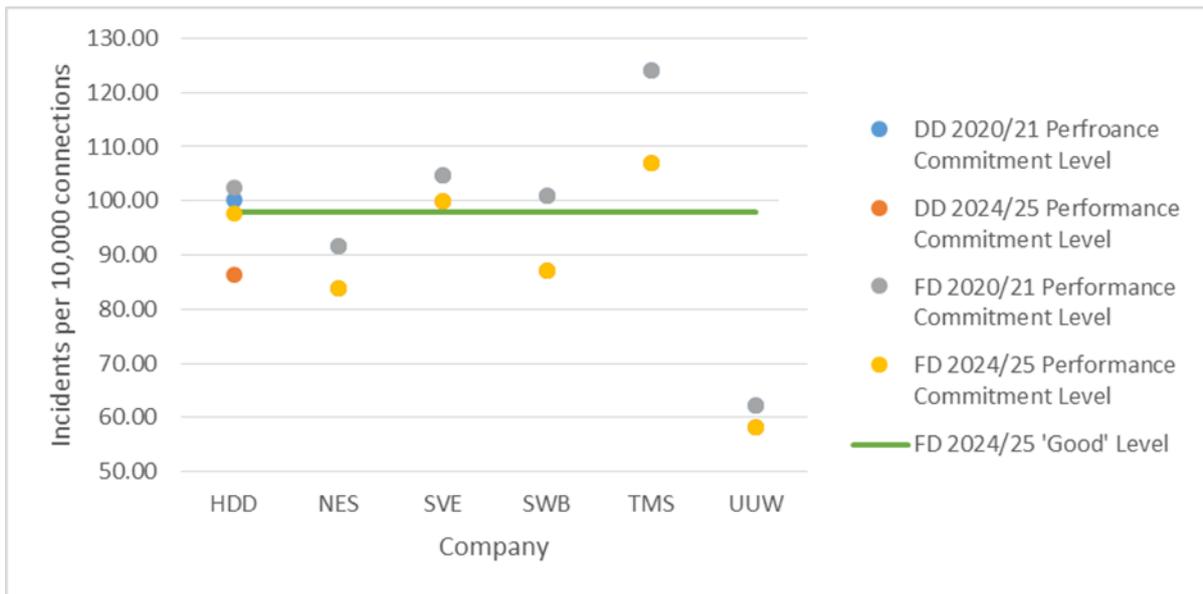
Figure 8: Sewer collapses - 2020-21 and 2024-25 final and draft determination performance commitment levels, and 2024-25 ‘good’ level at final and draft determination



²⁵ The ‘good’ level is updated for the final determination as we now calculate it by using the median.

Sewer blockages – We present our final determination and draft determination performance commitment levels for 2020-21 and 2024-25, together with the industry 2024-25 ‘good’ level at final determination.²⁶ Values are expressed in number of incidents per 10,000 connections.

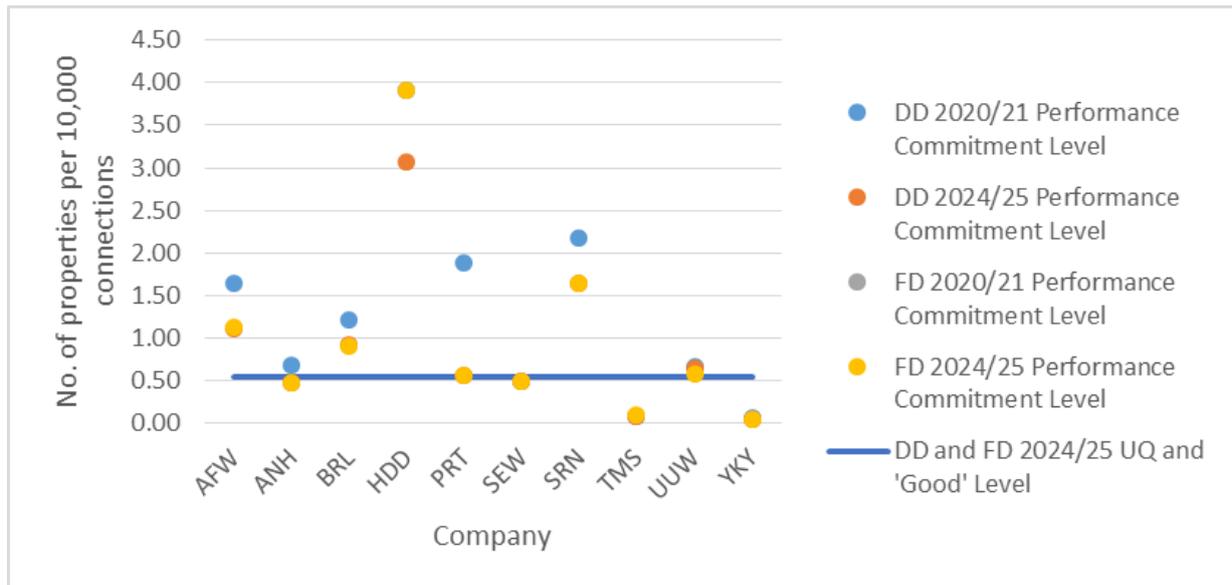
Figure 9: Sewer blockages - 2020-21 and 2024-25 final and draft determination performance commitment levels, and 2024-25 ‘good’ level at final and draft determination



²⁶ The graph does not include the 2024/25 ‘good’ level at draft determination due to changes in the normalisation method used at final determination.

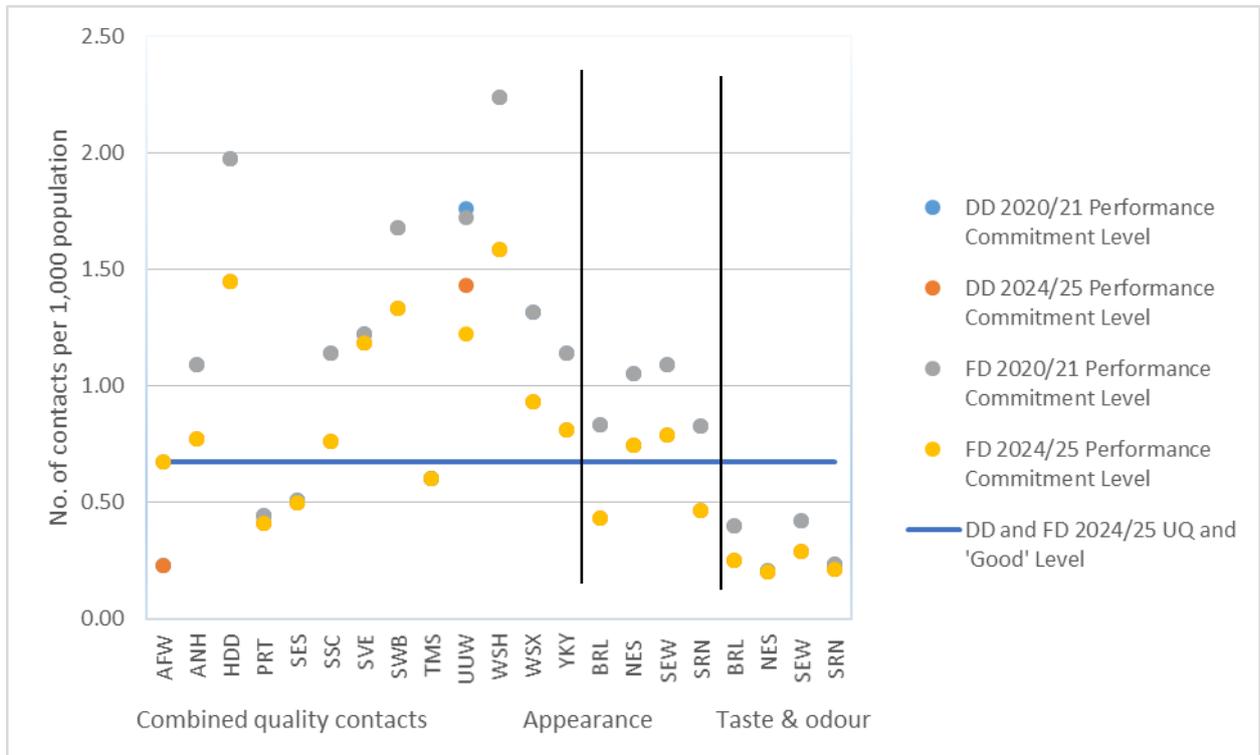
Low pressure – We present our final determination and draft determination performance commitment levels for 2020-21 and 2024-25, together with the industry 2024-25 upper quartile (UQ) and ‘good’ level at draft and final determination. Values are expressed in number of low pressure properties per 10,000 connections.

Figure 10: Low pressure - 2020-21 and 2024-25 final and draft determination performance commitment levels, and 2024-25 ‘good’ level at final and draft determination



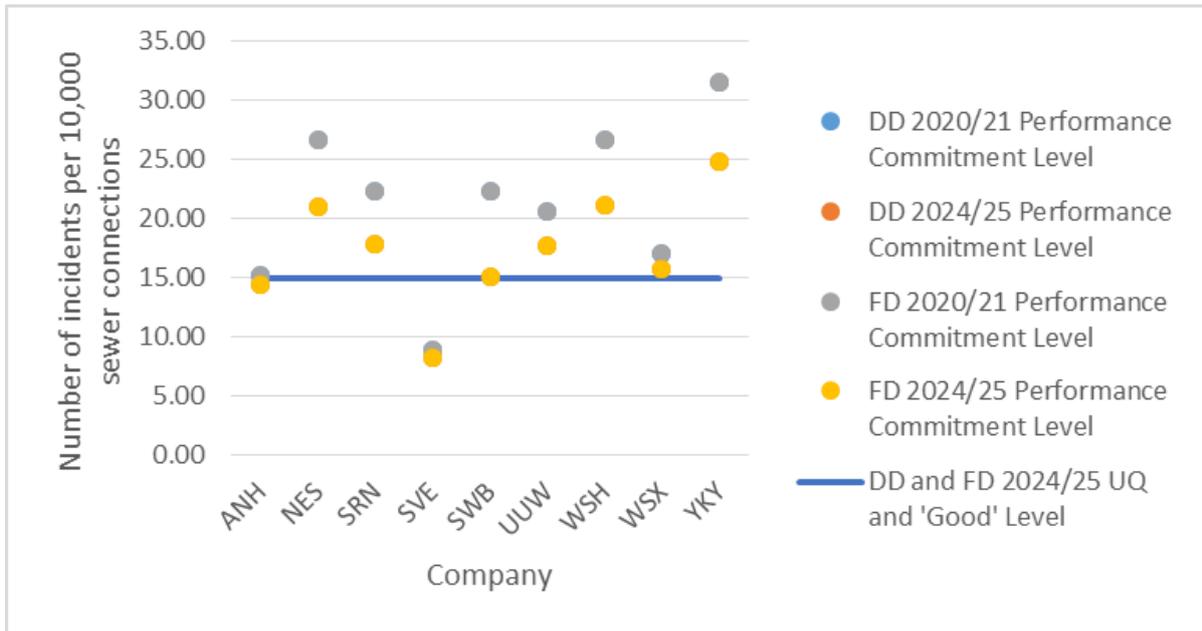
Customer contacts – We present our final determination and draft determination performance commitment levels for 2020-21 and 2024-25, together with the industry 2024-25 upper quartile (UQ) and ‘good’ level at draft and final determination. Values are expressed in number of contacts per 1,000 customers. The vertical blank lines delineate whether the performance commitment covers contacts relating to appears, taste and odour, or all three.

Figure 11: Customer contacts - 2020-21 and 2024-25 final and draft determination performance commitment levels, and 2024-25 ‘good’ level at final and draft determination



External sewer flooding – We present our final determination and draft determination performance commitment levels for 2020-21 and 2024-25, together with the industry 2024-25 upper quartile (UQ) and ‘good’ level at draft and final determination. Values are expressed in number of incidents per 10,000 connections.

