August 2014

Setting price controls for 2015-20

Draft price control determination notice: technical appendix A2 – outcomes

OFWAT

Contents

Overview

This document sets out our approach to assessing outcomes in setting the draft determinations for the five years from 1 April 2015 and summarises the results of our review of companies' business plans.

For this price review, companies' boards have taken real ownership of their business plans and focused on delivering the outcomes that their customers want for today and for the future, including protecting the environment.

The key results of our review of the companies' business plans are as follows.

- **Companies have put forward 399 outcomes with associated performance commitments.** Companies listened to their customers' preferences in relation to the outcomes they wish to see and how much they are willing to pay for those outcomes.
- **In our final methodology we said we wanted companies to take more ownership of – and accountability for – what they deliver for their customers.** In response, companies are changing the way they think about service levels and outcomes performance, and providing incentives to improve performance.
- **Where customer benefits from company proposals are not clear, we have intervened in a way which maintains incentives to improve performance, while protecting customers.** We have developed a series of interventions, which are designed to maintain both the strength of our cost challenges and incentives on companies to improve performance.

In addition to the near term benefits to customers of improved outcomes, the approach we have adopted will reveal valuable information on companies' ability to deliver various outcomes. This will allow even greater benefits to customers in subsequent price control periods, as the information can be used to sharpen and target the incentives.

The material we have published today sets out our draft proposals. Stakeholders now have the opportunity to comment on the proposals and the approach we have adopted in reaching our decision. We will consider carefully all of the representations ahead of making final determinations in December. In particular, companies will review whether to include further evidence as a result of the feedback we have given them. And we will maintain our high evidential bar to make sure that our final decisions represent the best possible deal for customers.

A2.1 Introduction

As we set out in 'Setting price controls for 2015-20 – final methodology and expectations for companies' business plans' (our 'final methodology statement'), in the past, Ofwat made judgements on what Boards of companies should deliver. For PR14, we have changed our approach so that companies' Boards:

- focus more on the outcomes customers want;
- deliver for customers, including current and future customers and the environment, in the long term; and
- take more ownership of – and accountability for – what they deliver.

We also want companies to make good use of the additional flexibility that an outcomes approach provides (especially when combined with other aspects of our final methodology such as totex) to seek out efficiencies and innovation.

This reflects our desire to see companies focusing on delivering what really matters to their customers, rather than the delivery of outputs (such as engineering schemes), the provision or inputs (such as length of pipe), or the performance of activities.

We asked Company Boards to develop and propose outcomes, associated performance commitments and incentives that reflected their customers', and wider consumers' views and priorities. We expect companies to commit to levels of performance which reflect what their customers need, want and value.

Where customers place value on still higher levels of performance, companies should be incentivised to go beyond the committed level. Conversely, companies should be penalised if they fail to meet their commitments. We asked companies to propose outcome delivery incentives (ODIs) reflecting the value of the outcomes delivered to customers, justified through customers' willingness to pay (WTP). Our focus throughout the review has been on making sure that the promise of the outcomes approach is being realised with the creation of effective incentives that protect customers against under-delivery and where merited, reward companies for outperformance[1].

[1] We provided information on how companies could best demonstrate that they had developed effective incentives in IN 14/08: '2014 price review – information for companies on revising their outcomes proposals'.

In addition to the near term benefits to customers of improved outcomes, the approach we have adopted will reveal valuable information on companies' ability to deliver various outcomes. This will allow even greater benefits to customers in subsequent price control periods, as the information can be used to sharpen and target the incentives.

This appendix describes how we have assessed outcomes, the associated performance commitments and ODIs for our draft determinations.

The key results of our review of the companies' business plans are as follows:

- Companies have put forward 399 outcomes with associated performance commitments. Companies listened to their customers' preferences in relation to the outcomes they wish to see and how much they are willing to pay for those outcomes.
- Companies are changing the way they think about service levels and outcomes performance, and setting incentives to improve performance.
- Where customer benefits from company proposals are not clear, we have intervened in a way which creates effective incentives to improve performance, while protecting customers against under-delivery. We have developed a series of interventions, which are designed to maintain both the strength of our cost challenges and incentives on companies to improve performance.

A2.1.1 Overview of our approach to assessing outcomes and the associated financial incentives

In response to our final methodology, and through engagement with their customers, companies have proposed some 399 performance commitments. At the end of June, and for the first time, we were able to review and understand the proposed outcomes and associated financial incentives across the whole sector. Companies have responded positively to 'Setting price controls for 2015-20 – risk and reward guidance' (our 'risk and reward guidance'), which we published in January 2014. After further consultation with their customer challenge groups (CCGs), companies have increased the number of incentives on which it is possible to earn financial rewards. Of the 399 performance commitments, companies proposed financial incentives apply to 59% of their commitments.

In reviewing the companies' proposals we are attempting to strike the right balance on behalf of customers. On the one hand, we consider it important to allow scope for service delivery outperformance, as this provides the scope for companies to respond positively to customer priorities and do more of what their customers want. Scope for outperformance will provide the ability and incentive for companies to innovate in ways that deliver customer benefits, and may reveal information that would be valuable – to companies and customers – over time. On the other hand, we do not want to allow rewards for performance that is less than stretching, as this would not be value for money for customers and would weaken our cost challenge.

With this balance in mind, and having examined the companies' proposals closely, we have developed a series of three broad interventions which are designed to protect the interests of customers:

- First, we have undertaken further **bottom-up analysis** of the company proposals with an emphasis on confirming that the ODIs reflect the value of the outcomes delivered to customers around appropriate performance levels. This builds on the work that customer challenge groups have been undertaking throughout the PR14 process and that we began through the risk-based review.

- Second, where it is possible to do so, we have undertaken detailed comparisons of similar proposals put forward by different companies (in other words, we have carried out **horizontal checks**). These horizontal checks are an important safeguard of customers' interests. They help us to maximise the value of comparative competition by benchmarking outcome incentives and costs.

  We recognise that companies have not previously had access to complete data which would allow them to engage with their customers around comparative performance and outcome delivery incentives. In future, we expect companies will engage with their customers on their comparative performance and ODIs, and our approach on the horizontal checks is designed to encourage this.

- Third, we have proposed an **aggregate cap and collar**, which we have set at a level so as to not unduly distort companies' behaviour but which, at the same time, delivers an overall level of protection to customers. We recognise that outcomes and their associated ODIs are an innovative feature of the 2015-20 price control and could lead to unintended results. One way of addressing this would be to reduce the incentive to deliver outperformance. However, this is unlikely to operate in the interests of customers as it could make the companies less responsive to customer needs, and reduce the incentive to innovate. We would prefer a cap which retains the power of the incentive, within bounds.

Chapter A2.5 explains in more detail our thinking, and how the aggregate cap and collar would operate in practice. This includes the possibility for companies and/or CCGs to apply to Ofwat to make in-period changes to the cap and collar.

As explained above, the end of June was the first point at which it was possible to undertake comparisons across the sector. These comparisons have influenced the approach that we have taken, and combined with the fact that the outcomes focused approach is a new feature of the price control process, we recognise this introduces new material that we have not previously discussed with companies or CCGs. This was the reason that we wrote to regulatory directors and CCG Chairs on 13 August 2013 alerting them to the potential for changes as a result of our horizontal checks.

A2.1.2 Structure of this technical appendix

Chapter A2.2 summarises the approach to part one of our bottom-up analysis of companies' revised business plan proposals for these draft determinations. The detailed results for each company are then presented in the company-specific appendices.

Chapter A2.3 summarises part two of the bottom-up analysis, describing the additional consistency checks for each company focusing on; their proposed wholesale expenditures, performance issues in the current control period, and asset health.

Chapter A2.4 then explains the approach that we adopted for the detailed horizontal checks across companies. We set out the proposed interventions for the 14 companies receiving their draft determinations in the relevant company-specific appendices[2].

Chapter A2.5 discusses our proposal for an aggregate cap and collar on the financial impact of rewards and penalties.

Chapter A2.6 summarises our overall approach regarding the measurement, reporting and assurance of outcome delivery – this remains in line with the proposals set out for earlier draft determinations. Measurement and assurance remains an

[2] The horizontal checks and calculation of upper quartile performance levels were undertaken using data from all 18 companies where relevant. However, this document only addresses the 14 companies receiving their draft determinations at the end of August.

integral part of the outcomes proposals, ensuring that the company will have to fully explain the emerging performance picture using reliable, accurate and timely data.

A2.2 Bottom up analysis of company proposals part 1 – our assessment and intervention framework

In this chapter, we summarise the approach we have adopted in assessing companies' individual business plan proposals on outcome performance commitments (PCs) and (ODIs).

Our final methodology statement allowed the companies considerable freedom to develop outcomes that reflected the needs of their customers. Leakage and the service incentive mechanism (SIM) were the only areas in which we required all companies to include an incentive. Providing companies had engaged with and aligned their proposals to the views of their customers, companies could propose bespoke incentive packages in the style of their choosing.

Our bottom-up approach to assessing the company proposals recognises the bespoke choices that companies have made. The areas of assessment we have undertaken corresponds closely with the internal methodology we adopted during the risk-based review and was also applied in our earlier draft determinations.

Following our initial risk-based review of the companies' business plans, we provided further guidance to companies on aligning PCs with effective financial incentives in our risk and reward guidance. We also provided additional information on how companies could best demonstrate that they had developed effective incentives in IN 14/08: '2014 price review – information for companies on revising their outcomes proposals'.

As part of our assessment of the business plan proposals, we have checked that companies have continued to follow the methodology, while addressing issues identified as part of the risk-based review. We have also checked that companies have responded to our risk and reward guidance.

Table A2.1 below illustrates the breakdown of incentives by type in the companies' updated business plans. The table provides a comparison with the original proposals contained in the December business plans. Companies responded positively to the challenge in our risk and reward guidance. In particular, companies have consulted further with their CCGs and increased the proportion of financial incentives.

Table A2.1 Breakdown of incentives by type – December and June business plans across all companies

	Original (December) business plans	Revised (June) business plans
Non-financial incentive (NFI)	68%	41%
Penalty only	21%	24%
Penalty and reward	11%	35%

Compared with the risk-based review, the way in which we have applied our methodology for these draft determinations has been streamlined as indicated in IN14/08, focusing on the following four key themes.

1. **Proposal revisions and additional evidence regarding value for money and costs.** We have reviewed proposals to ensure that companies have selected the most cost-beneficial performance levels for their PCs, and that these proposed targets provide value for money for customers. We have also reviewed whether the incremental total expenditure (totex) associated with the activities to deliver the proposed improvements in performance has been justified.

2. **Proposal revisions and justification of committed performance levels and associated track record.** We have assessed companies' proposals to ensure the proposed PCs are stretching in the context of track record and industry norms. In particular, we have assessed whether individual proposed PCs represent improvements on historical performance and whether these are stretching relative to other companies (where appropriate and possible – we have only been able to undertake comprehensive horizontal checks on a few measures of performance at sector level, as set out in chapter A2.4 below). We have also checked that companies have not sought to reduce performance commitments compared with their December 2013 submissions without robust justification.

3. **Revised ODI proposals and supporting evidence.** Our final methodology statement gave companies a choice of three incentive types (financial rewards and penalties; financial penalty only; or reputational). We provided considerable flexibility regarding the calibration of financial

incentives. This included options to 'fine tune' the impact of incentives through caps on rewards, collars on penalties, and neutral zones or deadbands where incentives will not apply (taking into account uncontrollable factors contributing to expected volatility of performance). We have undertaken assessments of the use of these general mechanisms to ensure that the resulting incentives are effective. In particular, we have checked that rewards can only be earned by delivery of stretching performance and will not be used to fund excess returns for less efficient delivery. We have also sought to protect customers against potential deterioration in performance through the appropriate use of penalties.

We have tailored our assessment of companies' proposals according to the different incentive types that have been proposed. In particular, for ODIs featuring reward and penalties or penalties only, we have sought to establish whether:

a) the company has demonstrated that the incentive represents an appropriate balance of risk between itself and its customers;
b) the company has demonstrated that the proposed incentives ensure customers will be appropriately compensated for under-performance; and
c) incentives are appropriately calibrated (for example, are consistent with the totex efficiency sharing factor).

Where companies are proposing non-financial incentives, we have focused on whether the company has provided adequate evidence as to why this is the best approach. (For example, we have asked whether the company has considered the interaction between these incentives and other incentives, including those overseen by other regulators).

Our approach has been to assess the full package of financial and non-financial incentives for each company in order to sustain a balance between its incentives. However, we have given particular attention to incentives with the most significant financial implications for customers. Wherever possible, we have identified the most material financial incentives using the penalty and reward ranges provided by the companies (in the form of P10/P90 expected reward and penalty data[3]).