Figure 12: External sewer flooding - 2020-21 and 2024-25 final and draft determination performance commitment levels, and 2024-25 ‘good’ level at final and draft determination



A1.2 ODI rates

We present our final determination outperformance and underperformance rates below for common and comparable performance commitments, as well as our interventions and reasonable ranges. Our reasonable range is based on ODI rates proposed by companies in September 2018 business plans except where otherwise stated. The dashed and dotted horizontal lines represent the upper and lower bounds, and the average²⁷ of the reasonable ranges, respectively. All ODI rates are expressed on a per household basis to enable comparability.

Leakage - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

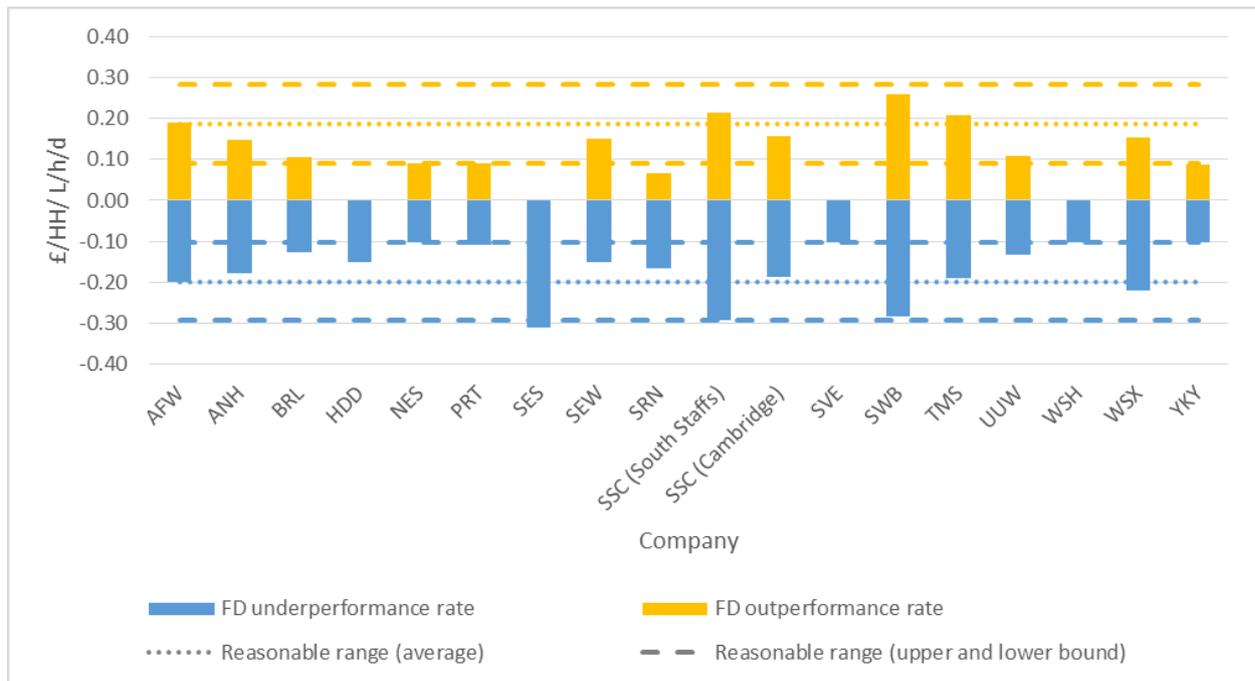
Figure 13: Leakage – final determination outperformance and underperformance rates and reasonable ranges



²⁷ We use the median and inter-quartile range to calculate the reasonable range for low pressure, sewer blockages and sewer collapses.

Per capita consumption – Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 14: Per capita consumption - final determination outperformance and underperformance rates and reasonable ranges



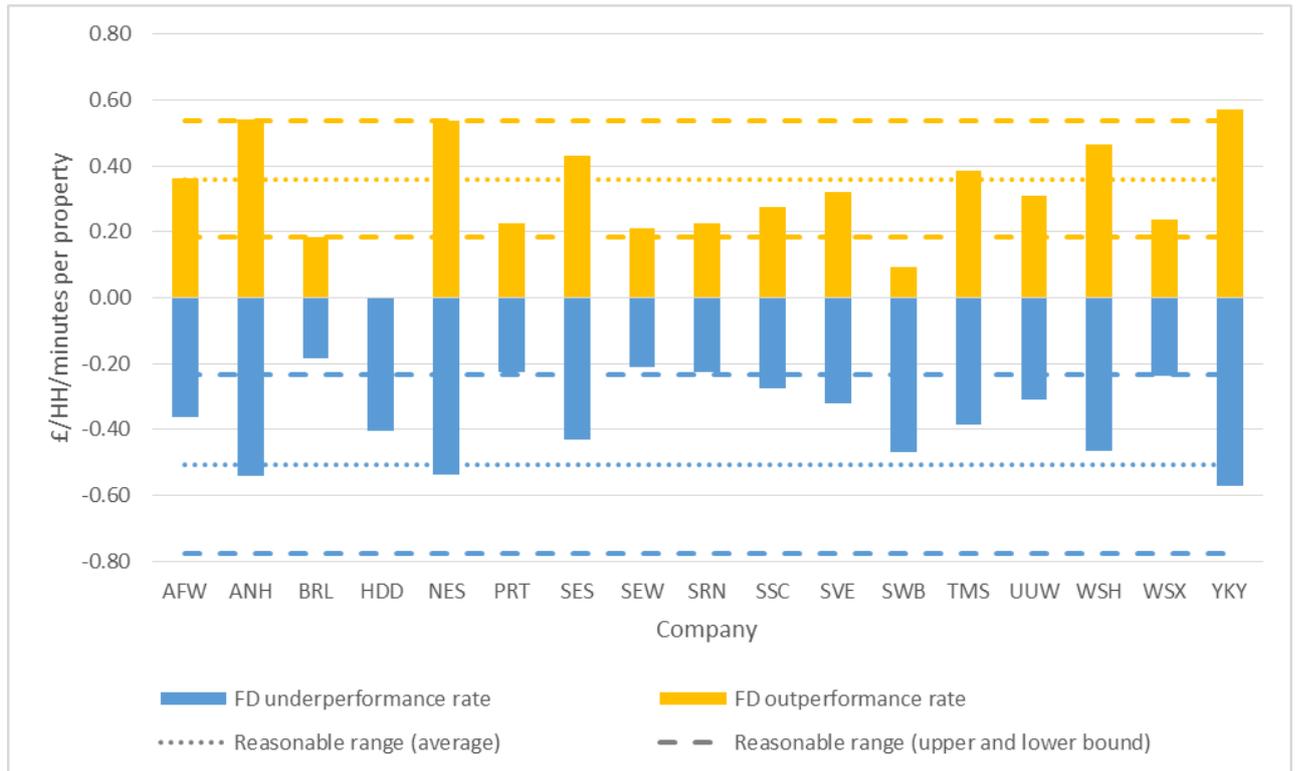
Pollution incidents - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 15: Pollution incidents - final determination outperformance and underperformance rates and reasonable ranges



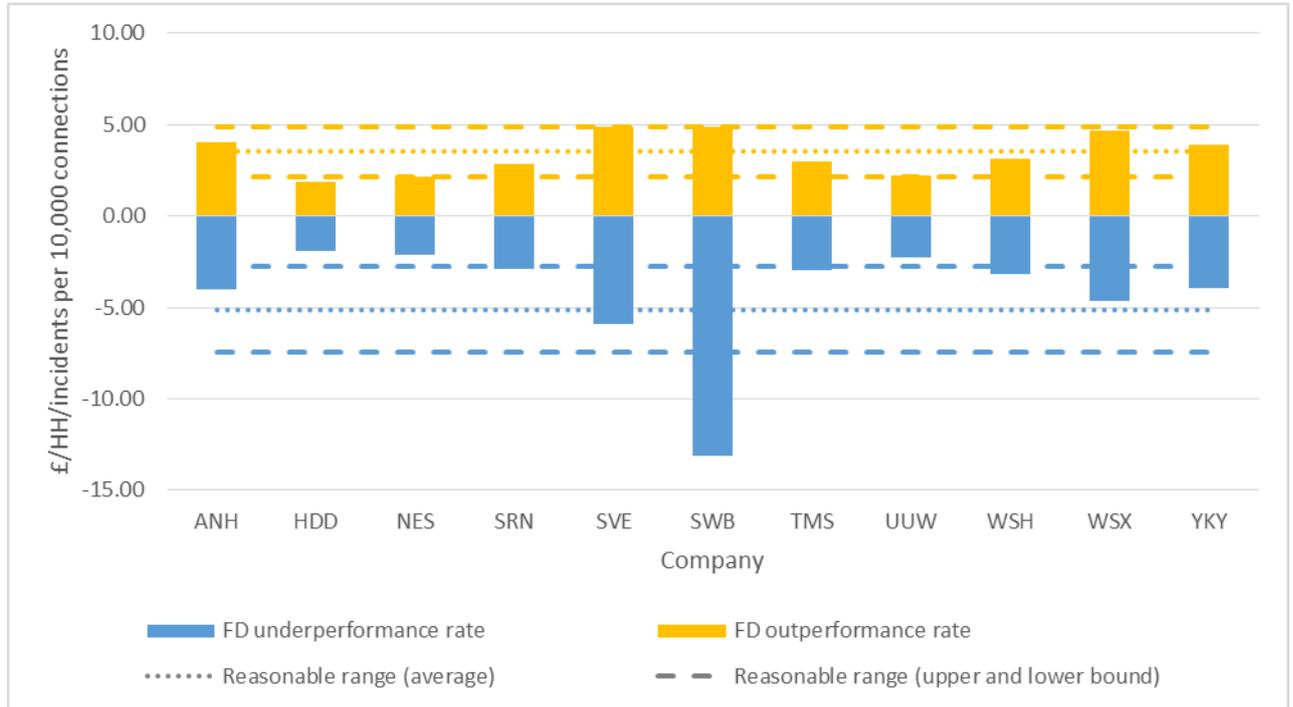
Water supply interruptions - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 16: Water supply interruptions - final determination outperformance and underperformance rates and reasonable ranges



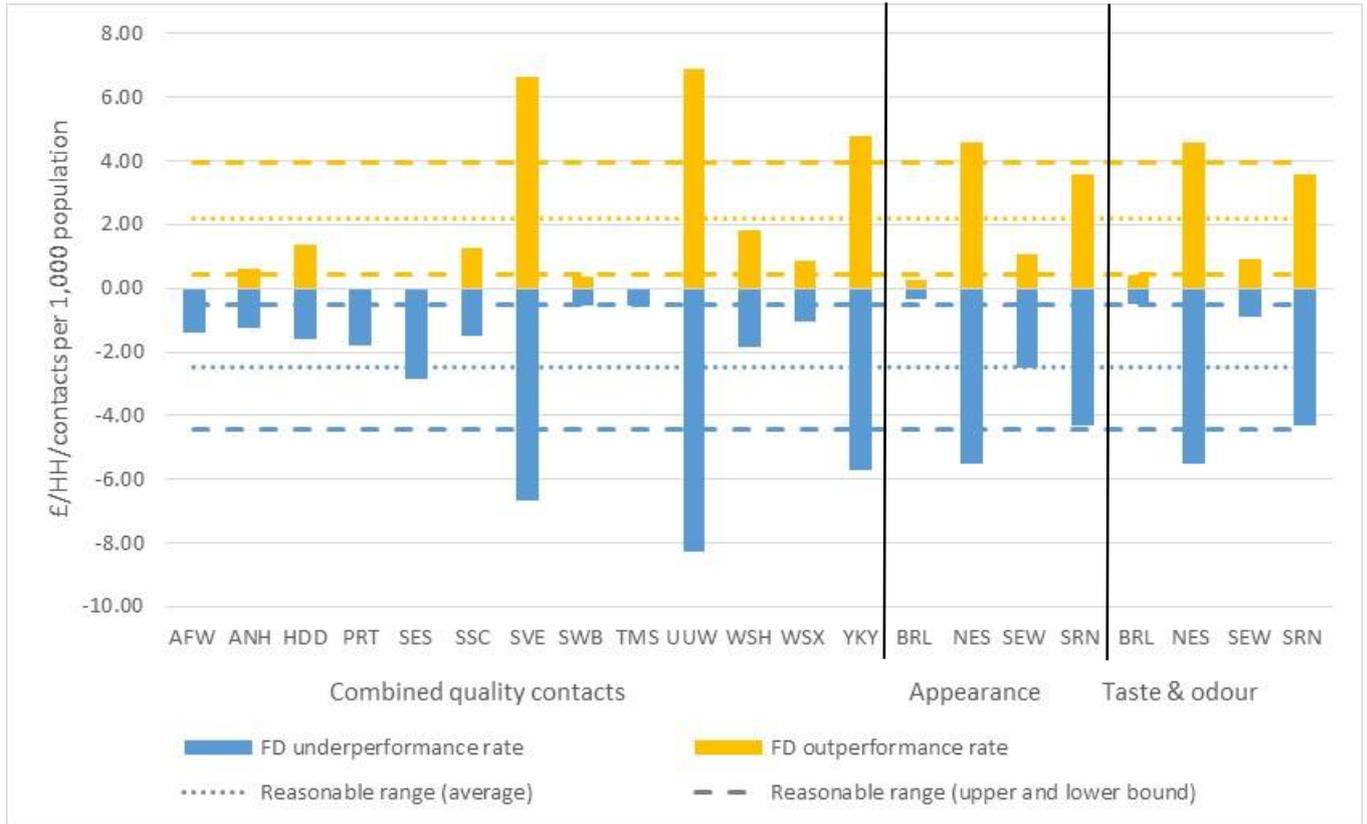
Internal sewer flooding - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 17: Internal sewer flooding - final determination outperformance and underperformance rates and reasonable ranges



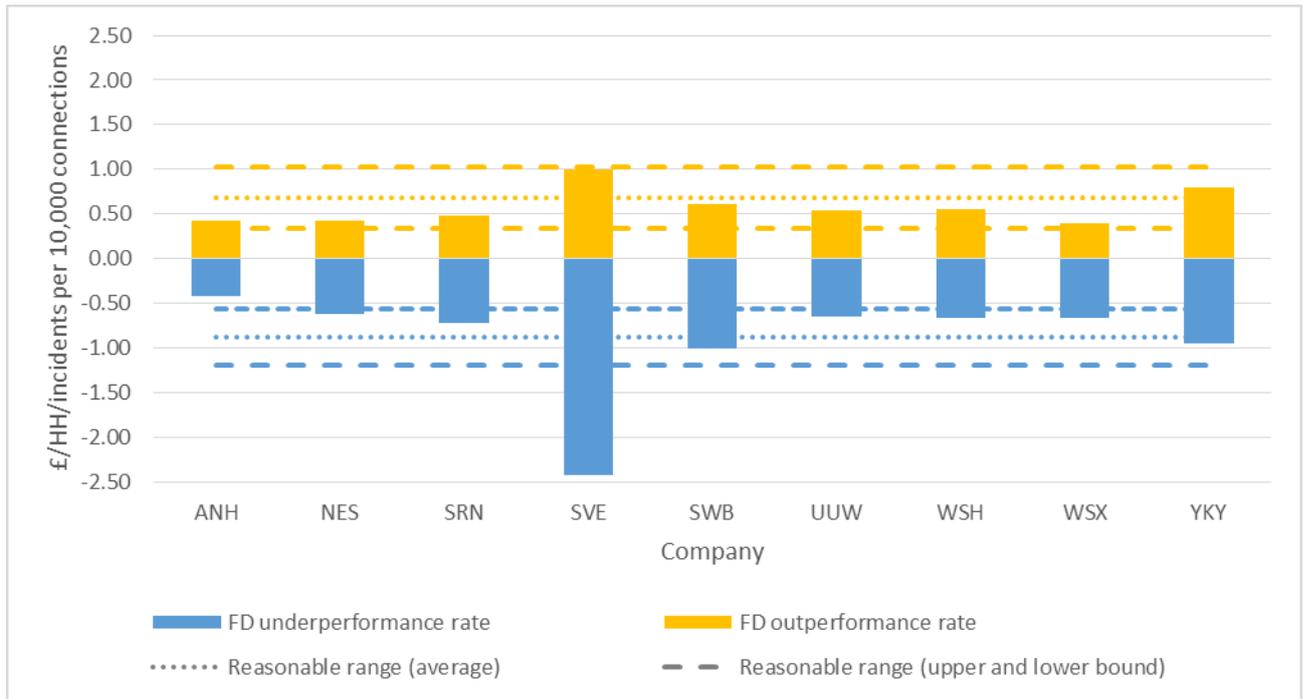
Water quality contacts - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on April 2019 revised business plan data. All ODI rates are normalised. The vertical blank lines delineate whether the performance commitment covers contacts relating to appearance, taste and odour, or all three.

Figure 18: Water quality contacts - final determination outperformance and underperformance rates and reasonable ranges



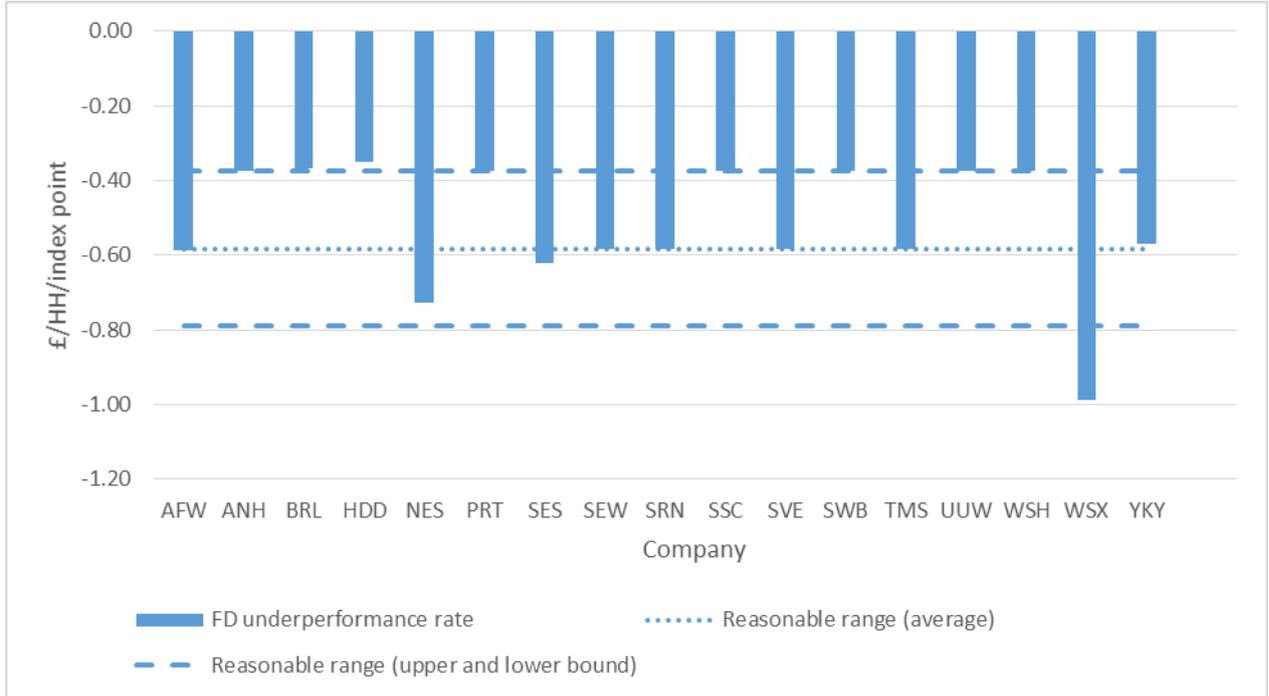
External sewer flooding - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 19: External sewer flooding - final determination outperformance and underperformance rates and reasonable ranges



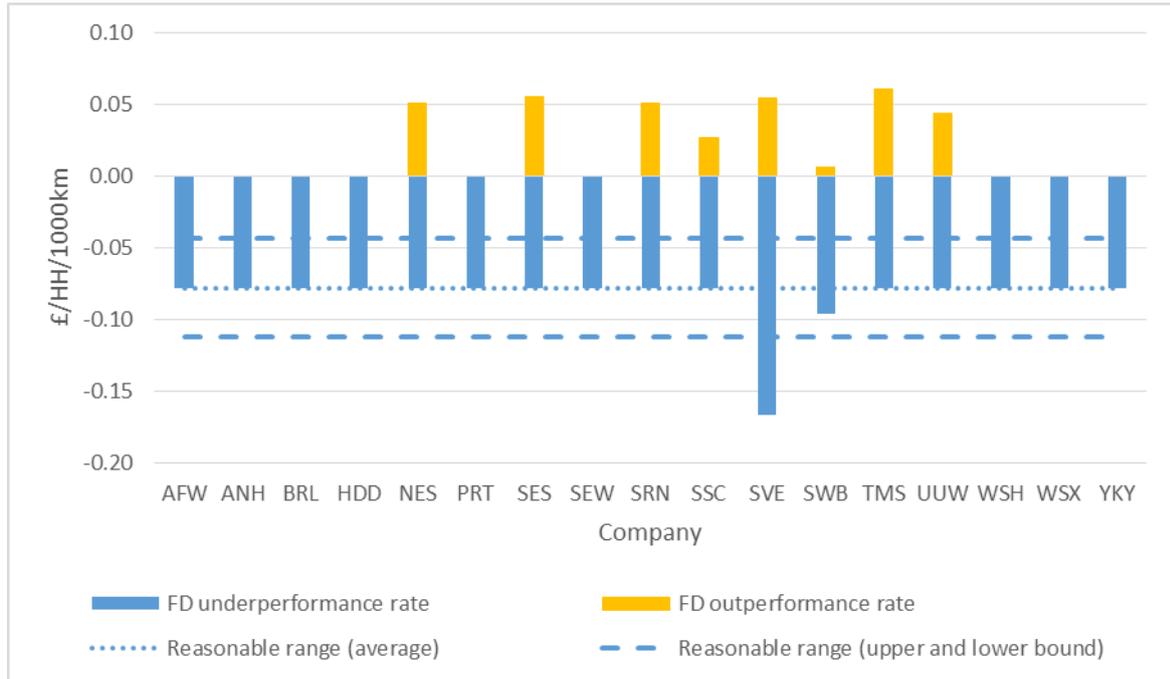
Compliance risk index (CRI) - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 20: Compliance risk index - final determination underperformance rates and reasonable ranges



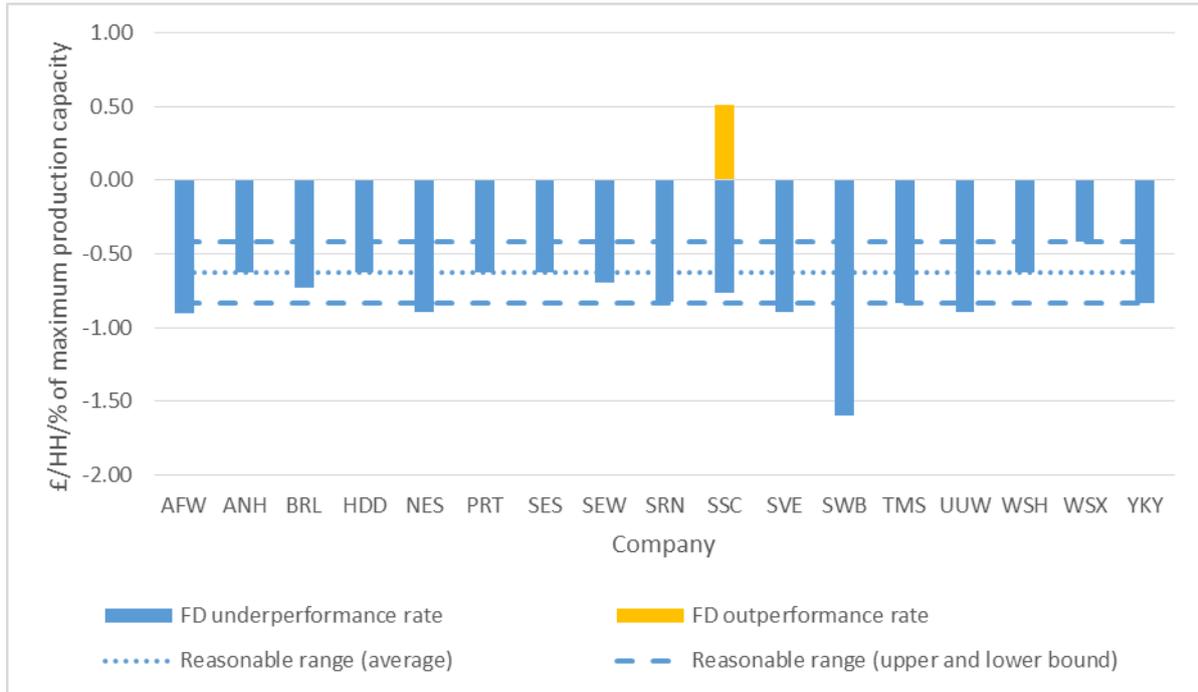
Mains repairs - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 21: Mains repairs - final determination outperformance and underperformance rates and reasonable ranges