[3] In the cases where reliable P10 and P90 data is not available, we have used maximum penalty and reward values to provide insights regarding the expected impact of particular financial incentives.

4. **Risk-based review response.** We have checked the revised company outcome incentive proposals to ensure that they have comprehensively addressed the issues highlighted during the risk-based review.

In a number of cases, where we have identified risks of deteriorating performance, we have intervened to safeguard customer interests. In particular, these interventions have included adjustments to company ODI parameters (for example, changes to penalty or reward rates, deadbands, caps and collars or, in some instances, more stretching performance levels). In other cases, we have also changed the type of incentive (for instance, by removing unjustified rewards or introducing penalties where the company has not sufficiently justified the absence of financial incentives).

The proposed interventions arising from the bottom up analysis are specific to the incentive under consideration. The rationale for these individual company-specific interventions is set out in the company-specific appendices.

A2.3 Bottom up analysis of company proposals part 2 – consistency checks

As part of our bottom up analysis, we have also undertaken consistency checks in three particular areas – consistency with the allowed wholesale costs, issues arising as a consequence of company performance in the current 2010-15 control period and the consistency of approach regarding asset health performance measures and incentives. Our focus here has been to ensure that the set of incentives in our draft determinations provides sufficient protection against the risks of possible under-delivery, based on the broader evidence we have reviewed for the draft determinations.

First, some companies have proposed additional wholesale cost expenditure to deliver enhanced services, including through proposed schemes. Where a company has proposed additional expenditures that we have accepted should be funded by customers, it is important that customers are protected against risks of under-delivery. Where we have concerns that customers are not adequately protected if the company fails to deliver, we have introduced additional incentives. For example, in the case of United Utilities we have partially allowed a claim in relation to the company's NEP 3 and 4 Biodiversity (phosphorus removal in Windermere) schemes. We have required United Utilities to provide evidence that the penalty rate on a related PC[4] is sufficient to protect customers in the event of non-delivery of the schemes.

Second, it is important that the packages of incentives proposed by companies cover areas in which companies have performed less strongly in the recent past. We want to make sure that the dialogue between companies and customers focuses not just on 'good news' stories, but also on making sure that historic issues have been dealt with. So we have also considered the case for interventions to provide appropriate incentives to make sure that any recent poor performance does not recur.

Finally, we have undertaken some consistency checks across company proposals on asset health. This area is a key consideration for Ofwat given the potential customer detriment that could arise if company decisions were to result in unrecognised deterioration in the condition of water company assets.

[4] Specifically, 'Contribution to rivers improved (wastewater programme)'

A2.3.1 Consistency checks regarding allowed wholesale costs

We have assessed whether customers should fund wholesale expenditures in 2015-20 for the delivery of specific outcomes. We have undertaken these assessments by reviewing companies' cost exclusion claims as set out in the wholesale water and wastewater technical appendix (for example, schemes which are not captured in the cost models and which deliver additional value for customers).

Where a company has proposed additional expenditures that we have accepted should be funded by customers, it is important that customers are protected against risks of under-delivery. We have sought to ensure that the company is incentivised to deliver. In some cases, this can be achieved through a targeted financial delivery incentive to deliver a particular outcome.

Where we have identified concerns that a company's proposed incentives do not provide sufficient coverage for this purpose, we have intervened to introduce additional incentives to ensure that the company has a financial incentive to deliver the specific outcomes associated with the additional funding concerned. It should be noted, that providing the company delivers the benefits associated with the allowed funding, the company will face no additional penalties.

As a result of our analysis, we have intervened in the specific areas summarised in the table below.

Table A2.2 Interventions resulting from consistency checks regarding allowed wholesale costs

Company	Claim	Company request £m	Additional adjustment [5] £m	Intervention
Anglian	Investment to deliver RSA schemes and to deliver the Eels part of the NEP.	39	10	Require company to introduce new PC with financial penalty
	Investment to allow for wastewater growth including UWWTR minimum treatment standards	117	23	Require company to introduce new PC with financial penalty
Southern	Thanet ground water protection	59.9	37.6	Introduce new PC with financial penalty for failure to deliver scheme
	Millbrook Sludge	19.9	15.4	Introduce new PC with financial penalty for failure to deliver scheme
Severn Trent	Birmingham resilience	264.7	242.9	Increase financial penalty on two performance commitments for failure to deliver scheme
Thames	Thames Tideway Tunnel	654.6	324.3	Introduce new PCs with financial penalty for delays to the timetable
United Utilities	NEP 3 and 4 Biodiversity	43	25	Require company to demonstrate that existing ODI sufficiently protects customers against non-delivery. If not, require company to adjust the penalty rate.

[5] Excluding implicit allowances.

Company	Claim	Company request £m	Additional adjustment [5] £m	Intervention
Bristol	Cheddar raw water deterioration	23	5.7	Increase penalty for under-delivery on existing PC
	Southern resilience	30.8	3.2	Increase penalty for under-delivery on existing PC
Dee Valley	Legacy Treatment Works	17.1	11.4	Introduce new PC with financial penalty for failure to deliver scheme

Further details of the proposed interventions are set out in the relevant company-specific appendices.

A2.3.2 Consistency checks regarding 2010-15 performance issues

It is important that the packages of incentives proposed cover not just areas of targeted improvements, but also areas in which companies have performed less strongly in the recent past. In particular, where our assessment of 2010-15 performance has identified areas where a company has failed to deliver, we want to ensure the company has sufficient incentive to improve its performance.

We have mapped the shortfall areas from the 2009 price review (PR09) identified in these draft determinations against the affected companies' proposed outcomes to ensure that each area is adequately covered by the proposed incentives in the companies' business plans. We have also reviewed the scale of possible penalties to ensure that they provide appropriate protection for customers.

This review has confirmed that there was adequate coverage and penalties for the proposed shortfall areas in the revised business plans of all the 14 companies covered by these draft determinations. In our draft determinations, we therefore propose to make no further interventions on this basis.

A2.3.3 Consistency checks regarding asset health

A number of companies proposed ODIs on asset health metrics to provide stakeholders with long-term insights and predictive capability.

Asset health was not an area stipulated by our methodology as requiring a standardised incentive framework (although serviceability was acknowledged in the context of longer-term delivery risks). However, asset health is a key consideration for Ofwat given the potential customer detriment that could arise if company decisions result in deterioration of water company assets. Our focus in PR14 is on totex, which will allow companies greater flexibility to rebalance operating costs and capital expenditure. Asset health indices will help customers and Ofwat to understand the extent to which company decisions lead to deteriorating assets.

Our focus in this area has been on ensuring a broadly consistent approach across the industry in terms of:

- coverage; and
- the scale of possible penalties.

Coverage

To provide greater visibility of asset health, as part of the risk-based review feedback, we encouraged companies that had proposed only limited asset health proposals to extend them and to engage with their customers and CCGs. In general, we have seen a positive response to this feedback. Our assessments for these draft determinations have sought to ensure that the overall package of ODIs provides sufficient coverage of the asset health measures, set out in the table below.

Table A2.3 Extent of asset health related incentive coverage for water services

Water related asset health incentives	Wastewater related health incentives
Total bursts Interruption Discolouration complaints Leakage	Collapses Pollution (must include Category 3 pollution incidents[6] Flooding

[6] The Environment Agency categorises pollution incidents on a scale from one (the most serious) to four (no significant environmental impact)

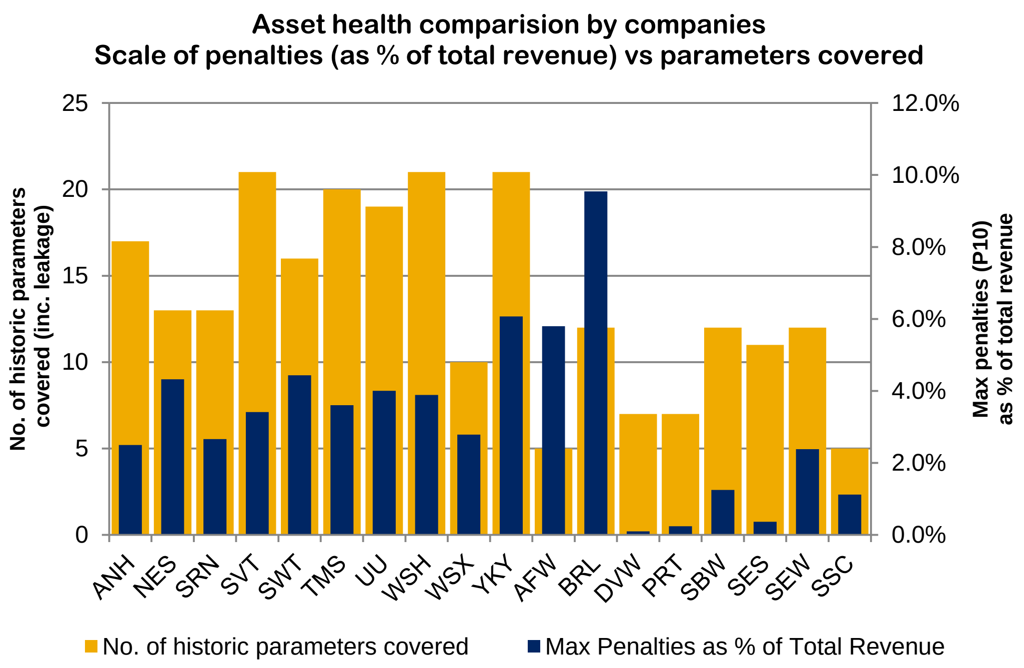
Water related asset health incentives	Wastewater related health incentives
Drinking water quality compliance	Blockages Sewer Treatment Works non-compliance

Scale of penalties

We have also assessed the scale of penalties which are related to asset health for all companies as illustrated in figure A2.1. The figure shows the potential impact of asset health performance measures for the companies in terms of the percentage of total revenue.

Given WaSCs have a broader scope of activities, it is to be expected that the WaSCs would have greater penalties due to the additional sewerage element.

Figure A2.1 Scale of asset health penalties for WaSCs and WOCs



In the case of the WaSCs, there were no obvious outliers in terms of level of penalty that the companies proposed. We did not make any interventions regarding asset health penalties for WaSCs[7].

In the case of the WoCs, the picture was much more variable. There were a number of companies where potential penalties were low (Dee Valley Water, Portsmouth Water and Sutton & East Surrey Water) and one (Bristol Water) where potential penalties were quite high. We have made interventions for Dee Valley Water, Portsmouth Water and Sutton & East Surrey Water to strengthen the potential penalties. We did not intervene in Bristol Water's proposals, but we have asked Bristol Water to consider its proposed penalties in light of our analysis.

Given the bespoke nature of the proposed incentives, the exact details of the intervention differed for each company and the details are set out in the company specific appendices.

[7] Note, however, that some interventions were made to specific company proposals on elements of asset health as a result of other parts of the bottom up analysis. These are detailed in the company specific appendices for the relevant companies.

A2.4 Horizontal checks across companies

As outlined in chapter A2.1, our risk and reward guidance set out a number of areas of focus for companies, including focus on financial incentives, incentives with rewards, and the requirement to demonstrate an appropriate level of stretch on performance levels. While companies generally responded positively to the methodology and our risk and reward guidance, their proposed performance commitments showed variable levels of 'stretch'. We found that for a similar level of performance, one company may have proposed to earn a reward (because they would be increasing from their historical performance and 'catching up' to the performance delivered by other companies) while another was proposing to be penalised (because they would be showing a decline from their historical good performance).

The levels of performance that companies achieve are of fundamental importance. Customers have paid for upper quartile performance and should receive it as soon as is possible. Our totex calculations have been based on funding companies to deliver upper quartile efficiency.

We recognise that, individual companies may find it challenging to catch up to upper quartile levels of service delivery performance in each individual area. This is not an issue that is unique to outcomes. For example, in our final methodology we recognised it in the area of retail services. We allowed less efficient companies a short period in which to catch up to the challenge represented by average historic sector costs, without allowing for general intervening cost inflation in the controls.

Striking a similar balance in order to ensure that customers receive the level of performance they expect and have paid for as soon as possible, we propose that all companies should be achieving upper quartile performance by 2017-18.

As we explain below, our horizontal checks identified six specific aspects of service delivery where it has been possible to identify comparative performance levels. We first undertook a comparison of company proposals to identify areas where there was a high proportion of companies proposing incentives on broadly similar aspects of service delivery. We further reviewed the areas with significant coverage to assess the extent of comparability. We then used a variety of different source data including the companies' proposed performance incentives, the latest reported 2013-14 data, standard key performance indicator (KPI) reporting metrics and Drinking Water Inspectorate (DWI) data for water quality related issues in order to identify the comparative performance levels.