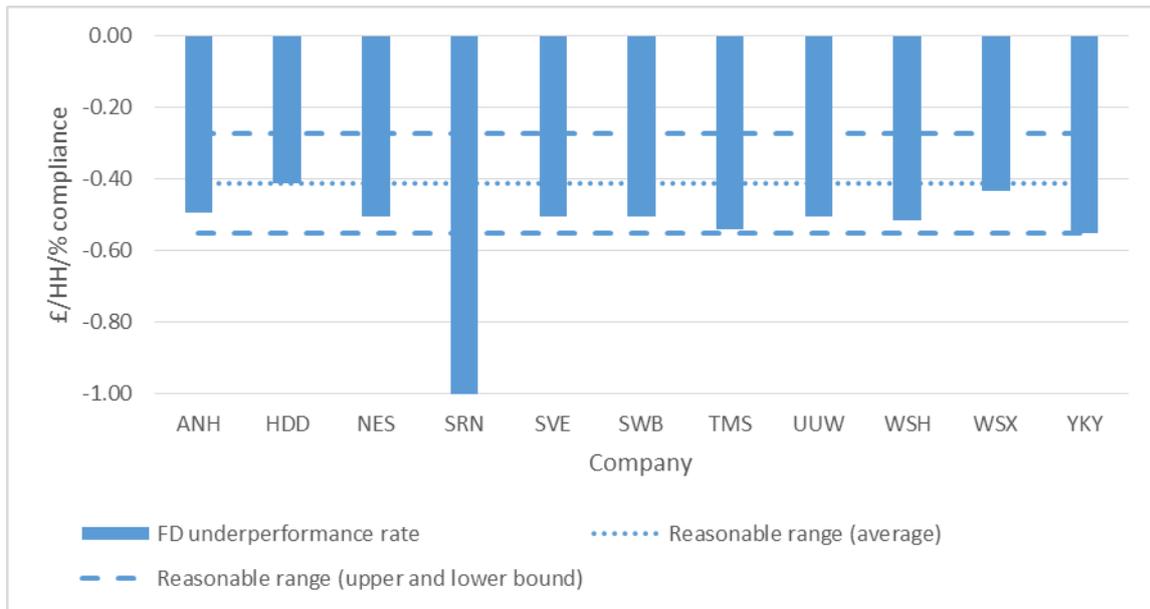
Unplanned outage - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on April 2019 revised business plan data. All ODI rates are normalised.

Figure 22: Unplanned outage - final determination outperformance and underperformance rates and reasonable ranges



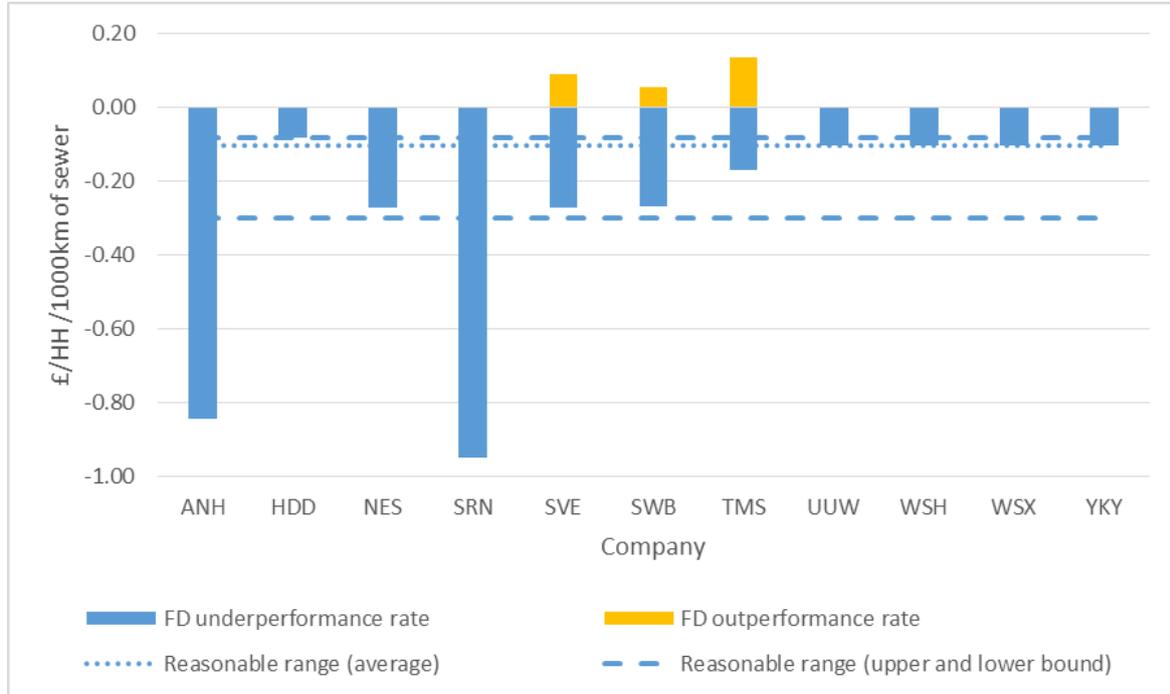
Treatment works compliance - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 23: Treatment work compliance - final determination underperformance rates and reasonable ranges



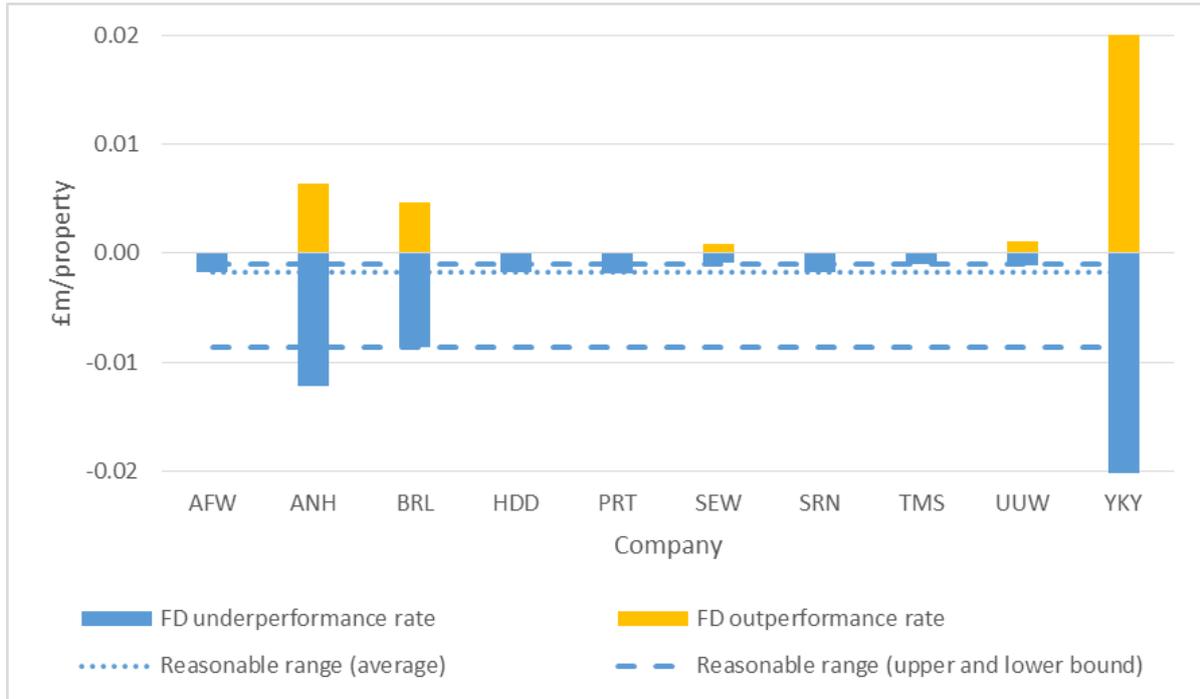
Sewer collapses - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on September 2018 business plan data. All ODI rates are normalised.

Figure 24: Sewer collapses - final determination outperformance and underperformance rates and reasonable ranges



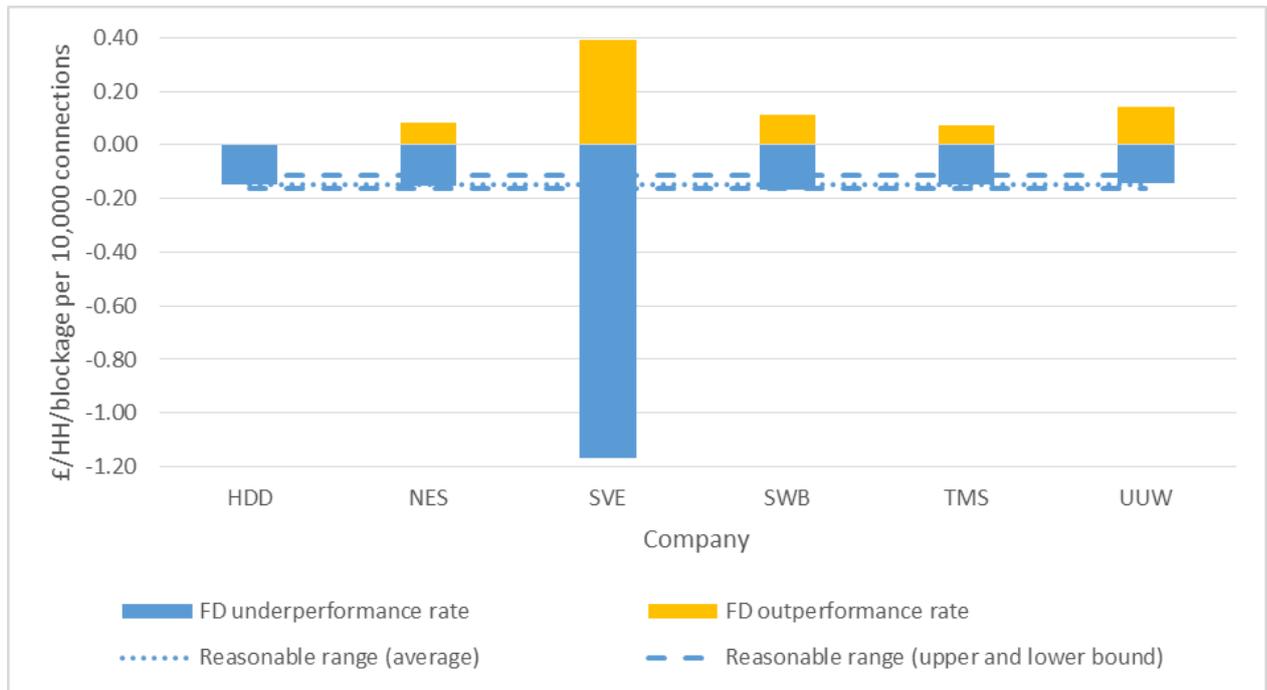
Low pressure - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on April 2019 revised business plan data. All ODI rates are normalised.