The six areas identified by the horizontal checks were:

- Duration of supply interruptions;
- Number of contacts from customers regarding quality of water;
- Compliance with DWI water quality standards;
- Number of sewerage pollution incidents;
- Number of properties impacted by internal sewer flooding; and
- Leakage.

Our overarching approach was to adjust performance commitments so that companies are challenged to deliver upper quartile performance from the third year onwards. Deadbands within the incentives are used to provide transitional protection against penalties for lower performance levels during the first two years. Where possible, we have also sought to establish a range of rewards and penalties that is in line with the companies' proposals. We describe this in more detail below.

A2.4.1 Comparability to allow horizontal checks

We have focused our horizontal checks on incentive types where we have identified potential commonality across the companies' business plan proposals. This involved undertaking a detailed review of:

- coverage (the number of companies with similar incentives); and
- comparability (where the detailed definitions of the incentives allow us to make direct comparisons and identify comparative performance).

Tables A2.4 and A2.5 provide coverage summaries of water supply and wastewater related incentives[8] for which a degree of commonality has been identified across a number of companies. The column headings in these coverage tables capture a broad range of performance measures and associated incentives which are at least broadly related, but not always directly comparable, across companies.

We have made a small number of interventions based on the results of the coverage checks. While we recognise that our final methodology does not set out requirements that companies should include specific incentives other than in regards to SIM, and leakage, the coverage checks have identified a small number of areas where almost all companies included incentives.

[8] Based on the companies' incentive proposals as submitted in June 2014, including any subsequent company revisions made in response to clarification questions.

Based on this assessment of coverage, we added financial incentives regarding pollution incidents and environmental compliance (for water and wastewater) to Anglian Water's proposed package of incentives[9].

In some cases, we have also intervened to introduce financial incentives where a company had proposed reputational incentives but where most of the other companies had specified financial incentives in their business plans. As we made clear in our final methodology, our view is that financial incentives provide the best protection to customers where performance is highly valued, and so we have intervened to ensure that this protection is provided. Details of our interventions converting reputational incentives into financial incentives are provided in the company specific appendices.

[9] Table A2.4 also indicates that Southern did not propose an environmental compliance incentive. However, after further checking, we concluded that this was in fact covered by elements of the proposed asset health basket regarding wastewater treatment compliance.

Table A2.4 Coverage summary of water supply related incentives for WaSCs and WoCs

WASC/WOC	Company	Water quality compliance	Supply interruptions	Leakage	Asset health	Consumption of water	Water quality events	Customer perception of performance	Supply restrictions	Security of Supply	Resilience	Biodiversity / SSSI's	Impact of Abstraction
WASC	ANH	P-Only	P + R	P + R	P-Only	P-Only		P + R	NFI	NFI	P-Only	NFI	
	UU	P-Only	P + R	P + R	P-Only	NFI	P + R	NFI	P + R	P-Only	P-Only		
	SRN	P-Only	P-Only	P + R	P-Only	P + R			P-Only				NFI
	SVT	P-Only	P + R	P + R	P-Only		P + R	P + R	P + R	P-Only	P + R	NFI	NFI
	TMS	P-Only	P + R	P + R	P-Only	P-Only		NFI		P-Only	P + R		NFI
	WSX	P-Only	P + R	P + R	P + R		P + R		P-Only		P-Only	P-Only	P + R
	YKY	P-Only	P + R	P + R	P + R	NFI	P + R	NFI		P-Only		NFI	
WOC	BRL	NFI	P + R	P + R	P-Only	P + R	P + R		P-Only	NFI	P + R	NFI	
	DVW	P-Only	NFI	P + R	P + R	NFI	P + R	NFI		NFI			
	PRT	P-Only	P + R	P + R	P + R	P-Only	P + R		NFI			P-Only	
	SBW	NFI	NFI	P + R	P-Only	NFI	P-Only		P + R				
	SES	P-Only	P + R	P + R	P-Only	P + R	P + R	NFI	NFI	NFI	P + R		
	SEW	NFI	P + R	P + R	P + R		P + R	P + R		P + R	NFI		NFI
	SSC	P-Only	P + R	P + R	P-Only	NFI		P + R				NFI	
Total		14	14	14	14	11	10	9	9	9	8	7	5

Key

NFI	P-Only	P + R
Non-financial incentive	Penalty only	Reward & penalty

Table A2.5 Coverage summary of wastewater related incentives for WaSCs

Company	Sewer Flooding	Impact on water bodies	Asset health - infra	Asset health - non-infra	Pollution Events	Environmental Compliance	Other (Impact on environment)	Customer perception of performance	Biodiversity / SSSI's	STW Odour
ANH	P-Only	P + R	P-Only	P-Only			NFI	P + R	NFI	
UU	P + R	P + R	P-Only	P-Only	P-Only	P-Only		NFI		
SRN	P + R	P + R	P-Only	P-Only	P + R		NFI			NFI
SVT	P + R	P + R	P-Only	P-Only	P + R	P-Only	P + R	P + R	P + R	
TMS	P + R	P + R	P-Only	P-Only	P + R	P-Only	P + R	NFI		P + R
WSX	P + R	P + R	P + R	P-Only	R-Only	P-Only	P-Only			
YKY	P + R	P + R	P + R	P + R	P + R	P + R	P + R	NFI	P + R	
Total	7	7	7	7	6	5	6	5	3	2

Key			
Key	Non-financial incentive	Penalty only	Reward & penalty

The comparison of proposals identified seven areas for water and five areas for sewerage where there was good coverage, with a high proportion of companies proposing somewhat similar incentives. These are the columns on the left hand side of Tables A2.4 and A2.5.

We then looked in more detail at the comparability of these performance measures.

There were several instances where there was high coverage, but where we concluded that direct comparability was still not possible. For example, a relatively high number of companies included incentives around customer perceptions of performance. These were typically based on some form of survey, often involving new measures. This review process resulted in the identification of the six areas in which there was sufficient comparability to allow horizontal checks to be performed. The other areas continued to be assessed via the bottom up analysis process described in chapter A2.2 above.

A2.4.2 Detailed horizontal checks across specific outcomes

As discussed above, we recognise that companies have not previously had access to complete data which would allow them to engage with their customers around comparative performance and outcome delivery incentives. The end of June when the companies submitted their revised business plans was the first time when we were able to review and understand outcomes and the associated financial incentives across the whole sector.

Following the process described in the previous section, we identified six specific areas in which there was a very high degree of coverage and it was possible to make direct comparisons between company proposals and for most of the six, how they compared to upper quartile delivery performance. The six areas were water quality contacts; supply interruptions; compliance with water quality; pollution incidents (for wastewater); internal sewer flooding; and leakage.

The following sections describe the approach that we followed in each of the six areas. The core of the approach was the same in each case, although as we explain further below, our conclusions regarding internal sewer flooding and leakage were somewhat different from the other four.

Figure A2.2 summarises the number of interventions per company arising from the horizontal checks. Further details on these interventions are provided below and in the company appendices.

Figure A2.2 Summary of the companies affected by interventions on performance levels arising from horizontal checks

	Supply interruptions	Water quality compliance	Water quality contacts	Pollution incidents	Internal sewer flooding	No. of upper quartile based interventions
Anglian	✓	✓	✓	✓		4
Southern		✓	✓	✓		3
Severn Trent		✓	✓	✓		3
Thames	✓	✓			✓	3
Wessex	✓	✓	✓			3
United Utilities	✓	✓	✓		✓	4
Yorkshire	✓	✓	✓	✓		4
Bristol		✓	✓			2
Dee Valley	✓	✓	✓			3
Portsmouth		✓				1
Sembcorp Bournemouth		✓	✓			2
Sutton & East Surrey	✓					1
South East	✓					1
South Staffordshire		✓	✓			2

Note:

As explained in section A2.2.7, the approach taken regarding leakage differed slightly from that for the other measures on which horizontal checks were undertaken, and so leakage is not included in this table.

Overview of approach to interventions from horizontal checks

We have adopted a consistent approach to making interventions as part of our horizontal checks for all companies. We followed a three-step approach – normalisation of data, identification of upper quartile performance measures and then setting of the required incentive parameters. A brief description of the three steps is provided below, with further detail set-out in annex 1.

The first step was to normalise the relevant performance commitments to take account of the different sizes of the companies.

Table A2.6 explains the metrics used to normalise each of the six measures that were subject to the detailed horizontal checks.

Table A2.6 Metrics used in the horizontal checks

Performance commitment	Metric used to normalise
Supply interruptions	Total number of properties
Water quality contacts	Size of population served
Water quality compliance	Normalisation not required
Pollution incidents	Total length of sewers
Sewer flooding	Total number of properties
Leakage	Normalisation not required

In a few instances, it was also necessary to make adjustments to allow for the fact that some companies proposed performance commitments based on different measures. The main examples of these were:

- water quality contacts – some companies' performance commitments are based on taste and odour or discolouration only, whereas others include all three;
- pollution incidents – the Environment Agency categorises pollution incidents on a scale from one (the most serious) to four (no significant environmental impact). Some companies included category 1 and 2 pollution incidents or category 4 pollution incidents in their performance commitments as well as the more usual category 3 pollution incidents. In addition, some companies included private drains and sewers in their performance commitments and others did not; and
- supply interruptions – Wessex Water had proposed a performance commitment based on the number of properties interrupted for over six hours.

The second step was then to determine upper quartile performance levels for each measure using 2013-2014 outturn data or an average of 2011-12 to 2013-14 outturn data.

The final step was to set the required incentive parameters. We recognise that the use of outcomes is innovative and that companies' starting positions vary. But we also consider that it is important that customers receive the level of performance they expect and are funding via their bills, which – consistent with our methodology overall – is upper quartile. Taking these two considerations into account we propose a transition period of two years as described below[10].

For the first two years (2015-16 and 2016-17):

- we have intervened to set performance commitments on a glide path between the 2014-15 projected level and the upper quartile level. This balances the need for a company to deliver the upper quartile level customers are paying for, with the challenges some companies might face in reaching this threshold;
- the penalty deadband is set at the projected outturn performance in 2014-15. This ensures penalties will apply for any performance deterioration below 2014-15 levels during this period;
- the reward deadband is set at the projected upper quartile threshold to ensure rewards can only be earned for outperformance beyond this level; and
- the reward caps and penalty collars are set to maintain the same incentive range as proposed by the company.

In the final three years (2017-18 to 2019-20):

- the performance commitment level is set at upper quartile;
- the reward and penalty deadbands are removed so that rewards and penalties apply for any performance variations away from the upper quartile; and
- the reward caps and penalty collars are set to maintain the same incentive range as proposed by the company.

Supply interruptions

For the average duration of supply interruptions as experienced by customers in a year, we have normalised company data according to the number of properties served. As set out above, the baseline for our interventions was taken as each company's forecast performance level in 2014-15 to guide the glide path associated with our PC interventions in 2017-18 to 2019-20.

[10] Since we are publishing these proposals at the end of August 2014, companies also have a further seven months to plan their activities before the next control period starts.

Horizontal checks confirmed that 12 companies proposed reward and penalty incentives whereas 1 company (Southern Water) proposed a penalty only incentive. 3 companies proposed a non-financial reputational incentive (Dŵr Cymru, Dee Valley Water and Sembcorp Bournemouth Water). Wessex Water proposed an alternative PC relating to the number of properties interrupted for over six hours, which we converted into a duration related measure for comparative purposes.

A wide range of caps and collars and deadbands were proposed by the companies in their bespoke financial incentive packages. Variants included:

- Anglian Water's supply interruption PC is based on a 90-second reduction in the average duration of interruptions relative to the last three years of the 2010-15 price control period[11]. For comparative purposes, we have used an average of 2011-12, 2012-13 and 2013-14 Anglian Water outturn data;
- The financial incentives proposed by Sutton and East Surrey, South West Water, Northumbrian Water and Thames Water did not feature any deadbands; and
- Severn Trent Water's proposals did not incorporate any reward caps or penalty collars. However, Severn Trent Water did propose a penalty deadband without a reward deadband. Severn Trent Water could therefore earn uncapped rewards for performance beyond its stated PC although it should also be recognised that the company is targeting significant service improvements in this key area.

We set the upper quartile performance level for average interruption duration at ten minutes. We estimated the upper quartile from industry performance over the last three years to allow for variation in the measure between years. We required all companies to set their PC at the upper quartile level from 2017-18.