Figure 1: Low pressure - final determination outperformance and underperformance rates and reasonable ranges



Sewer blockages - Our final determination outperformance and underperformance rates are presented below, alongside our reasonable range based on April 2019 revised business plan data. All ODI rates are normalised.

Figure 26: Sewer blockages - final determination outperformance and underperformance rates and reasonable ranges



Annex 2: Longer-term performance detail

We analyse the companies' forecasts for a group of established performance commitments in order to establish their longer-term ambition. The performance commitments are:

1. Water supply interruptions;
2. Leakage;
3. Per capita consumption (PCC);
4. Mains repairs;
5. Internal sewer flooding;
6. Pollution incidents (categories 1, 2 and 3); and
7. Sewer collapses.

We summarise below the results of our analysis. Charts showing longer term projections are provided after this summary.

Notes

- Base year is the 2020-21 reporting year (1 April 2020 – 31 March 2021)
- Averages are mean averages.

The percentage reductions presented in this section are based on April 2019 revised business plan submissions. Some companies changed the 2020-21 values in their representation. We did not ask companies to re-submit long-term forecasts as part of their representations. We note that in some cases there may be changes to companies' long-term forecasts since then. The charts presented later in this section show forecast performance from 2025-26 onwards.

Anglian Water

- The company proposes to reduce **leakage** by 35% by 2040 from the base year, which is in line with the sector average of 35%.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 10% by 2040, resulting in a level in-line with the sector average, however other companies are forecasting larger reductions.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is less stretching. It is forecasting a stable level of performance and no improvement up to 2040.

- The company's ambitions for its wastewater network assets (we use **sewer collapses** as an indicator of this) are also very modest. It is forecasting a stable level of performance and minimal improvement up to 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is more mixed.
 - For **supply interruptions**, the company does not accept the upper quartile requirement for 2024-25. Instead, it proposes to achieve the 2024-25 upper quartile of three minutes by 2040.
 - It forecasts sector upper quartile performance by 2040 for **internal sewer flooding**, a 65% improvement from base year levels.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 52% from the base year – less than the sector average of 63% – and indicating that 2040 performance will be four times the upper quartile level for the sector.

Dŵr Cymru

- The company proposes to reduce **leakage** by 42% by 2040 from the base year. This is better than the sector average of 35% and within sector upper quartile performance in 2040.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 19% by 2040, which is better than the sector average of 13% and in line with sector upper quartile performance in 2040.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 14% improvement by 2040, which is in line with the sector average of 16%.
- The company's ambitions for its wastewater network assets (we use **sewer collapses** as an indicator of this) are very modest, it is forecasting a stable level of performance and no improvement up to 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is worse than the sector average for all three performance commitments.
 - For **supply interruptions**, the company does not accept the upper quartile requirement for 2024-25 and has the worst base year forecast performance in the sector. It proposes to achieve the 2024-25 upper quartile of three minutes by 2040.

- The company proposes to reduce incidents of **internal sewer flooding** by 51% from the base year – worse than the sector average of 59% – and worse than the sector upper quartile performance in 2040.
- For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 44% from the base year – less than the sector average of 63% – and indicating that 2040 performance will be more than four times the upper quartile level for the sector.

Hafren Dyfrdwy

- The company proposes to reduce **leakage** by 44% by 2040 from the base year. This is one of the highest proposed reductions within the sector – better than the sector average of 35% – and within sector upper quartile performance in 2040.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 12% by 2040, which is below the sector average of 13%.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 1.8% improvement by 2040, which is less than the sector average of 16%. The company is forecasting that all of the improvement will take place in the first five years (2020-25); it is not forecasting any further improvement in the following fifteen years (2025-40).
- The company's ambitions for its wastewater network assets (we use **sewer collapses** as an indicator of this) are very modest: it is forecasting a stable level of performance and no improvement up to 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is below the sector average for all three performance commitments.
 - For **supply interruptions**, the company accepts the upper quartile requirement for 2024-25, but with a very significant deterioration in performance in 2025-26. It improves slowly from then to 2040, but remains well above its 2024-25 position throughout the period.
 - The company proposes to reduce incidents of **internal sewer flooding** by 54% from the base year – worse than the sector average of 59% – and worse than sector upper quartile performance in 2040.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 49% from the base year, which is less than the sector average of 63%.

Northumbrian Water

Note: for its mains repairs, sewer collapses, internal sewer flooding and pollution incidents performance commitments, Northumbrian Water projects performance up to and including 2034-35 rather than 2039-40.

- In the Northumbrian Water area, the company proposes to reduce **leakage** by 36% by 2040 from the base year, which is in line with the sector average of 35%. In the Essex & Suffolk Water area, the company proposes to reduce **leakage** by 38% by 2040 from the base year, which is above the sector average.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 17% by 2040, which is better than the sector average of 13%.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 24% improvement by 2034-35, which is more than the sector average of 14% by 2034-35.
- The company's ambition for its wastewater network assets (we use **sewer collapses** as an indicator of this) is a 76% improvement by 2034-35, which is more than the sector average of 22% by 2034-35.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is better than average for supply interruptions and pollution, but less than average for internal sewer flooding.
 - For **supply interruptions**, the company forecasts upper quartile performance (approximately) in each year, with an overall improvement of 74% from the base year.
 - The company proposes to reduce incidents of **internal sewer flooding** by 25% by 2034-35, which is worse than the sector average of 45%, and indicates worst performance in the sector in 2034-35.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 73% by 2034-35, which is better than the sector average of 51% by 2034-35, and for its 2034-35 performance to be in the sector upper quartile for that year.

Severn Trent Water

- The company proposes to reduce **leakage** by 43% by 2040 from the base year. This is one of the highest proposed reductions within the sector – better than the sector average of 35% – and within sector upper quartile performance in 2040.

- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 11% by 2040. This is worse than both the sector average of 13% but within the sector upper quartile performance in 2040.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is very modest – a 1% improvement by 2040, compared with the sector average of 16%. This indicates a stable level of performance with minimal improvement up to 2040.
- The company's longer-term projections for **sewer collapses** indicate a significant deterioration in 2025-26 from the 2024-25 performance level and stable performance from 2025-26 up to 2040, with no improvement in these years.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is below the sector average for all three performance commitments.
 - For **supply interruptions**, the company accepts the upper quartile requirement for 2024-25, then proposes worse performance in 2025-26, with only a very minor improvement to 2040, but not to the upper quartile level of 2024-25.
 - The company proposes to reduce incidents of **internal sewer flooding** by 33% from the base year – worse than the sector average of 59% – and indicates that 2040 rates of internal sewer flooding will be almost twice the upper quartile level for the sector.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 34% from the base year – worse than the sector average of 63% – and forecasts that the 2040 pollution incident rate will be more than five times the upper quartile level for the sector.

Southern Water

- The company proposes to reduce **leakage** by 38% by 2040 from the base year, which is better than the sector average of 35%.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 24% by 2040, which is the largest reduction across the sector and better than the sector upper quartile performance in 2040. The sector average reduction is 13%.
- The company's ambitions for its water mains assets (we use **mains repairs** as an indicator of this) are stretching: it forecasts sector upper quartile performance by 2040, a 48% improvement from base year levels.

- The company's ambitions for its wastewater network assets (we use **sewer collapses** as an indicator of this) are modest: it forecasts a stable level of performance and a 7% improvement up to 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambitions are very stretching, better than average for all three performance commitments.
 - For **supply interruptions**, the company forecasts performance that is in line with sector upper quartile by the end of each five-year period, but with a step change profile. This represents an 84% improvement by 2040.
 - The company proposes to reduce incidents of **internal sewer flooding** by 96% from the base year – better than the sector average of 59% – and indicating upper quartile, sector-leading performance in 2040.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 90% from the base year – better than the sector average of 63% – and for its 2040 performance to be in the sector upper quartile.

South West Water

- The company proposes to reduce **leakage** by 20% by 2040 from the base year, which is less than the sector average of 35% and the second lowest percentage reduction across the sector.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 10% by 2040, which is below the sector average of 13%.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 12% improvement by 2040, which is more than the sector average of 16%.
- The company's ambition for its wastewater network assets (we use **sewer collapses** as an indicator of this) is a 33% improvement by 2040, which is in line with the sector average of 24%.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is better than the sector average for supply interruptions and internal sewer flooding, but worse than the sector average for environmental pollution.
 - For **supply interruptions**, the company forecasts a 78% reduction by 2040, which is better than the sector average of 54% and aligned to the sector upper quartile performance in 2040.

- For **internal sewer flooding**, the company's forecasts are aligned to sector upper quartile performance by 2040, a 65% improvement from base year levels.
- For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 59% from the base year – below the sector average of 63% – and forecasts that the 2040 pollution incident rate will be more than three times the upper quartile level for the sector.

Thames Water

- The company proposes to reduce **leakage** by 39% by 2040 from the base year, which is above the sector average of 35%.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 13% by 2040, which is equal to the sector average of 13%.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 20% improvement from base year levels, better than the sector average improvement of 16%. However, its base year performance is the worst in the sector and a 20% improvement indicates that the company remains worst in the sector in each year to 2040.
- The company's ambition for its wastewater network assets (we use **sewer collapses** as an indicator of this) is a 42% improvement by 2040, which is more than the sector average of 24% and better than the sector upper quartile performance in 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is worse than the average for supply interruptions and internal sewer flooding, but better than average for pollution incidents.
 - For **supply interruptions**, the company does not accept the upper quartile values for 2024-25 and proposes to provide its customers with the worst performance in the sector for this performance commitment in each year from 2024-25 onwards without any improvement.
 - The company proposes to reduce incidents of **internal sewer flooding** by 50% from the base year – worse than the sector average of 59% – and results in worse than the sector upper quartile performance in 2040.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 67% from the base year – in line with the sector average of 63% – but indicates that 2040 performance will be more than twice the upper quartile level for the sector.

United Utilities

- The company proposes to reduce **leakage** by 34% by 2040 from the base year, which is in line with the sector average of 35%.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 10% by 2040, which is below the sector average of 13%.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 15% improvement by 2040, which is slightly below the sector average of 16%.
- The company's ambition for its wastewater network assets (we use **sewer collapses** as an indicator of this) is a 10% improvement by 2040 –less than the sector average of 24% but resulting in a better performance than ²⁸ the sector upper quartile in 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is below the sector average for all three performance commitments.
 - For **supply interruptions**, the company forecasts a 30% reduction by 2040, which is worse than the sector average reduction of 54%. The company forecasts that all of the reduction will take place in the first five years (2020-25); it does not forecast any further reduction in the following fifteen years (2025-40).
 - The company proposes to reduce incidents of **internal sewer flooding** by 29% from the base year – worse than the sector average of 59% – and forecasts that 2040 rates of internal sewer flooding will be more than twice the upper quartile level for the sector.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 34% from the base year – worse than the sector average of 63% – and forecasts that 2040 rates of pollution incidents will be more than five times the upper quartile level for the sector.

Wessex Water

- The company proposes to reduce **leakage** by 23% by 2040 from the base year, which is less than the sector average of 35%.

²⁸ Correction made to clarify the company's ambition for its wastewater network assets (sewer collapse)

- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 4% by 2040, which is worse than the sector average of 13% and the lowest percentage reduction across the sector.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 1.2% improvement by 2040, which is less than the sector average of 16%. The company forecasts that all of the improvement will take place in the first five years (2020-25); it does not forecast any further improvement in the following fifteen years (2025-40).
- The company's ambitions for its wastewater network assets (we use **sewer collapses** as an indicator of this) are very modest: it forecasts a stable level of performance and no improvement up to 2040. Base year performance is the second worst in the sector and no improvement up to 2040 indicates that the company will be worst in the sector for most of the years to 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is better than the sector average for all three performance commitments.
 - For **supply interruptions**, the company has the most ambitious forecasts of all: it proposes to completely eliminate interruption events by 2034-35.
 - The company proposes to reduce incidents of **internal sewer flooding** by 61% from the base year – better than the sector average of 59% – but for its 2040 performance to be slightly worse than the sector upper quartile.
 - For **pollution incidents (category 1 to 3)**, the company proposes to reduce incidents by 88% from the base year – better than the sector average of 63% – and for its 2040 performance to be in the sector upper quartile.