For Wessex Water, we converted their chosen PC (number of properties experiencing >6 hour interruptions) by comparing Wessex Water's 2013-14 supply interruptions KPI performance to the above upper quartile threshold. Using standard KPI data, Wessex Water's reported performance in 2013-14 was 24 minutes – that is, 2.4 times higher than the calculated upper quartile level. We applied the same factor to Wessex Water's 2013-14 proposed measure to calculate a bespoke upper quartile supply interruptions estimate for Wessex Water for the period 2015-20.

In line with our general approach set out above, we have intervened to ensure that rewards can only be earned for performance beyond the upper quartile threshold in

[11] Note: Outturn figures are not yet available for 2014-15.

2017-18 to 2019-20. Reward caps have been set at zero interruptions or at a level which approximately retains the company's previously proposed maximum reward where a zero interruption outturn would lead to disproportionate rewards.

The 'no deterioration' principle means that penalties will apply for any degradation in performance below the projected 2014-15 level between 2015-16 and 2016-17 for all companies. In 2017-18 to 2019-20 penalties will apply to all companies performing at levels outside the upper quartile threshold. For companies that have already achieved upper quartile performance (using 2014-15 data), we have applied penalties throughout 2015-20 for any deteriorating performance outside the upper quartile threshold unless a company has proposed a more challenging penalty deadband.

For those companies who did not propose financial incentives in their revised business plans we have applied a standard penalty range of 10 minutes (between the revised penalty deadband and collar) within which penalties will be incurred. For companies who proposed financial incentives in their revised business plans we have set the cap and collar at the level which approximately retains their original maximum rewards and penalties.

Figure AA2.2, in annex 3, provides a graphical representation of the normalised PCs and incentive arrangements (pre- and post-intervention) for supply interruptions.

Contacts from customers regarding water quality

For the number of water quality contacts received by each company per year we have normalised company data for discolouration, taste and odour per 1,000 of the population served. The baseline for our glide path interventions was taken as each company's forecast performance level in 2014-15 to guide our PC interventions in 2019-20. For the companies whose water quality contact PCs are based on a subset of discolouration, taste or odour, we have adjusted the PC to incorporate all contact types using 2013-14 data.

Horizontal checks confirmed that 11 companies proposed reward and penalty incentives whereas five companies (Dŵr Cymru, Affinity Water, Sembcorp Bournemouth Water, United Utilities and Southern Water) have proposed penalty only incentives. We did not intervene to change penalty only incentives to reward and penalty on the grounds that we were overall primarily concerned with protecting customers.

Only two companies (Anglian Water and Thames Water) do not propose a specific water quality contacts PC. Thames Water includes water quality contacts as one part of another of its penalty-only measures, and we have asked Anglian Water to include a PC on water quality contacts before the final determination. South East Water has a related PC linked to customer satisfaction which has been converted into a contacts-based measure for comparison purposes.

Following this analysis, we identified upper quartile performance to be a rate of 1.22 contacts/1000 population, requiring all companies to set their PC at this level from 2017-18. We set this level equal to the upper quartile of all companies' average performance from the last three years (2011 to 2013). We chose to use three years' of data because we recognise that there is some variability in this measure from year to year. The data used was the Drinking Water Inspectorate's water quality contacts (acceptability of water to customers) figures.

Rewards can only be earned for performance better than the upper quartile threshold in any year that is, where the number of contacts is less than the identified upper quartile level. Reward caps have been set at zero contacts (the best possible performance) or at the company's originally proposed level, whichever is greatest.

In order to ensure that customers are protected against deteriorating performance, penalties will apply for any degradation in performance below the projected 2014-15 level between 2015-16 and 2016-17 for all companies. In 2017-18 to 2019-20 penalties will apply to all companies performing at levels worse than the upper quartile threshold. For companies that already expect to achieve industry upper quartile performance (using 2014-15 forecast data in the business plans), we have applied penalties throughout 2015-20 for any deterioration in performance from the 2014-15 level.

We have retained reward and penalty ranges (between revised deadbands and associated caps and collars) at the levels proposed by the companies in the revised business plans they submitted in June 2014. Figure AA2.3, in annex 3, provides a graphical representation of the normalised PCs and incentive arrangements (pre and post intervention) for water quality contacts.

Compliance with water quality standards

For water quality compliance, the performance metrics proposed by all companies relate to the percentage Mean Zonal Compliance delivered. Mean zonal compliance is measured as the average percentage compliance across 39 different parameters that are tested to establish the quality of water. Compliance for the individual parameters are assessed as the percentage of samples taken from water supply zones or supply points in the company supply area complying with the relevant standard.[12] As these proposals were directly comparable, data normalisation was not necessary.

Horizontal checks confirmed that 14 companies proposed penalty only incentives following clarification discussions, three companies proposed non-financial reputational incentives (Bristol Water, Sembcorp Bournemouth Water and South East Water) and one company (Dŵr Cymru) proposed a reward and penalty arrangement.

Given the importance of this performance metric, we have intervened to ensure that all companies have a penalty only incentive regarding water quality compliance for 2017-18 to 2019-20. As with the other service areas we estimated upper quartile level of performance, in this case at 99.97% mean zonal compliance. However, following discussions with DWI, we decided that it was not appropriate to set performance commitments at this level since indicating less than 100% compliance may appear inconsistent with the commitment made by every company Board that their business plan will meet statutory obligations.

We instead used the upper quartile estimate as a guide for setting penalty deadbands. We have set the deadband at 0.04 percentage points below 100%. For those companies where we have intervened this means penalties apply if performance falls below 99.97% mean zonal compliance[13].

The common approach to interventions has therefore been implemented as summarised below.

- Between 2015-16 and 2016-17, no additional changes have been made to company proposals arising from horizontal checks[14].

- Between 2017-18 and 2019-20, the following interventions have been made:

  – PCs have been set at a 100% target level for Mean Zonal Compliance across all companies.

[12] See ‘Calculation and composition of indices published in the Chief Inspector’s Report’, DWI, May 2013 for further detail on the parameters and methodology for calculating mean zonal compliance
[13] For clarity, the deadband is expressed as 99.96% which is the point from which a penalty would apply.
[14] Note: Any separate interventions arising from vertical company-specific assessments have been retained.

  - Penalty deadbands have been set at 0.04 percentage points below 100%, except where a company's proposal was previously more challenging. In such situations, we have retained the company's penalty deadband proposal.
  - Penalty collars have been set to retain the company's proposed penalty range – for example, if a company proposed a penalty collar at 0.02 percentage points beyond the penalty deadband, our intervention has reset the penalty collar such that it remains 0.02 percentage points beyond the new penalty deadband.

- For the three companies proposing non-financial incentives (Bristol Water, Sembcorp Bournemouth Water and South East Water), a single absolute penalty has been set based on the average incentive rate submitted by the other WoCs. The absolute penalty rate means that as soon as performance deteriorates below the relevant level, the full amount of penalty applies.

Figure AA2.4, in annex 3, provides a graphical representation of the normalised PCs and incentive arrangements (pre- and post-intervention) for water quality compliance.

Sewerage pollution incidents

For sewerage service related pollution incidents, we have concentrated on category 3 (minor) pollution incidents. The Environment Agency has informed all companies that it expects that they will be reporting zero category 1 or 2 pollution incidents by 2019-20 and it should not be possible for them to earn rewards in relation to category 1 and 2 incidents. Therefore, we have assessed pollution incident performance based on category 3 incidents alone. We have made a company specific adjustment for Severn Trent Water as its performance commitment also included category 4 pollution incidents within its proposed incentive arrangement.

We have converted company proposals into a metric aligned with current annual KPI reporting, based on the number of incidents per 10,000km of sewer. These KPI data have been adjusted to include pollution incidents arising on networks transferred under section 105A of the Water Industry Act 1991 (WIA91).

Our horizontal checks confirmed that four companies proposed penalty and reward incentives for pollution incidents (Severn Trent Water, Thames Water, Dŵr Cymru and Yorkshire Water), four companies proposed penalty-only incentives

(Northumbrian Water, Southern Water, United Utilities and South West Water) and one company has proposed a reward-only arrangement (Wessex Water)[15]. Only one company (Anglian Water) did not propose any incentive arrangement for pollution incidents.

We have intervened to ensure all companies have financial incentives for reducing pollution incidents. We have made a number of changes to pollution incidents related PCs between 2017-18 and 2019-20 using an upper quartile based intervention methodology as described below.

We determined upper quartile performance based on three years of companies' reported KPI data from 2011-12 to 2013-14 to allow for variation in the measure between years. We used data for category 3 sewerage incidents only. We have also included category 3 incidents reported to the Environment Agency that occurred on the transferred sewerage network. All data has been normalised by the total length of the legacy and transferred network in 2019-20. We have set PCs and the associated reward caps and penalty collars for 2017-18 to 2019-20 through horizontal checks. In these years, PCs have been set at the level of upper quartile performance (or company proposal whichever is better) with no deadband; the absence of a deadband means that any outperformance beyond upper quartile can therefore earn rewards.

In addition, for companies with a PC set at the upper quartile threshold, no penalty deadbands apply. Where companies are already performing beyond the upper quartile threshold, then any company proposed penalty deadbands have been retained, or set at the level of upper quartile, whichever is more challenging.

In 2015-16 and 2016-17, we have adjusted PC levels to deliver a linear glide path from the starting point (2014-15 position) to the 2017-18 upper quartile target. In these catch-up years we have set the penalty deadbands at the 2014-15 PC level to discourage the company from letting its performance slip from its current level. Where a company's proposed penalty deadband is more challenging than its 2014-15 PC level in the first two years of the 2015-20 period we have accepted this. We have set the reward deadbands at the upper quartile threshold throughout the 2015-20 period.

Our horizontal check found that Anglian Water was the only water and sewerage company not to have proposed a PC for sewerage pollution incidents. We have

[15] Wessex is penalised for pollution incidents through a separate incentive which considers wider aspects of environmental performance.

therefore introduced a PC and penalty-only incentive for Anglian Water. We set a penalty rate at industry average levels with no penalty deadbands. We have set a penalty collar at double the projected level of pollution incidents.

Although Severn Trent Water included category 4 incidents within its proposed outcome delivery incentive, we have calculated its upper quartile position based solely on category 3 incidents and included an estimate of the number of category 4 incidents at 2019-20.

Figure AA2.5, in annex 3, provides a graphical representation of the normalised PCs and incentive arrangements (pre- and post-intervention) for pollution incidents.

Internal sewer flooding

All WaSCs proposed financial incentives for internal sewer flooding. There are significant variations in the definition of internal sewer flooding related PCs, reflecting the different priorities of companies and their customers. For example, some WaSCs have proposed targets inclusive of transferred assets under section 105A of the WIA91 whereas others have excluded such sewers, or proposed separate measures for the two types. In other instances, some WaSCs have excluded severe weather events from their associated sewer flooding PCs whereas other companies have not. In addition the definition of severe weather events varies across companies. In terms of incentive design, some companies have proposed measures based on 'Sewer Flooding Other Causes (SFOC)[16]' whereas others are more focused on repeat incidents. There are also examples where some companies combine internal and external flooding in a new index.

In terms of the incentive types being proposed, there are nine companies proposing reward and penalty based financial incentives. Only Anglian Water proposed a penalty-only incentive for sewer flooding. Reflecting the importance of this service area to customers, we have introduced a reward aspect to Anglian Water's ODI to incentivise it to strive to outperform its PC. We have set the reward incentive rate using Anglian Water's own estimates of willingness to pay. This ensures the reward appropriately reflects the priorities of Anglian Water's customers.

Setting an upper quartile level of performance is challenging for sewer flooding because of the significant variations in performance measures across companies as well as the difference between historic reporting and future performance measures.

[16] The number of properties affected by flooding incidents from equipment failures, blockages or collapses

We have therefore taken a different approach to the other comparable incentives in determining the upper quartile levels of performance companies should be delivering by 2017-18.

Instead of setting an industry-wide upper quartile level of performance we estimated levels of divergence from upper quartile for each company based on 2013-14 performance relating to two measures.

As a starting point we have used the sewer flooding KPI as this is the measure that companies report to their customers. This measures the number of incidents of internal sewer flooding for properties that have flooded within the last ten years. We would normally expect if a property suffers repeat flooding it is due to hydraulic incapacity of the network.

Customers also experience sewer flooding for other reasons, most notably due to blockages in the system. We wish to look broadly at sewer flooding as an outcome because customers are most concerned whether they are flooded and not about the specific cause of the problem. We have therefore added the number of properties flooded due to other causes (as reported by companies in table S21 – wastewater service serviceability of their June business plans), in order to establish a more complete estimate of internal sewer flooding incidents.