Yorkshire Water

- The company proposes to reduce **leakage** by 43% by 2040 from the base year. This is one of the highest proposed reductions within the sector – better than the sector average of 35% – and better than the sector upper quartile performance in 2040.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 12% by 2040. This is worse than the sector average of 13%, but better than the sector upper quartile performance in 2040.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is a 62% improvement from base year levels by 2040, better than the sector average improvement of 16%. Base year performance is the second worst in the sector and the 62% improvement indicates that the company would be approaching sector upper quartile performance in 2040.

- The company's ambition for its wastewater network assets (we use **sewer collapses** as an indicator of this) is a 94% improvement by 2040, which is more than the sector average of 24% and better than the sector upper quartile performance in 2040. The company proposes performance commitment levels and longer-term projections which indicate that it will be worst in the sector in the base year, but sector-leading by 2040.
- For the elements of service that directly impact customers and the environment the most – supply interruptions, flooding of sewers in the home and environmental pollution, the company's ambition is very stretching, with better than average improvements forecast for all three performance commitments.
 - For **supply interruptions**, the company proposes a performance in line with the upper quartile in 2024-25, then stepped improvements every five years to 2040. Performance is forecast to be in line with sector upper quartile in each year through to 2040.
 - The company proposes to reduce incidents of **internal sewer flooding** by 93% from the base year – better than the sector average of 59% – and for its 2040 performance to be in the sector upper quartile.
 - For **pollution incidents (category 1 to 3)**, the company forecasts continuing improvement in all years, leading to no incidents by 2040. This indicates upper quartile, sector-leading performance in 2040.

Affinity Water

- The company proposes to reduce **leakage** by 34% by 2040 from the base year, which is in line with the sector average of 35%.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 20% by 2040, which is better than most other companies, but only because the company's base year water consumption per customer is one of the highest in the sector. The majority of the improvement is expected in the next 10 years.
- The company's ambitions for its water mains assets (we use **mains repairs** as an indicator of this) are less stretching: it forecasts a stable level of performance and no improvement up to 2040.
- For the element of service that directly impacts customers the most – **supply interruptions** – the company is forecasting a 53% reduction by 2040, which is in line with the sector average of 54%.

Bristol Water

- The company proposes to reduce **leakage** by 17% by 2040 from the base year, which is less than the sector average of 35% and the lowest percentage reduction across the sector.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 17% by 2040, which is better than the sector average of 13% and better than the sector upper quartile performance in 2040.
- The company's ambitions for its water mains assets (we use **mains repairs** as an indicator of this) are less stretching: it forecasts a stable level of performance with a minimal improvement of 2% up to 2040.
- For the element of service that directly impacts customers the most – **supply interruptions** – the company forecasts a 72% reduction by 2040, which is better than the sector average of 54%, but marginally worse than the sector upper quartile performance in 2040.

Portsmouth Water

- The company proposes to reduce **leakage** by 28% by 2040 from the base year, which is less than the sector average of 35%. The majority of this improvement is expected in the first five years (2020-25).
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 10% by 2040, which is less than the sector average of 13%.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is an 8% improvement by 2040, which is slightly worse than the sector average of 16%, but indicates in line with sector upper quartile performance in 2040. This is due to its current performance being almost sector-leading.
- For the element of service that directly impacts customers the most – **supply interruptions** – the company forecasts a 53% reduction by 2040, which is in line with the sector average of 54%. The majority of the improvement is expected in the first five years (2020-25).

SES Water

- The company proposes to reduce **leakage** by 45% by 2040 from the base year. This is the highest reduction within the sector – better than the sector average of 35% – and within sector upper quartile performance in 2040.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 13% by 2040, which is in line with the sector average of 13%.

- The company's ambitions for its water mains assets (we use **mains repairs** as an indicator of this) are stretching: it forecasts sector upper quartile performance by 2040, a 33% improvement from base year levels.
- For the element of service that directly impacts customers the most – **supply interruptions** – the company has the most ambitious forecasts of all: it proposes to completely eliminate interruption events by 2034-35.

South East Water

- The company proposes to reduce **leakage** by 33% by 2040 from the base year, which is in line with the sector average of 34%.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 17% by 2040, better than the sector average reduction of 13%.
- The company's ambition for its water mains assets (we use **mains repairs** as an indicator of this) is less stretching: it forecasts a stable level of performance and no improvement up to 2040.
- For the element of service that directly impacts customers the most – **supply interruptions** – the company forecasts a 30% reduction by 2040, which is worse than the sector average reduction of 54%. The company forecasts that all of the reduction will take place in the first five years (2020-25); it does not forecast any further reduction in the following fifteen years (2025-40).

South Staffs Water

- In the South Staffs area, the company proposes to reduce **leakage** by 37% by 2040 from the base year, which is in line with the sector average of 35%. In the Cambridge Water area, the company proposes to reduce **leakage** by 32% by 2040 from the base year, which is below the sector average.
- The company proposes to reduce the average amount of water its customers use (**per capita consumption**) by 7% by 2040 in the South Staffs area and 10% by 2040 in the Cambridge area, both less than the sector average reduction of 13%.
- The company's ambitions for its water mains assets (we use **mains repairs** as an indicator of this) are stretching: it forecasts sector upper quartile performance by 2040, a 25% improvement from base year levels.
- For the element of service that directly impacts customers the most – **supply interruptions** – the company forecasts a 77% reduction by 2040, which is better than the sector average of 54% and aligned to the sector upper quartile performance in 2040.

The charts on the following pages summarise 2020-25 performance commitment levels (PCLs) and either 2025-35 (10 year) or 2025-40 (15 year) projections, as proposed by the companies in their PR19 business plans, before draft determination interventions.

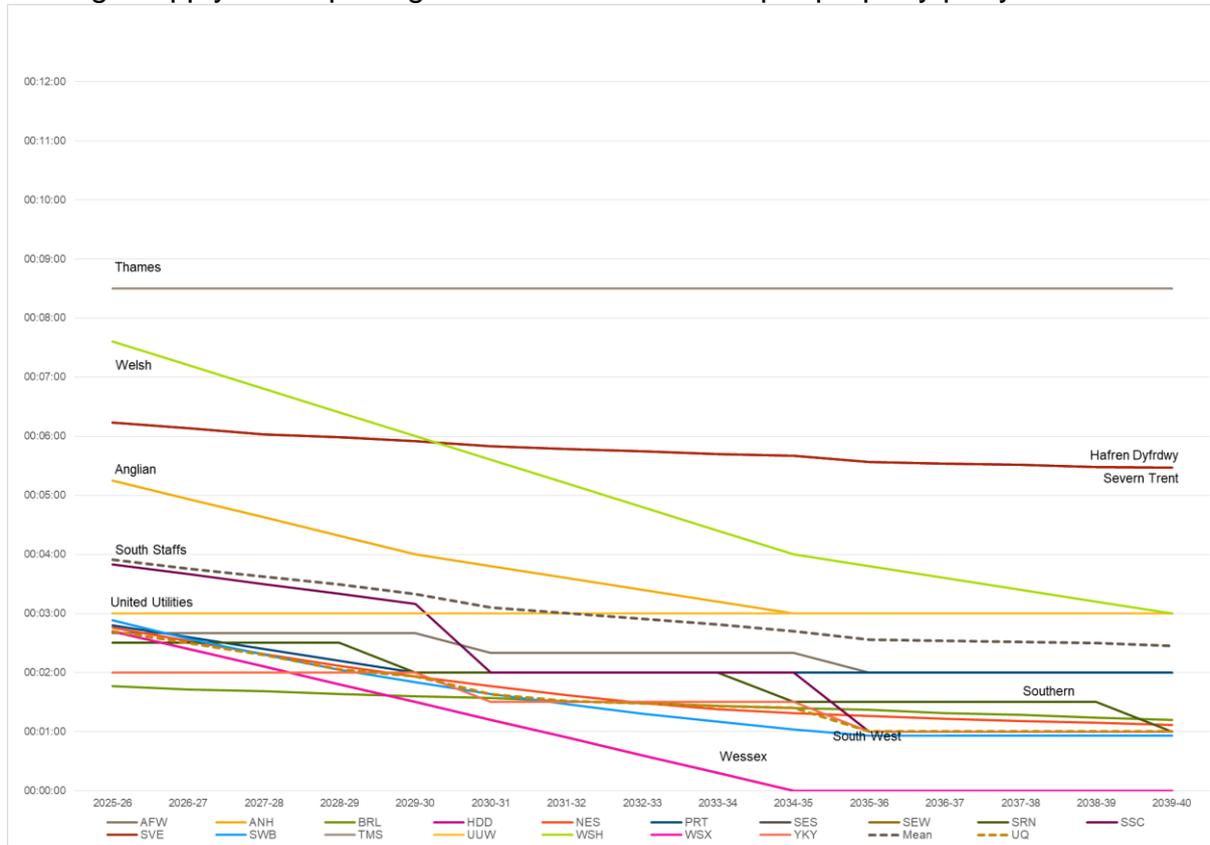
In the [PR19 methodology](#) (Appendix 2: delivering outcomes for customers) we said that we expect companies to set performance commitment levels for all performance commitments for five years (2020-25), and projections for at least a further ten years (2025-35). For some of their performance commitments, companies have projected their performance commitments more than ten years beyond the price review period. As a result, some of the projections in the following charts go up to the 2034-35 reporting year, while others extend to the 2039-40 reporting year.

Unless otherwise stated, the charts include all the relevant companies, and show mean and upper quartile performance. Labels have been added, where possible, to identify individual companies. Where there is no label for a company, it is because its projected longer-term performance line overlaps with the lines of one or more other companies.

For all these performance commitments, common definitions are used by companies and hence we are able to do comparative analysis as part of our assessment of proposed levels.

Water supply interruptions

Average supply interruption greater than three hours per property per year.

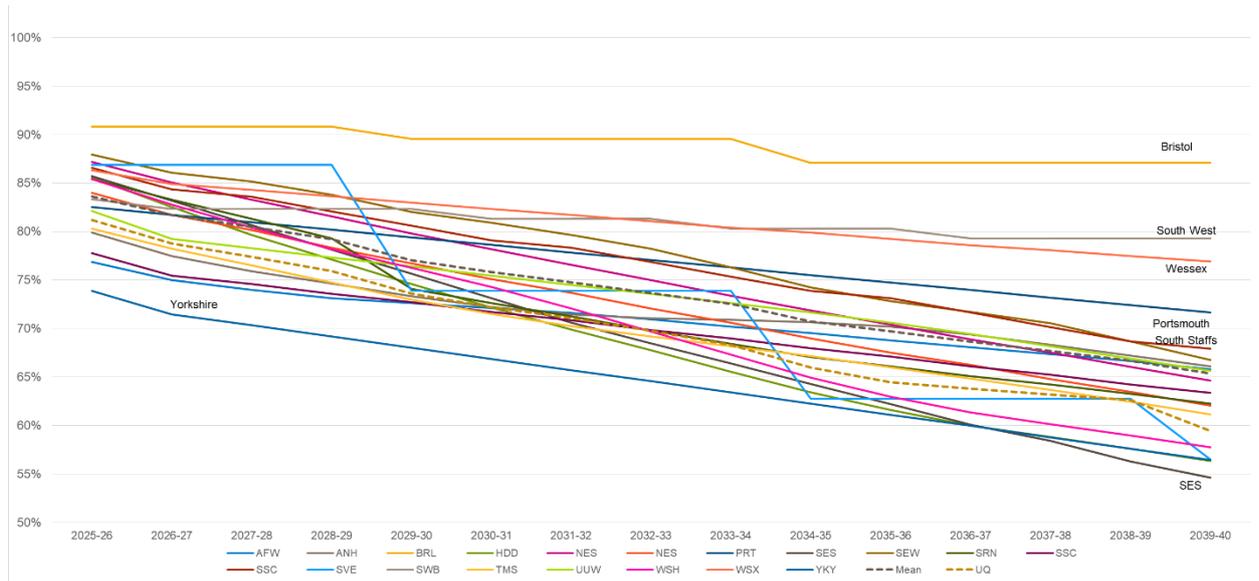


The y-axis unit is hours:minutes:seconds.