The next step was then to apply this rate of catch-up to each company's own specific performance measure to estimate the level of service required to be delivered by 2017-18. This rate of catch-up has been applied to the 2013-14 levels, as set out in table S1. This ensures consistency with the year used to estimate upper quartile and also means the upper quartile target does not 'double-count' for any improvements being delivered over 2014-15.

This catch up has only been applied to the proportion of incidents arising from legacy assets. It has not been applied to transferred assets to:

a) ensure consistency with historic performance data; and
b) reflect the variable knowledge across companies regarding historic upper quartile performance for newly transferred assets.

Recognising the greater uncertainty in this approach due to the translation from historic measures to future performance commitments we have applied a degree of pragmatism when determining interventions. Where companies are only marginally outside upper quartile by 2017-18 we have not intervened. This is reflected for the group of companies operating near to upper quartile performance. Instead, we have focused on companies that are operating furthest from upper quartile performance.

Therefore, we have normalised the various company-specific PCs and incentive arrangements for comparative analysis as described below.

- We derived an upper quartile performance threshold based on a combination of the repeat internal sewer flooding incidents KPI and SFOC using 2013-14 data, normalised according to the number of incidents per 1000 properties.
- We estimated the ratio between company performance and upper quartile for each company – that is, the catch up required by each company to reach upper quartile.
- For those non-enhanced companies operating at, or better than, upper quartile in this aspect of wastewater service provision, no interventions have been proposed. Of the seven WaSCs receiving an August DD this applies to Anglian Water and Wessex Water.
- Similarly, for the companies operating marginally below upper quartile, or whose performance reaches this threshold by the end of 2017-18 no interventions are proposed. This applies to Southern Water, Severn Trent Water and Yorkshire Water.
- For the remaining three 'outlier' companies the upper quartile catch-up, as estimated using 2013-14 repeat internal sewer flooding incidents KPI and SFOC data, has then been applied to the 2013-14 level of performance as defined by the company's new performance measure, as set out in table S1.
- This catch up has only been applied to the proportion of incidents arising from legacy assets. Where companies have separate PCs for legacy and transferred assets (United Utilities), our interventions only relate to legacy assets PCs and transferred asset PCs remain as proposed by the company. Where the company has combined the two asset types in one PC (Thames Water) we have adopted separate estimation processes before combining our interventions to provide a single revised PC.

Of the seven WaSCs receiving an August DD this approach has resulted in interventions to PCs, deadbands, reward caps and penalty collars for Thames Water and United Utilities. We have also proposed introducing a reward incentive for Anglian Water in addition to doubling the penalty range.

Figure AA2.6, in annex 3, provides a graphical representation of the normalised PCs and incentive arrangements (pre- and post-intervention) for internal sewer flooding.

Leakage

Our horizontal check for leakage follows a slightly different approach than our approach in the other areas discussed above. Leakage was the only area where companies were required in our methodology to incorporate a performance commitment in their outcomes packages for 2015-20 and so it has 100% coverage and seemingly high comparability. All 18 companies responded to this challenge with 17 proposing financial reward and penalty based incentives and one company (Dŵr Cymru) proposing a penalty-only incentive.

Our horizontal check of leakage recognises that companies' proposals are aligned with the sustainable and economic levels of leakage (SELL) determined through the companies' individual Water Resources Management Plans (WRMPs)[17]. The SELL is significantly influenced by a number of local issues including the general availability of water resources and any statutory abstraction reductions. For this reason, it is not appropriate to determine performance commitments with reference to a single upper-quartile performance threshold across the whole sector.

Our final methodology also stated that if the proposed leakage PC does not reflect an overall reduction in leakage over 2015-20, companies must include robust evidence that this is appropriate. We regard reward and penalty deadbands as appropriate where justified by historic or projected weather-related variability so that risks and rewards are not affected by such short-term uncontrollable fluctuations.

Therefore, the extent of leakage PC stretch needs to be assessed based on each company's starting position, changes in leakage levels driven by supply/demand constraints and sustainable economic levels, and variations in the desire for out-performance from customers determined through each company's customer engagement, with input from their CCGs.

Our horizontal check was to ensure penalties would be effective over an appropriate range of potential performance variation. Our analysis determined that, based on the companies' proposals, the average range over which penalties would apply was 9.7% above (worse than) their committed performance levels. Therefore, we have made interventions to penalty collars to ensure penalties apply over a minimum of a 10% deterioration in service from committed performance levels.

If, however, we determined that the company had proposed a sufficiently high penalty incentive rate to protect customers then we made no intervention. We determined this based on the maximum financial impact per person of the penalty range combined with the penalty incentive rate. This meant we had no reason to intervene in the proposals made by Thames Water and Bristol Water.

[17] More information on the SELL can be found here: http://www.ofwat.gov.uk/sustainability/waterresources/leakage/prs_web121012sellsmc

Ideally, incentive rates should be based on specific willingness to pay information, because this provides an indication of the value that customers place on changes in companies' levels of leakage. Where willingness to pay data is not available we have accepted cost-based incentives if costs are sufficiently justified by alternative convincing evidence of the benefits of securing proposed leakage levels. Where necessary, we have intervened by adjusting incentive rates to align with evidence provided by the company.

Where companies proposed incentives with rewards, we wanted to ensure that even though it is not possible to define upper quartile performance for leakage, companies still had to deliver stretching performance in order to gain rewards. In some instances, we intervened to set wider reward deadbands so that companies had to achieve best ever performance to gain a reward or, where the company justified that its best year was particularly atypical, we used average leakage levels over the past three years.

Figure AA2.7, in annex 3, provides a graphical representation of the normalised PCs and incentive arrangements (pre- and post-intervention) for leakage.

A2.5 Aggregate cap and collar on rewards and penalties

A2.5.1 Evaluating the impact of our interventions

As part of our bottom up and horizontal assessments of the outcomes incentives proposed by each company, we have evaluated the penalty and reward implications of under-delivery and out-performance of each proposed financial incentive.

These evaluations have sought to determine the likely impact of a company's package of ODIs on overall returns (we have assessed the return on regulatory equity – RoRE – impacts of maximum penalties/rewards and also anticipated P10 and P90 levels of performance). We analysed each company's proposals in their June 2014 revised business plans, and we have also undertaken additional analysis to understand the impacts of our interventions. We have done this to ensure that efficient companies can finance their functions.

While our bottom up assessments revealed that most of the companies' individual proposed financial delivery incentives only affected overall appointee returns by less than ±0.25% RoRE (P10 and P90 values), there was a small number of individual financial delivery incentives that could potentially impact RoRE by ±0.6% (that is, more than the main SIM incentive for household retail service delivery). These figures were consistent with the RoRE impacts reported by the companies.

As discussed above, we have made additional interventions following our horizontal checks for selected incentives. The combined impacts of our interventions will affect the RoRE ranges represented by the ODI packages in companies' business plans. In some instances the individual ranges will have increased, so that the aggregate RoRE range will also have increased.

As we indicated in our risk and reward guidance, in order to retain a reasonable balance between calibrated delivery and cost performance incentives (via menus, and financing cost performance) the aggregate RoRE exposure from ODIs (excluding SIM) would not normally be expected to be beyond the +/- 2% range. Our current estimates are that the combined impacts of our interventions translate into RoRE exposure for only three companies beyond this range. In line with the flexibility we expected in the methodology and confirmed in the guidance, many companies' own ODI packages imply less exposure than the +/- 2% range.

A2.5.2 The case for an aggregate cap and collar on outcomes

The outcomes regime is an innovative approach to incentives for the water sector. It also represents something of a step beyond the approach followed recently in the energy sector which shifted focus from inputs to outputs, but did not extend as far as outcomes. There is inevitably a degree of uncertainty in the P10 and P90 estimates that companies have made for their projected outcomes performance, and indeed in the additional analysis that Ofwat has undertaken. As a result, we consider that it would be in the interests of customers and companies to provide a further safeguard by adopting the ±2% range in the guidance as an aggregate cap and collar on the customers' and companies' financial exposure to ODIs in the next control period.

Such an aggregate cap and collar reduces the need to intervene more systematically to safeguard customers where we have less certainty over the efficiency of companies' individual ODI proposals – particularly where they are innovative, or where horizontal or other forms of efficiency benchmarking are less reliable. In general we wish to encourage and reward outperformance and avoid capping individual incentives to do so. However, to protect customers and companies from the more extreme consequences of unpredictable performance overall, an aggregate cap and collar will limit the bill increases or reductions in returns which could arise.

A2.5.3 The details of the proposed aggregate cap and collar on outcomes

We propose to implement a cap on total rewards and a collar on total penalties with the following characteristics.

Level and term of the cap and collar: We are setting the aggregate cap and collar at ±2% RoRE a year with the cap and collar calculated over a term of five years. This level is consistent with the indicative RoRE range provided for outcomes in the risk and reward guidance, which took into account historical evidence in the water sector, as well as evidence from other markets (for example, energy). The five-year term means that netting off (effectively averaging) between years will be permitted. We prefer to allow netting off between years so that companies are not incentivised to distort the delivery of their outcomes between years – for example, to delay a service improvement by a year to avoid the company's reward being lost due to an annual reward cap.

Some companies have proposed licences changes so that they can crystallise or 'cash out' rewards and penalties during the price control period. All such rewards and penalties would contribute to the five-year aggregate cap and collar. Hence there would need to be a truing-up process in the event that rewards or penalties already paid went beyond the aggregate cap level at the end of the period. We also recognise that companies may wish to revisit these aspects of their proposals in light of the introduction of the aggregate cap.

Coverage of the cap and collar: The cap and collar will apply to each price control element[18] separately (in other words, not at appointee level). This will encourage companies to focus on delivering their performance commitments in each operational area. It is consistent with the approach of moving to separate price controls in this price review.

Netting off between rewards and penalties: There will be no netting-off between the rewards earned from one ODI and the penalties arising from another ODI. For example if aggregate rewards average 3% on the RoRE and penalties average -1%, the rewards will be capped at 2% and the penalties will remain at -1%. This ensures that customers are not exposed to rewards beyond the 2% cap and that, where performance commitments are not met, companies are still penalised for under-performance to customers.

The exception to this netting off rule is performance commitments that are part of a trade-off package that we have approved at final determinations. The methodology allows for trade-offs between a package of performance commitments to determine an overall ODI reward and penalty under certain circumstances – for example, where there is a single, inseparable willingness to pay for a group of performance commitments or different performance commitments are delivered by a high proportion of shared activities.

Exclusions from the aggregate cap and collar: The cap and collar will apply to all outcome delivery incentives, except those listed below for the wholesale services remunerated by our allowed revenue caps set out in our final determinations.

We propose that the aggregate caps will not apply to the following ODIs.

- Incentives related to specific projects where the performance relevant to specific ODIs will not be assessed within the 2015-20 period: namely Elan Valley (Severn Trent Water) and Thames Tideway Tunnel (Thames Water);
- Incentives which safeguard customers against outcome delivery risks from specific newly funded enhancements in 2015-20 as listed in table A2.2 in section A2.3.1 above; and

[18] Wholesale water, wholesale sewerage, household retail and non-household retail

- Incentives providing additional funding for expected performance improvements – currently we only propose that the ANH leakage financial rewards would be in this category.

For the avoidance of doubt, the introduction of an aggregate cap does not in any way alter the arrangements for, or the importance of, the reporting and assurance of company performance against all outcomes. Even if there were to be a situation in which the aggregate cap does start to bite, it is essential that companies continue to report and assure their performance on all of the outcomes agreed with their customers. This will help ensure that the existence of the cap does not diminish the value of the information produced, or the transparency about the levels of delivery performance being achieved.

A2.5.4 Amending the aggregate cap and collar

We recognise that caps and collars can distort incentives. A company with accrued penalties close to a RoRE impact of -2 percentage points might put less effort into delivering its performance commitments as the aggregate collar would stop it from incurring the full effect of any further penalties for poor performance. However, in most cases our modelling suggests that the aggregate cap and collar will not bite: at the P10 we estimate that only three companies will be affected by the aggregate collar (with a further five companies within 0.2 percentage points of the collar); and at the P90 we estimate no companies will be affected by the aggregate cap.

We also recognise that while our outcome-focused approach is innovative and new, so are the proposed aggregate cap and collar on outcome delivery incentives. To ensure that the aggregate cap and collar are not creating distortions which act against customers interests we propose that the aggregate cap and/or collar could be amended under certain circumstances.

The company and/or the CCG (or relevant customer body) could apply to Ofwat to amend the cap and/or collar in the event that they consider the arrangement was working against the long term interests of customers.

We would expect to see convincing evidence over a period of several years for us to agree to alter the cap. For example, the company would need to show that it is delivering service genuinely beyond upper quartile performance to increase the reward cap. If the company could not show CCG and/or customer support for its proposal it would need to provide even more convincing evidence for us to agree to increase the aggregate reward cap.