The performance commitment is reported as the average number of minutes lost per customer for the whole customer base for interruptions that lasted three hours or more.

Leakage

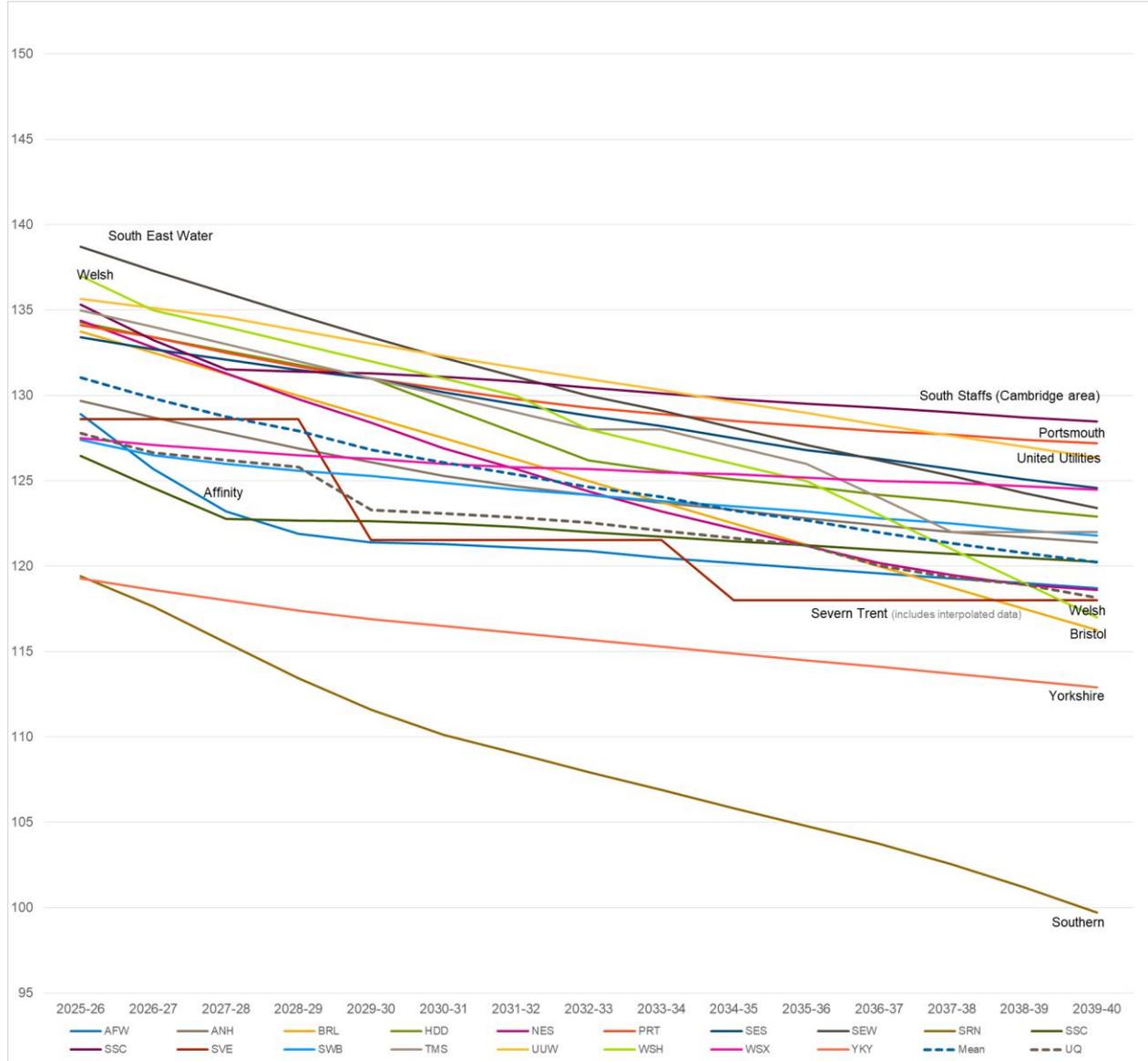
Leakage levels as a percentage of base year (2020-21)



This chart shows the companies proposed leakage reductions as a percentage from the 2020-21 reporting year.

Per capita consumption (PCC)

Litres per head per day.

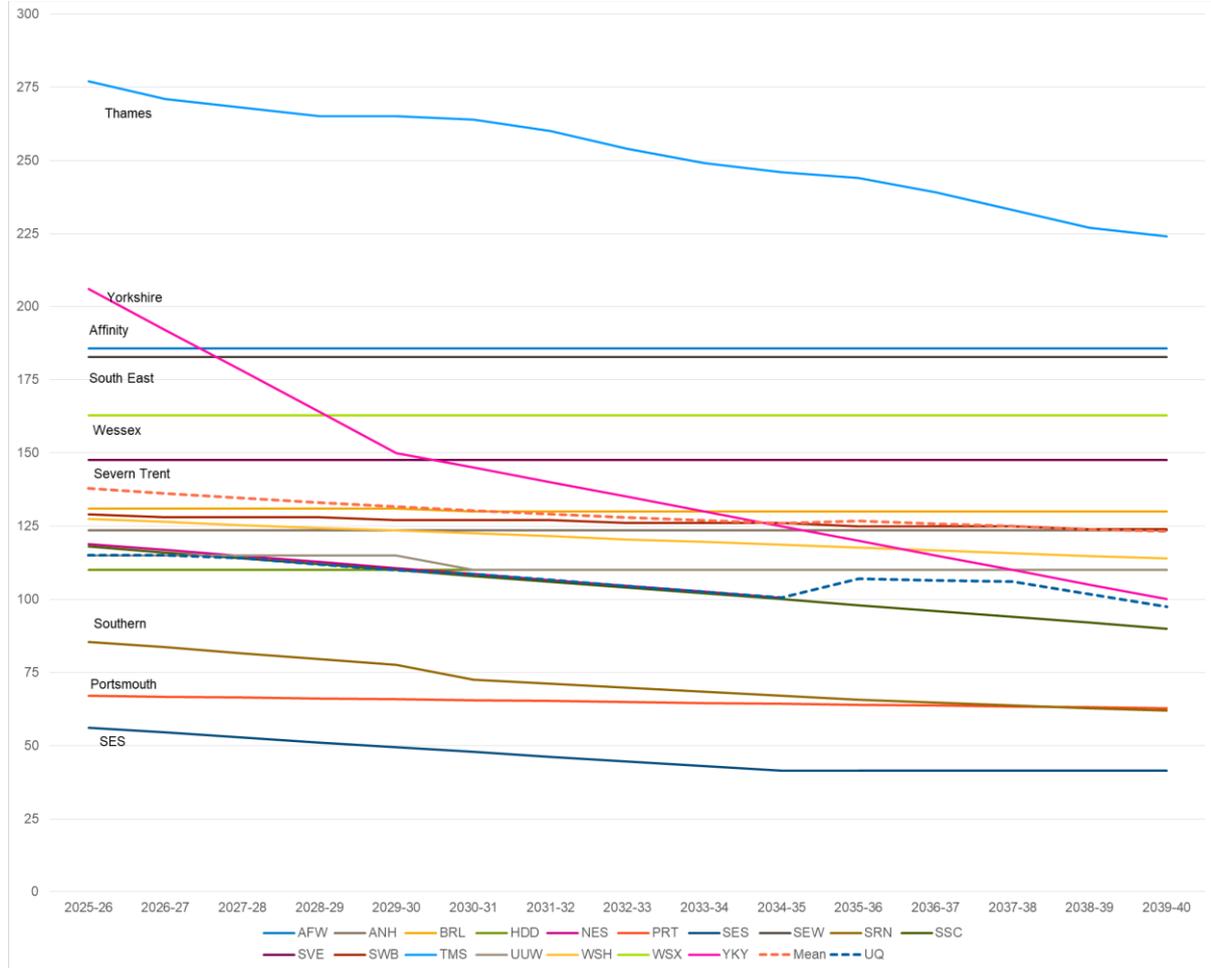


The y-axis unit is litres per person per day (l/p/d).

Per capita consumption is defined as the sum of measured household consumption and unmeasured household consumption divided by the total household population. It is the average amount of water used by each person that lives in a household property, measured in litres per head per day.

Mains repairs

The number of mains repairs per 1,000 kilometres of water mains.



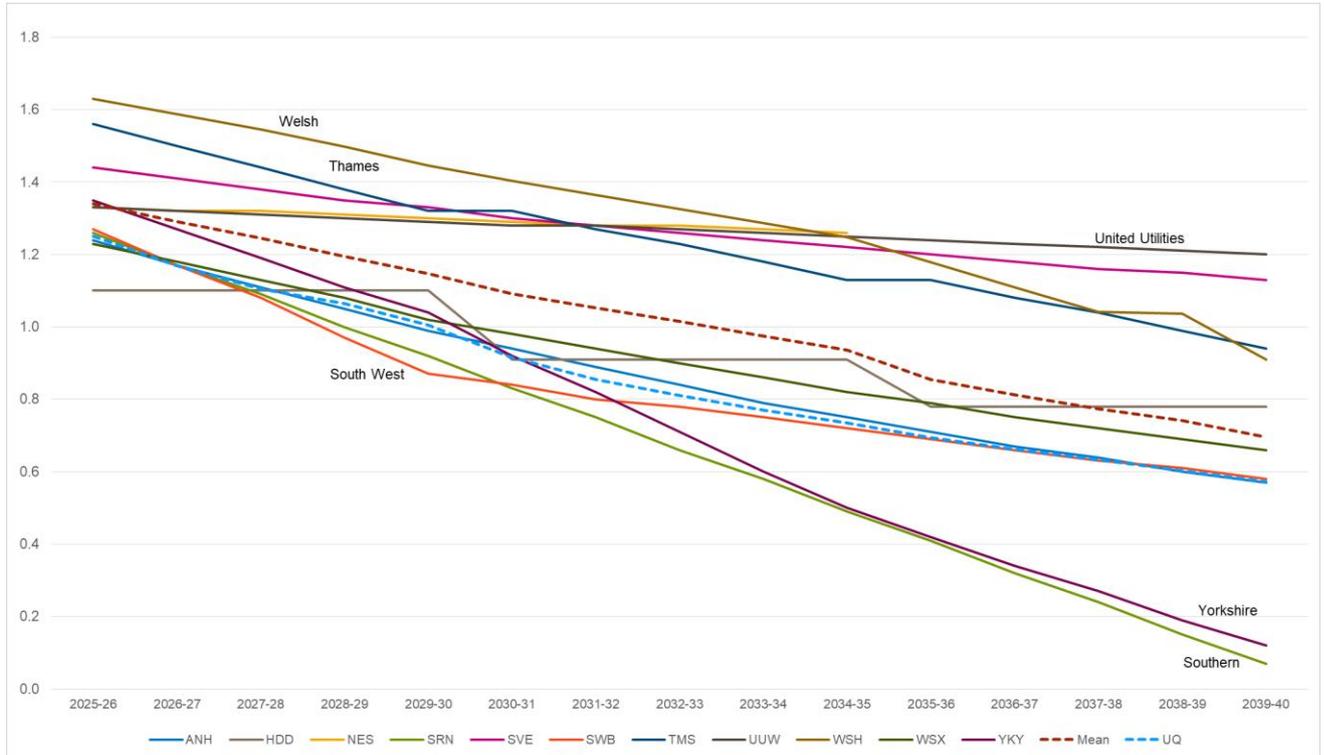
The y-axis unit is number of mains repairs per 1,000 kilometres of mains.

The performance commitment is reported as the number of mains repairs per thousand kilometres of the entire water main network (excluding communication and supply pipes). Mains repairs include all physical repair work to mains from which water is lost.

Internal sewer flooding

The number of incidents per 10,000 sewer connections.