Similarly, we would also need to see convincing evidence from the CCG (or relevant customer body) for us to change or adjust the penalty collar. The CCG (or relevant customer body) would be able to draw on its ongoing role in monitoring and checking the assurance of company's performance in relation to outcome measurement and reporting, as well as performance reporting at an industry level.

A2.6 Measurement, reporting and assurance of outcome delivery

In our final methodology statement, we set out our expectation that companies should be able to demonstrate that their proposed PCs can be measured and recorded consistently, and that they will have the appropriate governance and quality assurance processes in place to achieve this for the next control period. We regard this as a key part of the whole approach to outcomes, ensuring that there is suitable focus throughout the whole control period. It is essential that companies are transparent with customers about their performance against their outcomes and business plan commitments to customers during the next control period.

We identified a range of issues with companies' December business plan proposals in this area during the risk-based review. The companies have responded positively to our concerns and the proposals are now much stronger than those reviewed during the risk-based review. All companies are proposing to establish a continuing form of customer challenge around their outcomes delivery and reporting and there are elements of innovation emerging in the proposed approaches.

However, as set out in the company-specific appendices and in the assurance technical appendix, there are some remaining gaps to address in this area before we finalise our determinations in December.

In particular, in the company-specific appendices, we have required companies to document further their plans for measurement, reporting and assurance in the following areas.

- The approach that will be adopted to ensure strong governance and clear Board accountability for outcomes and the associated PCs and ODIs, including confirmation that appropriate independent review will be used to complement internal work on outcomes reporting.

- The measurement methods and data capture arrangements for each metric.

- The arrangements for audit and assurance around the metrics reported for the PCs and ODIs.

- A clear plan for how the company will ensure transparency of results such that customers understand what has been delivered, together with reasons for any failures to deliver.

As noted in the assurance technical appendix we will review companies' further proposals before deciding on the level of additional reporting and assurance we will require from individual companies in the next control period, as part of our final determinations. We will also be consulting further on minimum industry wide reporting requirements, including those covered by the regulatory accounting guidelines, to support separate price controls, and will also take these into account in setting out our final determinations.

We will keep the framework set out above under review including reviewing requirements relating to performance indicators and each company's annual risk and compliance statement.

Annex 1 Detailed approach to interventions from horizontal checks

We have adopted a consistent approach for making interventions as part of our horizontal comparisons for all companies. We followed a three step approach – normalisation of data, identification of upper quartile performance measures and then setting of the required incentive parameters.

Step 1: PC and incentive rate normalisation

Our first step was to normalise each company's relevant performance commitments. We needed to do this to take account of the different sizes of the companies. The table below shows how we normalised each of the five measures.

Performance commitment	Metric used to normalise
Supply interruptions	Total number of properties
Water quality contacts	Size of population served
Water quality compliance	Normalisation not required
Pollution incidents	Total length of sewers
Sewer flooding	Total number of properties
Leakage	Normalisation not required

Some companies proposed performance commitments based on different measures. The main examples of these were:

- water quality contacts – some companies' performance commitments are based on taste and odour or discolouration only, whereas others include all three;
- pollution incidents – some companies included private drains and sewers. Some companies included category 1 and 2 pollution incidents or category 4 pollution incidents as well as the more usual category 3 pollution incidents; and
- supply interruptions – Wessex Water had proposed a performance commitment based on the number of properties interrupted for over six hours.

We made adjustments for these differences as detailed in the following sections.

Step 2: Establish upper quartile performance levels

Having normalised the performance commitments for comparability we then determined upper quartile performance levels for each area using 2013-2014 outturn data or an average of 2011-12 to 2013-14 outturn data. We selected the single year of 2013-14 for sewer flooding and used the three-year average approach for supply interruptions, water quality compliance, water quality contacts and pollution incidents. We explain the different time period used for sewer flooding above.

For sewer flooding we estimated the relative gap between each company's 2013-14 performance and upper quartile performance. We then applied a catch up to each company's own specific performance measure.

Step 3a: Reset performance commitments

The next step was to use the upper quartile measure to set the proposed performance commitment for 2017-18 to 2019-20 for each company. We did not intervene where companies had already proposed better performance commitments than upper quartile.

We then derived consistent glide paths for each company's performance commitments in the first two years of the 2015-20 period using a linear interpolation between its business plan projection for 2014-15 and the 2017-18 performance commitment level.

Step 3b: Deadband adjustments

We set the penalty deadbands for 2015-16 and 2016-17 at the company's 2014-15 projected performance for those companies needing to catch up to the upper quartile. This means those companies will have to pay penalties if performance drops below their projected 2014-15 level in 2015-16 and 2016-17. We retained the company's own proposed deadband level in this period where it represented a more challenging target.

For companies already proposing to perform at or above upper quartile throughout 2015-20, we set the penalty deadband at the upper quartile threshold throughout 2015-20 to ensure the company would be penalised if it let its performance slip below the upper quartile. The exception to this was where a company had set its penalty deadband at a more challenging target than the historic upper quartile level.

For all companies, we set the reward deadband at the upper quartile threshold throughout 2015-20 or at the company's stated reward deadband level if this represented a more challenging target than the upper quartile level. This ensures that companies only earn rewards for performance equal to or better than the historic upper quartile.

Step 3c: Review of incentive ranges and rates

We have generally only intervened on companies' proposals for reward caps and penalty collars in order to maintain the company's proposed reward and penalty ranges given our interventions on performance commitment levels and deadbands.

Similarly we have not intervened to change companies' proposed incentive rates. This recognises that while some performance metrics may be comparable between companies for benchmarking purposes, the values that different companies' customers place on performance in these areas may vary. Thus, in situations where incentive rates appear low in comparison to other companies, we have generally intervened to ensure the incentives are more likely to be effective in driving behaviour towards upper quartile targets by adjusting reward caps and penalty collars to increase the reward and penalty ranges.

Step 3d: Review of performance commitment and incentive coverage

Where companies have not proposed a performance commitment or an associated financial incentive for the areas covered by the horizontal checks, we have introduced a financial incentive using company-specific information or, in the absence of such information, average data for water and sewerage companies and/or water only companies. This represents a specific application of the general approach described above to addressing coverage gaps for other incentives.

Step 3e: Remove normalisation to produce company-specific interventions

We based our comparative analysis on normalised comparators. To implement interventions to companies' proposed performance measures we converted normalised performance measures to reflected the basis on which the business plan proposals were made.

We recognise that the use of outcomes is innovative and that companies starting positions vary. We therefore propose a transition period of two years as described below.

For the first two years (2015-16 and 2016-17):

- we have intervened to set performance commitments on a linear glide path between the 2014-15 projected level and the upper quartile level. This two year glide path balances the need for a company to deliver the upper quartile level customers are paying for, with the challenges some companies might face in reaching this threshold;
- the penalty deadband is set at the projected outturn performance in 2014-15. This ensures penalties will apply for any performance deterioration below 2014-15 levels during this period;
- the reward deadband is set at the projected upper quartile threshold to ensure rewards can only be earned for outperformance beyond this level; and
- the reward caps and penalty collars are set to maintain the same incentive range as proposed by the company.

In the final three years (2017-18 to 2019-20):

- the performance commitment level is set at upper quartile;
- the reward and penalty deadbands are removed so that rewards and penalties apply for any performance variations away from the upper quartile; and
- the reward caps and penalty collars are set to maintain the same incentive range as proposed by the company.

Annex 2 Worked example – supply interruptions

Figure AA2.1 illustrates the impact of the type of interventions arising from our horizontal comparisons for a typical financial incentive, in this case Anglian Water's[19] incentive for supply interruptions. Specific proposals for each company can be found in the respective company specific appendices. The key features of the expanded section in figure AA2.1 are as follows.

- Details of Anglian Water's supply interruptions incentive as proposed in the June 2014 business plan are contained in the left hand column. Anglian Water's proposal was based on changes from the level achieved in 2012-13 to 2014-15. As we do not currently know what this level will be we used Anglian Water's outturn data for 2011-12 to 2013-14 as the basis for its proposal.

- Details of our interventions to apply between 2015-16 and 2016-17 are contained in the middle column.

- Details of our interventions to apply in 2017-18 to 2019-20 are contained in the right hand column.

As can be seen, our interventions adjust Anglian Water's PC down to historic sector upper quartile levels from the start of the 2017-18 financial year.

For the first two years of the 2015-20 period, the associated penalty deadband is set at the projected outturn value achieved in 2014-15. The impact of this proposed deadband change is to ensure penalties will apply for any performance deterioration below 2014-15 levels during this period, in line with our general principle.

[19] Anglian Water selected solely on the basis of its position in the alphabetical order of non-enhanced companies.

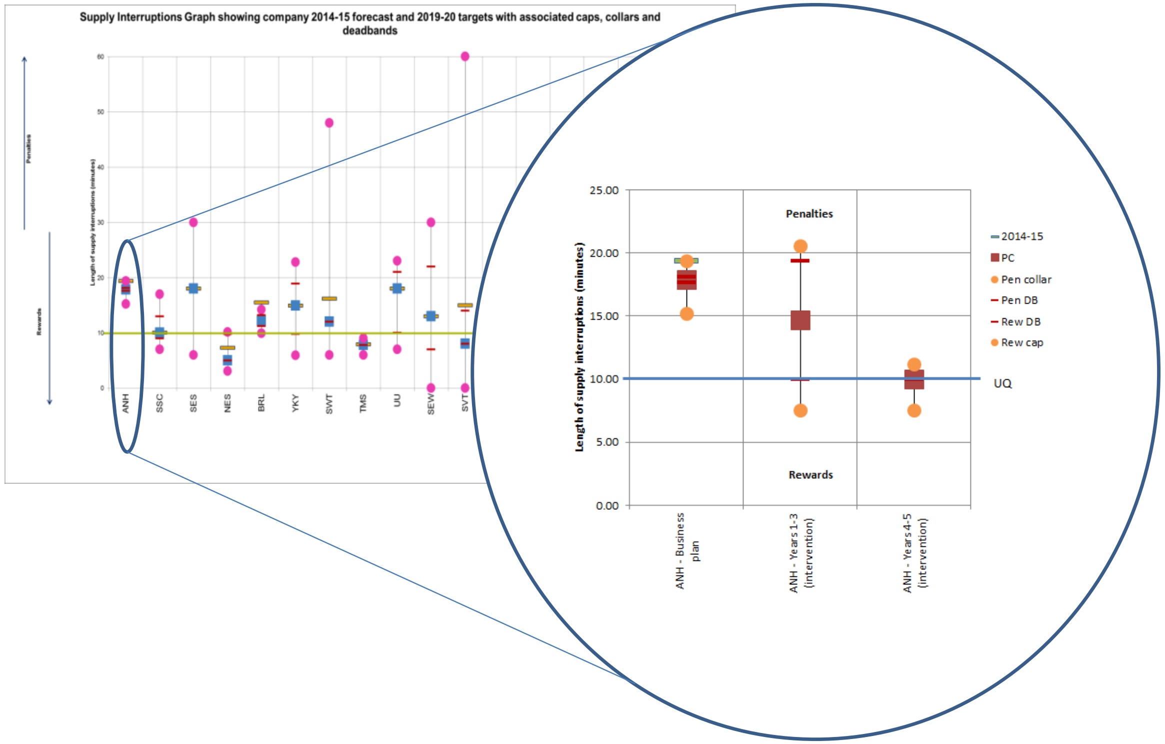
Similarly, in the first two years of 2015-20, the reward deadband is set at the historic sector upper quartile level to ensure rewards can only be earned for outperformance beyond this threshold, and not for catching up to historic industry upper quartile performance.

For the first two years of 2015-20, the associated reward caps and penalty collars have been set to maintain the same incentive range as proposed by the company given our deadband interventions – that is, the ranges between the reward deadband and cap, and the penalty deadband and collar remain constant.

In the final three years of 2015-20, we have removed the reward and penalty deadbands so that rewards and penalties apply for any performance variations away from the upper quartile.

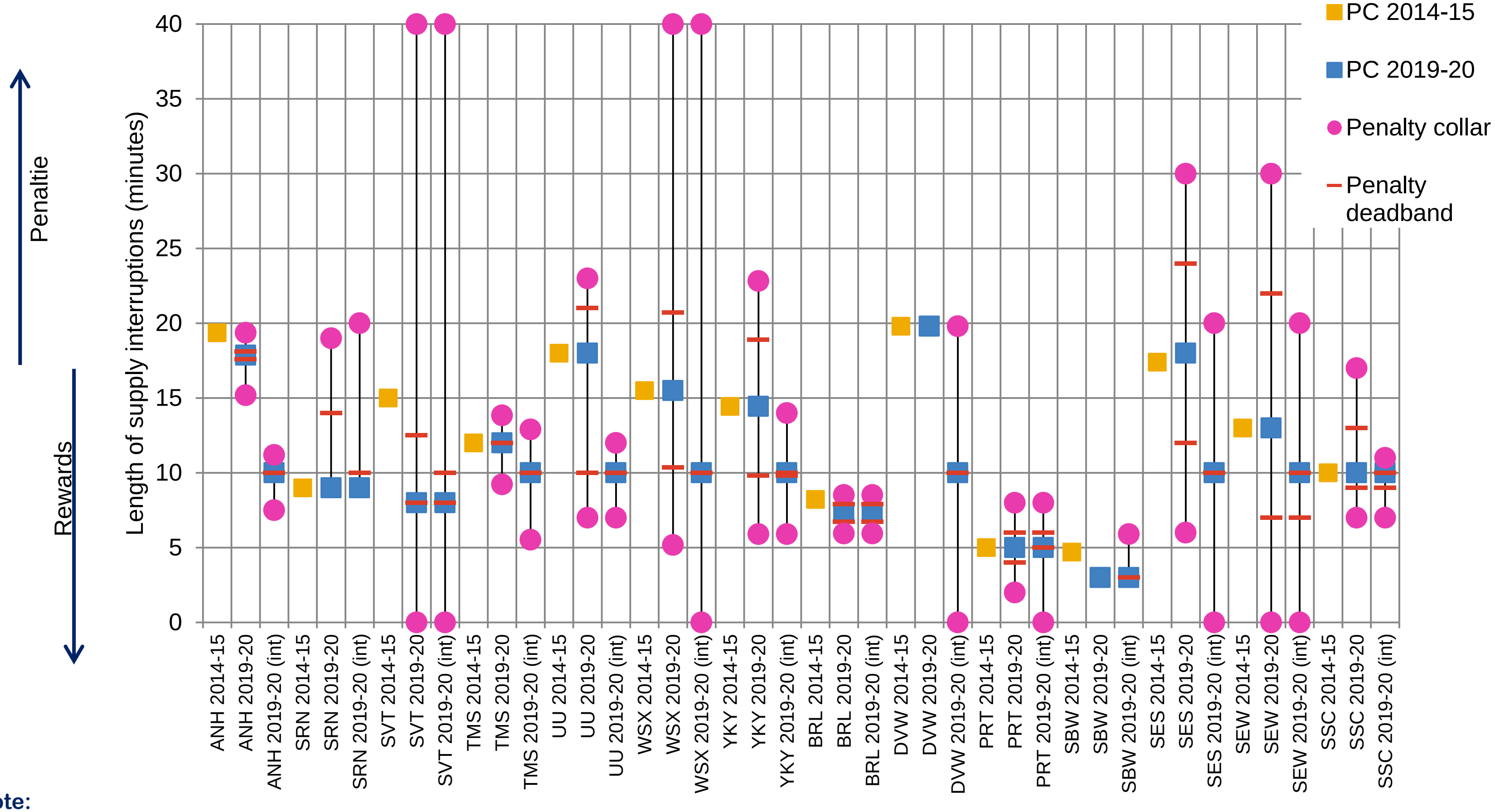
Similarly, the associated incentive ranges in the final three years of 2015-20 have been held constant to remain aligned with those in the company's business plan.

Figure AA2.1 Worked example illustrating proposed interventions for comparable incentives



Annex 3 Detailed horizontal checks for the six measures

Figure AA2.2 Performance commitments and incentive characteristics for supply interruptions



Note:

We have used normalised data for Thames Water (TMS), Wessex Water (WSX), Bristol Water (BRL) and Sembcorp Bournemouth Water (SBW). The nature of Sembcorp Bournemouth Water's measure means we need to apply a stricter penalty deadband than for other companies.
The upper quartile level of 10 minutes was calculated using data for all 18 companies, but the graph shows only the 14 companies receiving their draft determinations.

Figure AA2.3 Normalised PC and incentive characteristics for water quality contacts (discolouration, taste and odour)

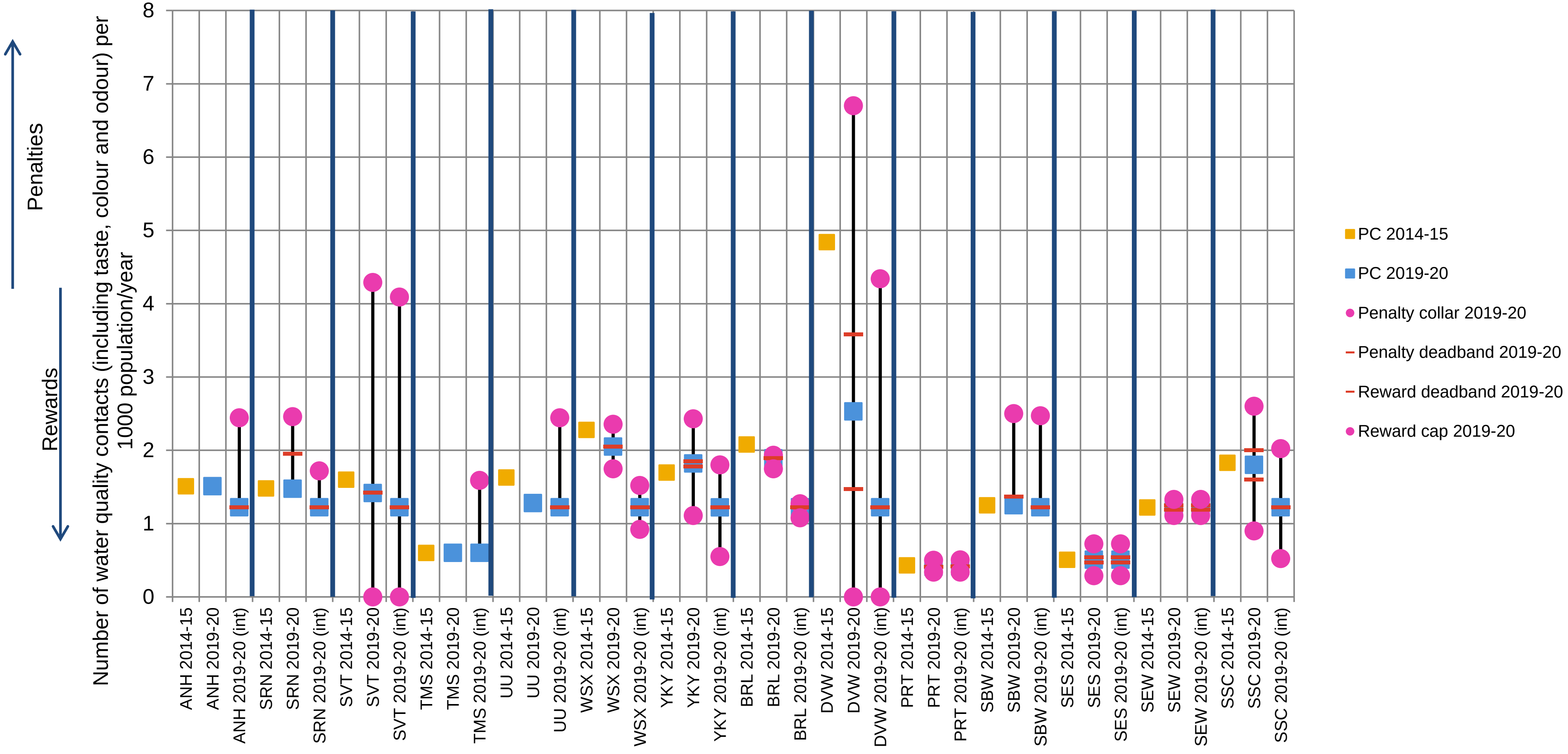
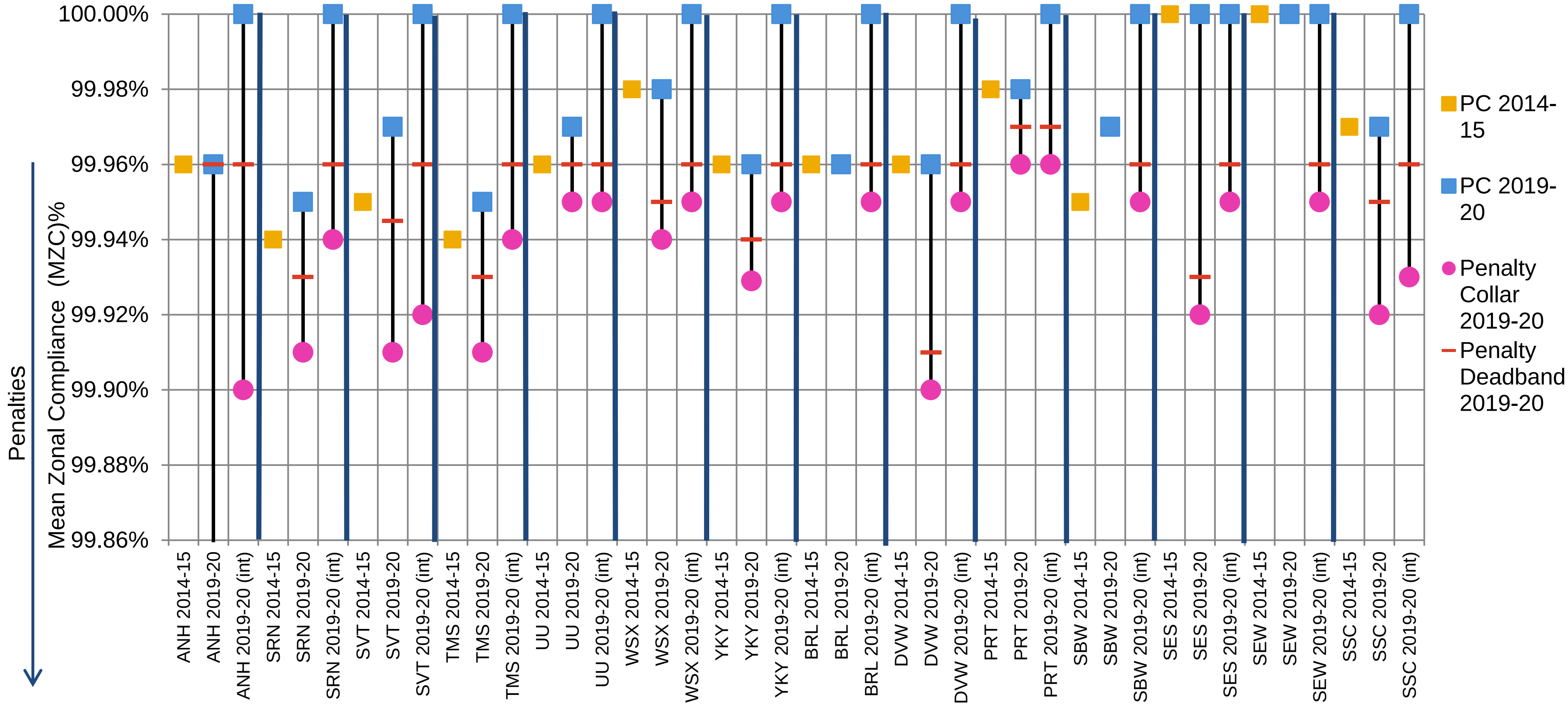


Figure AA2.4 Normalised PC and incentive characteristics for water quality compliance