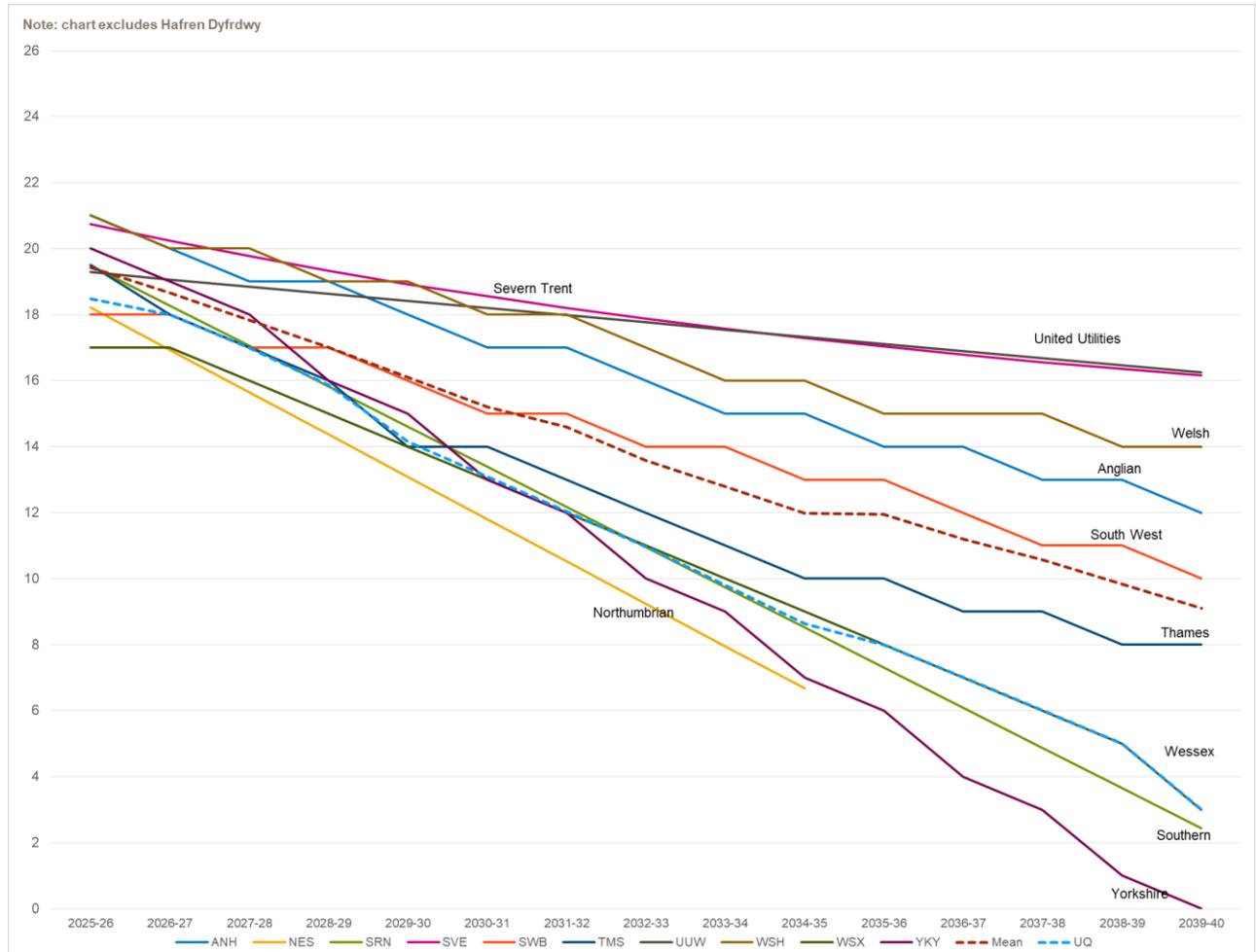
The y-axis unit is the number of internal sewer flooding incidents per 10,000 sewer connections.



The performance commitment is reported as the number of internal sewer flooding incidents normalised per 10,000 sewer connections, including sewer flooding due to severe weather events.

Pollution incidents

The number of pollution incidents (categories 1 to 3) per 10,000km of sewer length.



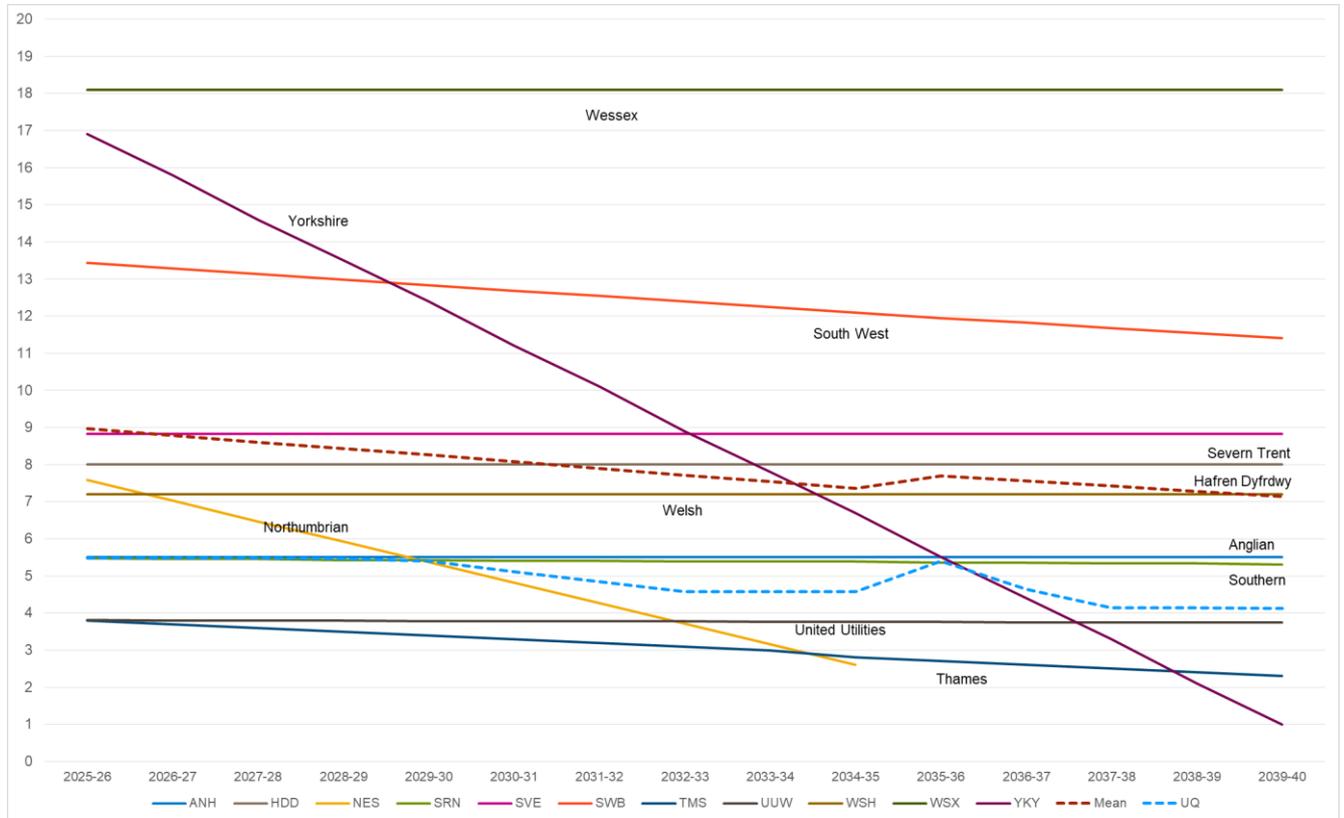
The performance commitment is reported as the total number of pollution incidents (categories 1 to 3) per 10,000km of sewer length for which the company is responsible in a calendar year.

Pollutions incidents are categorised by the Environment Agency and Natural Resources Wales based on their impact. A category 1 incident has a serious, extensive or persistent impact on the environment, people or property and may, for example, result in a large number of fish deaths. Category 2 incidents have a lesser, yet significant impact. Category 3 incidents have a minor or minimal impact on the environment, people or property with only a limited or localised effect on water quality.

Hafren Dyfrdwy has not been included in the graph above, or the mean and upper quartile calculations, because on a normalised basis the company is an outlier.

Sewer collapses

The number of collapses per 1,000 kilometres of the sewer network.



The y-axis unit is the number of sewer collapses per 1,000 kilometres of the entire sewer network.

The performance commitment is reported as the number of sewer collapses per 1,000 kilometres of all sewers causing an impact on service to customers or the environment. The measure includes the length of the entire network, including sewers that transferred to water company responsibility under the Transfer of Public Sewers Regulations 2011.

Annex 3: Approach to quantifying the benchmarking externality for assessment of enhanced outcome delivery incentive (ODI) rates

This annex outlines the approach we use to quantify the benefit to all customers when a company delivers excellent performance that will improve sector benchmarks and hence push the sector forward in the next price control period. We refer to this as “benchmarking externality” and apply the same approach consistently across the different performance commitments that have enhanced ODIs.

We follow a seven step approach:

Step 1: Assess the impact of enhanced outperformance in 2020-25 on performance level benchmarks in 2025-30.

We want to estimate how likely it is that a company that delivers enhanced outperformance in 2020-25 will influence the upper quartile levels in the next price control period. Only the companies directly above and below the upper quartile can impact the level (i.e. two companies). We assume that only a company that performs above the median performance in 2020-25 is likely to be one of the two companies that can influence the upper quartile in 2025-30. We assume that we will assess the level of stretch in performance commitments for PR24 by using upper quartile levels as stretching benchmarks.

For water, the median company is the eighth company and, for wastewater, the median company is the fifth company. Only the companies directly above and below the upper quartile can impact the level (i.e. two companies). Therefore, we estimate that the following factors should be applied to the value to customers of improving sector benchmarks to incorporate the likelihood of an increment in performance commitment levels in 2025-30 period arising from a company delivering a unit of enhanced outperformance in 2020-25.

For water performance commitments, we apply a factor of 2/8. Whereas for wastewater performance commitments, we apply a factor of 2/5. This will vary depending on whether the performance commitment is water or wastewater.

Step 2: Calculate the value to customers of the increased stretch in performance level in 2025-30.

We assume that standard ODI rates, from our draft determinations, reflect the value to customers of outperformance. Therefore, we use the average of standard ODI

rates to calculate the value to customers of the increased stretch in performance. As part of this calculation, we take into account that ODI rates are adjusted for cost sharing factors and remove this adjustment here to produce the value to customers of outperformance, the average household valuation.

For this we use 2 x industry average of the post intervention normalised ODI rate. This will vary across performance commitments.

Step 3: Adjust valuation to account for diminishing returns to outperformance

To capture the likely diminishing returns of increased service, we apply an adjustment factor. This is based on the difference between the unit willingness to pay research derived by companies when they tested one and two performance increases with customers. Where we do not have directly comparable willingness to pay evidence from the companies' business plans, we use available proxies from company evidence.

Adjustment factor calculated as average ratio of unit willingness to pay derived from +1 vs. +2 performance increments from companies' willingness to pay research. This will vary across performance commitments.

Step 4: Discount valuation to recognise the delay in benefits being accrued

This accounts for the benchmarking externality not being realised until 2025-30.

We use the social time preference rate (STPR) of 3.5%. This will not vary across performance commitments.

Step 5: Adjust for the total number of households to which benchmarking externality accrues

This component scales up the household value of benchmarking externality to all customers in industry.

We have used the total 2024-25 number of households served in the industry, water = 24,967,062 and wastewater = 24,291,298.

Step 6: Calibrate for totex sharing incentives

We assume that a company will incur cost above its base allowance to deliver enhanced outperformance and that we should account for customers' share of cost overruns (relative to baseline) from companies delivering enhanced outperformance.

We use 50%, which is the factor for standard ODIs. This will not vary across performance commitments.

Step 7: Adjust for distributional concerns

We make an adjustment to account for the relative number of households for each company compared to the industry average. This means that the enhanced ODI payments per household for the specific company's customers is no greater than that experienced by a customer of notional industry average-sized company

We have used the following formula: $\frac{\text{benchmarking externality}}{\text{industry average HHS served}} * \text{HHS served by company}$

This will vary across companies and performance commitments.

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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