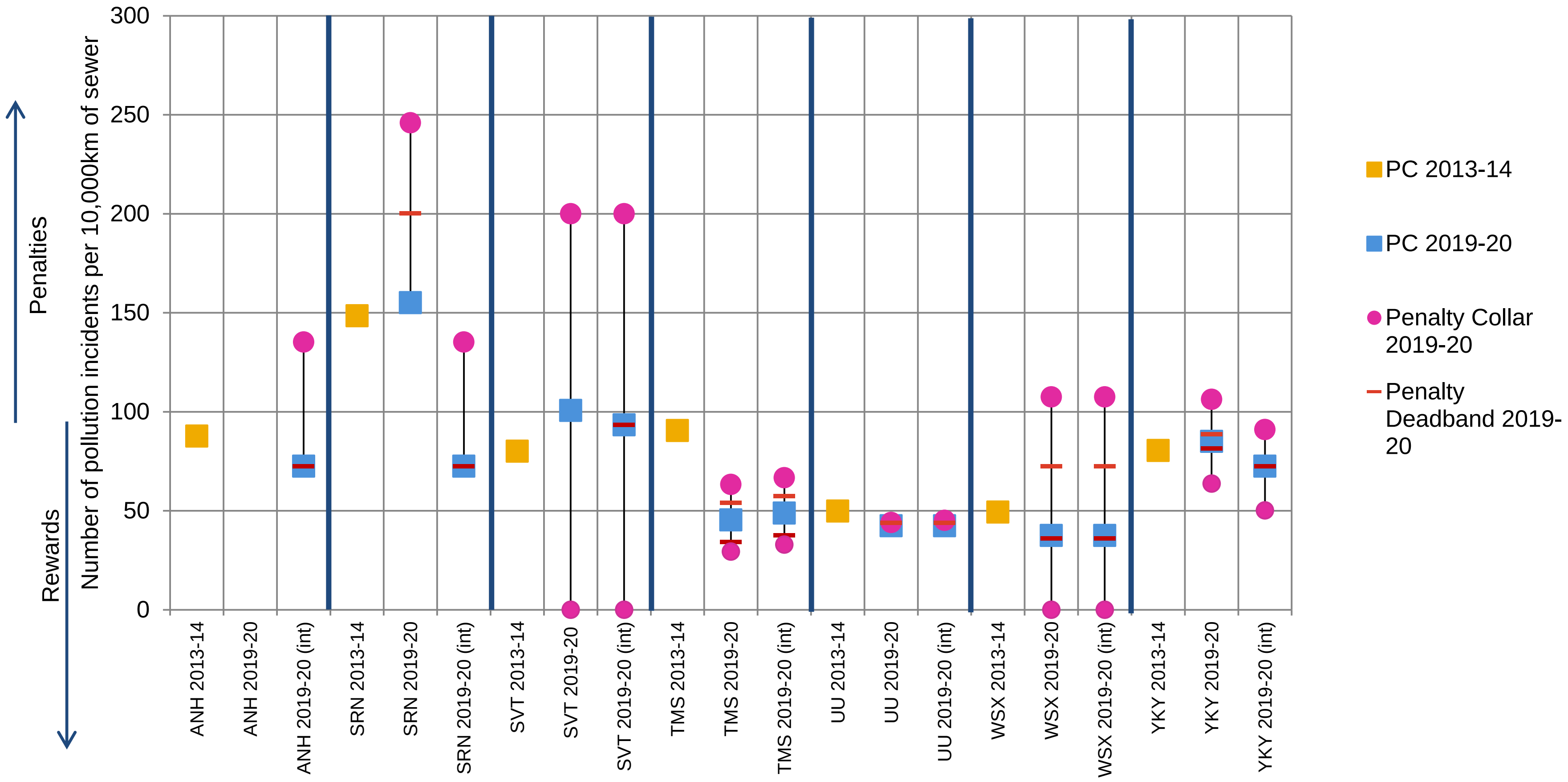


Note:

Penalties for Wessex Water (WSX), Bristol Water (BRL), Dee Valley Water (DVW), Portsmouth Water (PRT), Sembcorp Bournemouth Water (SBW), Sutton and East Surrey Water (SES) and South East Water (SEW) have single absolute penalties. This means the full incentive applies in any year where performance does not exceed 99.96% mean zonal compliance. This means these companies do not have a penalty collar. However, we have included one at 99.95% for demonstration purposes.

United Utilities (UU) have a water quality service index which incorporates water quality compliance and other measures. The graph demonstrates the changes we have made to the mean zonal compliance aspects of the water quality service index. United Utilities' company specific appendix demonstrates how these changes impact on the index.

Figure AA2.5 Normalised PC and incentive characteristics for pollution incidents



Note:

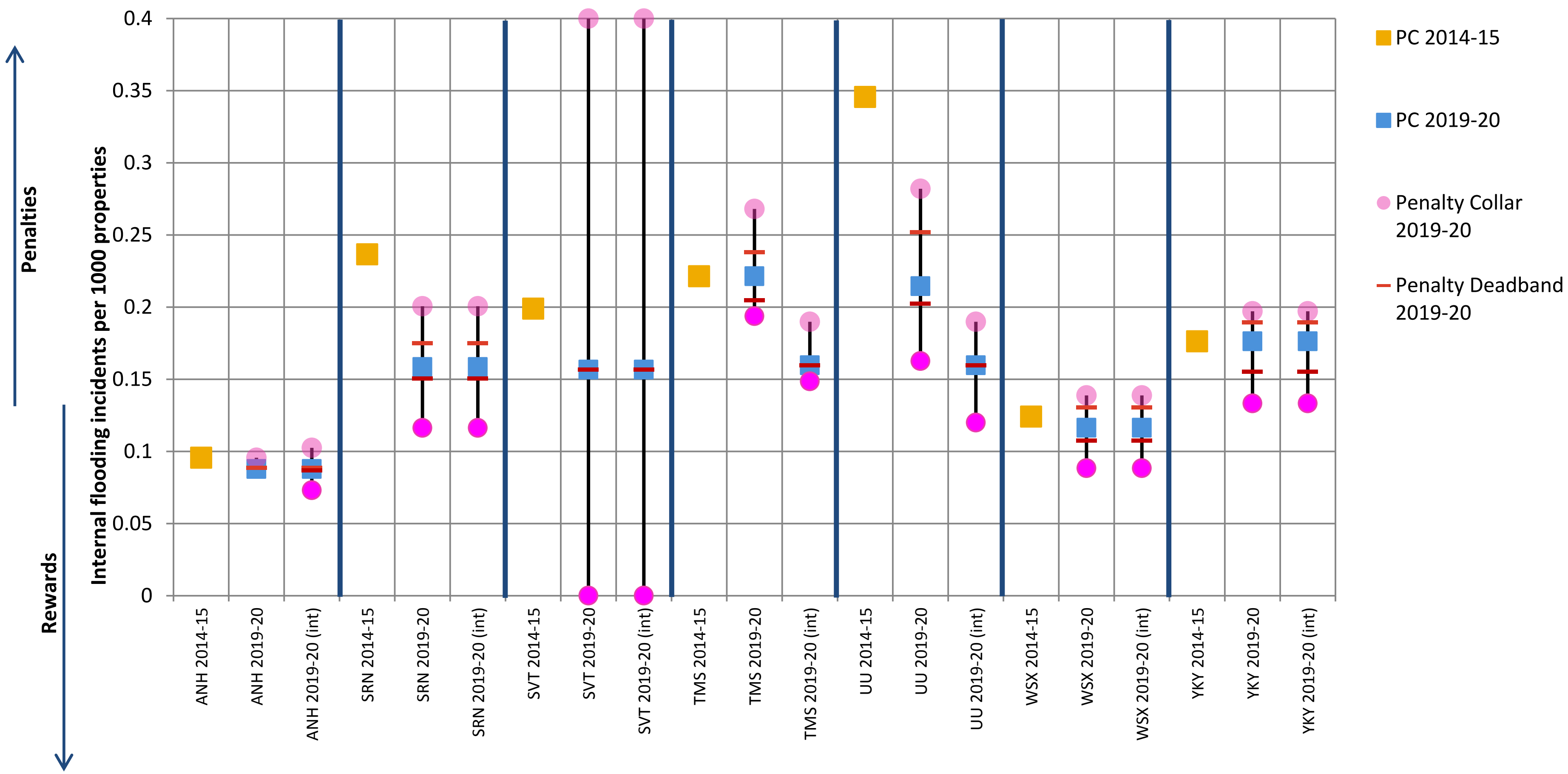
Anglian Water (ANH) did not propose a performance commitment for pollution incidents. Therefore the 2019-20 column for Anglian Water's proposals is blank.

Severn Trent Water's (SVT) performance commitment includes categories 3 and 4 incidents.

United Utilities (UU) have a wastewater pollution index which incorporates category 3 pollution incidents and other measures. The graph demonstrates the changes we have made to the category 3 pollution incidents aspects of the index. United Utilities' company specific appendix demonstrates how these changes impact on the index.

Wessex Water (WSX) proposed a penalty deadband of above average performance. We have assumed this aligns with upper quartile performance as this will represent average performance in 2019-20.

Figure AA2.6 Normalised PC and incentive characteristics for internal sewer flooding



Note:

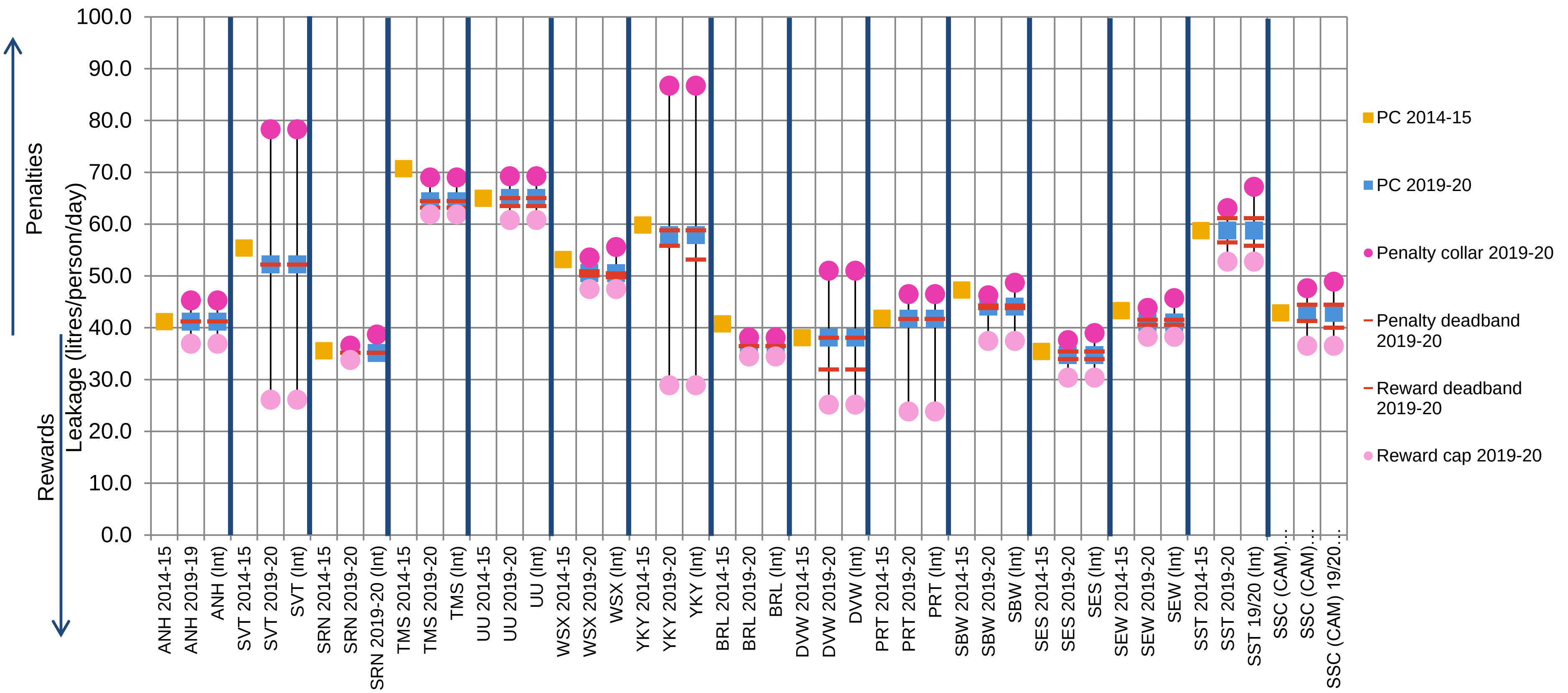
Horizontal checks on internal sewer flooding have been done using 2013-14 performance data on repeat sewer flooding KPI and sewer flooding other causes (SFOC). We have then applied the required catch up to companies' proposed performance commitments which use different measures. The 'internal flooding incidents per 1000 properties' is based on the assessment of 2013-14 performance and the 2014-15 and 2019-20 levels of performance are estimated relative to this level. Therefore the 2014-15 and

2019-20 performance levels do not necessarily align with the scale Severn Trent Water (SVT) does not propose penalty collars or reward caps. We have set the reward cap at zero incidents and the penalty collar 0.4 incidents per 1000 properties for illustrative purposes.

The graph shows a small reward range for Thames Water (TMS) following intervention. However, following bottom up analysis the rewards have been removed.

United Utilities (UU) have a sewer flooding index which incorporates internal sewer flooding incidents and other measures. The graph demonstrates the changes we have made to the internal sewer flooding incidents aspects of the index. United Utilities' company specific appendix demonstrates how these changes impact on the index.

Figure AA2.7 Normalised PC and incentive characteristics for leakage



Note: South Staffordshire Water has individual leakage targets for each of its two regions (SST and SSC (CAM)).

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